



Illinois Department of Transportation

To: Joseph E. Crowe Attn: District Four
From: John D. Baranzelli 
Subject: Pavement Design
Date: August 08, 2013

FAU Route 6584/6585 (Allen Road)
Section 105; (72-7HB)BY
Peoria County
From Townline Road to Van Winkle Way

We have reviewed the pavement selection for the above captioned section, which was submitted by email dated August 6, 2013. This project does not require alternate bidding. Life Cycle Cost Analysis favored a rigid pavement design. The approved pavement design is as follows:

Allen Road from Townline Road to Van Winkle Way (Pavement Construction)

8.75 inches of PCC Pavement (Jointed) With Tied PCC Curb & Gutter
12 inches of Aggregate Subgrade, Type A

If you have any questions, please contact Paul Niedernhofer at (217) 524-1651.

RECOMMENDATION

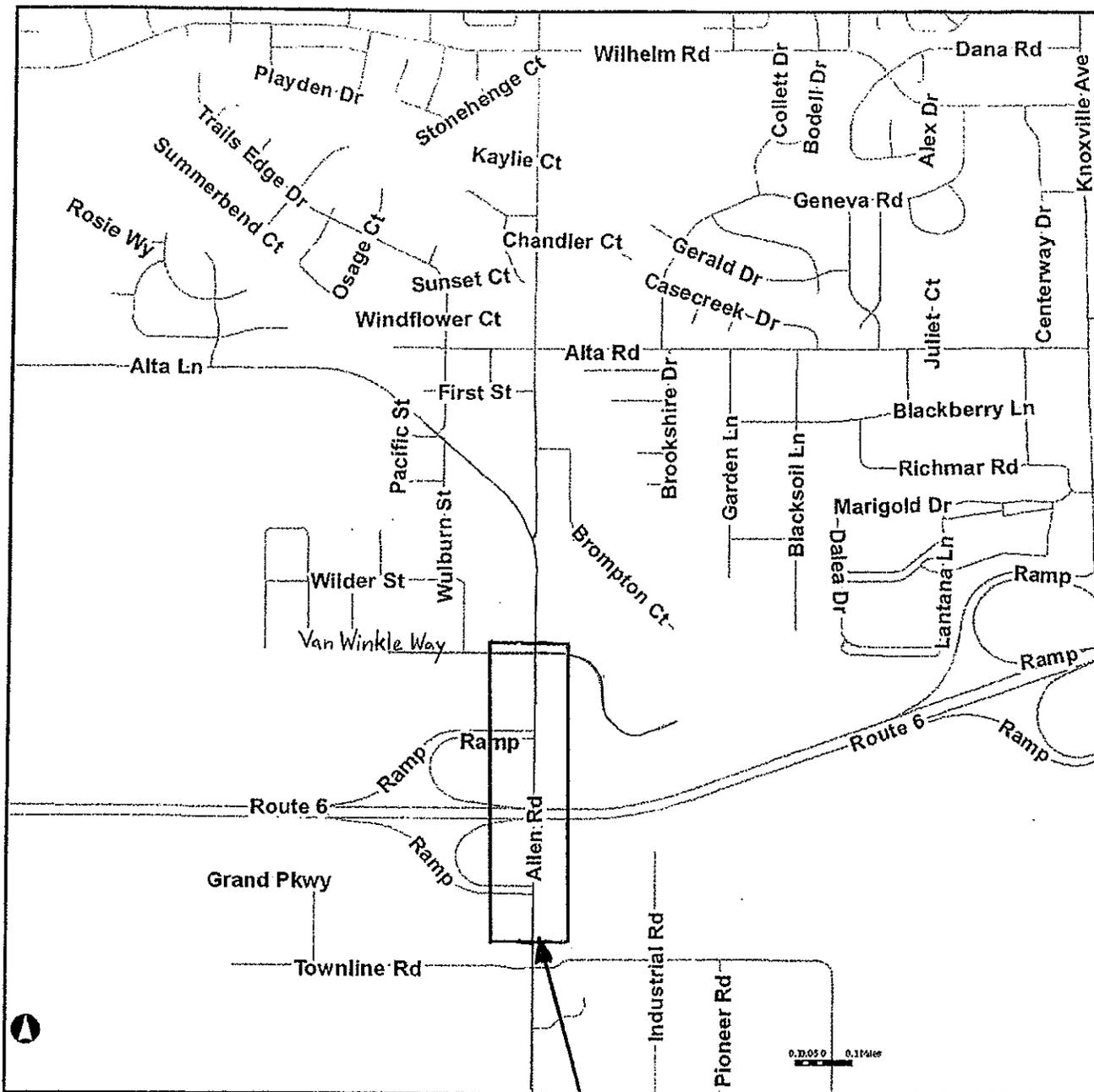
The proposed improvement includes reconstructing Allen Road from Townline Rd to Van Winkle Way in Peoria County. There is a total of 13,500 square yards of proposed pavement in this section.

The pavement design spreadsheet (see Exhibit C, Pavement Designs) provided two pavement designs for this project: HMA Pavement (Full Depth), 10" and PCC Pavement 8 ¾" (Jointed). Both options would be constructed on top of Aggregate Subgrade Improvement 12".

According to the construction cost analysis (see Exhibit D, Cost Analysis), the initial construction cost for the Full-Depth HMA Pavement 10" is \$833,273 and the initial construction cost for the Concrete Pavement (Jointed) 8.75" is \$780,300. According to the life-cycle cost analysis, the annual cost per mile for HMA Pavement (Full Depth), 10" is \$101,570, and the annual cost per mile for PCC Pavement 8 ¾" (Jointed) is \$85,441.

It is recommended to use PCC Pavement 8 ¾" (Jointed) on this project for two reasons. First, the life-cycle annual cost per mile for the HMA pavement is 18.9% greater than it is for the PCC pavement. Second, this project is an urban project requiring stage construction. The jointed PCC pavement will be easier to construct with the numerous stage construction joints that will be required.

Location Map



Centerline

Web Hosting Services Provided by Peoria County
Web Hosting Services Provided by Peoria County

Limits of proposed pavement

PROJECT AND TRAFFIC INPUTS						(Enter Data in Gray Shaded Cells)			
Route: FAU 6584 & 6585	Comments:								
Section: 105; (72-7HB)BY									
County: PEORIA	Design Date: 07/26/2013	R. Dotson	<-- BY						
Location: Allen Road from Townline to Van Winkle	Modify Date: 07/31/2013	K. Horst	<-- BY		ADT	Year			
					Current:	24,800	2012		
					Future:	29,231	2034		
Facility Type: Unmarked State Route	# of Lanes = 4								
Road Class: I			Structural Design Traffic						
Subgrade Support Rating (SSR): Poor			Minimum ADT	Actual ADT	Actual % of Total ADT	% of ADT in Design Lane			
Construction Year: 2014			PV = No Min	26,240	96.4%	P = 32%			
Design Period (DP) = 20 years			SU = No Min	525	1.9%	S = 45%			
			MU = No Min	452	1.7%	M = 45%			
			Struct. Design ADT = 27,217		(2024)				
TRAFFIC FACTOR CALCULATION									
FLEXIBLE PAVEMENT				RIGID PAVEMENT					
Cpv = 0.15				Cpv = 0.15					
Csu = 132.5				Csu = 143.81					
Cmu = 482.53				Cmu = 696.42					
TF flexible (Actual) = 2.61 (Actual ADT)				TF rigid (Actual) = 3.54 (Actual ADT)					
TF flexible (Min) = No Min (Min ADT Fig. 54-2.C)				TF rigid (Min) = No Min (Min ADT Fig. 54-2.C)					

NEW CONSTRUCTION / RECONSTRUCTION PAVEMENT DESIGN CALCULATIONS					
Full-Depth HMA Pavement			JPC Pavement		
Use TF flexible = 2.61			Use TF rigid = 3.54		
PG Grade Lower Binder Lifts = PG 64-22 (Fig. 53-4.R)			Edge Support = Tied Shoulder or C.&G.		
HMA Mixture Temp. = 76.5 deg. F (Fig. 54-5.C)			Rigid Pavt Thick. = 8.75 in. (Fig. 54-4.E)		
Design HMA Mixture Modulus (E _{HMA}) = 650 ksi (Fig. 54-5.D)					
Design HMA Strain (ε _{HMA}) = 91 (Fig. 54-5.E)			CRC Pavement		
Full Depth HMA Design Thickness = 10.00 in. (Fig. 54-5.F)			Use TF rigid = 3.54		
Limiting Strain Criterion Thickness = 15.25 in. (Fig. 54-5.I)			IBR value = 3		
Use Full-Depth HMA Thickness = 10.00 inches			CRCP Thickness = 7.50 in. (Fig. 54-4.M)		
TF MUST BE > 60 FOR CRCP					

RECONSTRUCTION ONLY (SUPPLEMENTAL) PAVEMENT DESIGN CALCULATIONS					
HMA Overlay of Rubblized PCC			Unbonded Concrete Overlay		
Use TF flexible = 2.61			Review 54-4.03 for limitations and special considerations.		
District = 3,4,5,6					
HMA Overlay Design Thickness = 7.50 in. (Fig. 54-5.U)			JPCP Thickness = NA inches		
CONTACT BMPR FOR ASSISTANCE					

DESIGN TABLES FROM BDE MANUAL CHAPTER 54 - PAVEMENT DESIGN							
Class I Roads 4 lanes or more Part of a future 4 lanes or more One-way Streets with ADT > 3500		Class II Roads 2 lanes with ADT > 2000 One way Street with ADT <= 3500		Class III Roads 2 Lanes (ADT 750 -2000)		Class IV Roads 2 Lanes (ADT < 750)	
		Min. Str. Design Traffic (Fig 54-2.C)					
Facility Type		PV	SU	MU		Class Table for One-Way Streets ADT Class 0 - 3500 II >3501 I	
Interstate or Supplemental Freeway		0	500	1500			
Other Marked State Route		0	250	750			
Unmarked State Route		No Min	No Min	No Min			
		Traffic Factor ESAL Coefficients				Class Table for 2 or 3 lanes (not future 4 lane & not one-way street) ADT Class 0 - 749 IV 750 - 2000 III >2000 II	
		Rigid (Fig. 54-4.C)		Flexible (Fig. 54-5.B)			
Class		Csu	Cmu	Csu	Cmu		
I		143.81	696.42	132.50	482.53		
II		135.78	567.21	112.06	385.44		
III		129.58	562.47	109.14	384.35		
IV		129.58	562.47	109.14	384.35		
Design Lane Distribution Factors For Structural Design Traffic (Fig. 54-2.B)							
		Rural			Urban		
Number of Lanes		P	S	M	P	S	M
1 Lane Ramp		100%	100%	100%	100%	100%	100%
2 or 3		50%	50%	50%	50%	50%	50%
4		32%	45%	45%	32%	45%	45%
6 or more		20%	40%	40%	8%	37%	37%

LIFE-CYCLE COST ANALYSIS: NEW CONSTRUCTION / RECONSTRUCTION

FULL-DEPTH HMA PAVEMENT

Standard Design

ROUTE FAU 6584 & 6585
 SECTION 105; (72-7HB)BY
 COUNTY PEORIA
 LOCATION Allen Road from Townline to Van Winkle

FACILITY TYPE NON-INTERSTATE

PROJECT LENGTH 2510 FT ==> 0.48 Miles
 # OF CENTERLINES 2 CL
 # OF LANES 4 LANES
 # OF EDGES 4 EP
 LANE WIDTH - AVERAGE 12 FT
 SHOULDER WIDTH HMA Inside 0 FT
 HMA Outside 0 FT

PAVEMENT THICKNESS (FLEXIBLE) 10.00 IN 15.25 IN MAX
 SHOULDER THICKNESS 8.00 IN
 POLICY OVERLAY THICKNESS 2.25 IN

FLEX PAVEMENT	TRAFFIC FACTORS	MINIMUM	ACTUAL	USE
		No Min	2.60	No Min

HMA COST PER TON	UNIT PRICE
HMA SURFACE	\$96.67 / TON
HMA TOP BINDER	\$86.93 / TON
HMA LOWER BINDER	\$79.90 / TON
HMA BINDER (LEVELING)	\$86.93 / TON
HMA SHOULDER	\$72.00 / TON

INITIAL COSTS

ITEM	THICKNESS	100% QUANTITY	UNIT	UNIT PRICE	COST
HMA PAVEMENT (FULL-DEPTH)	(10.00")	13,500	13,500 SQ YD	\$49.09 / SQ YD	\$0
HMA SURFACE COURSE	(2.00")	13,500	13,500 SQ YD	\$10.90 / SQ YD	\$147,180 ~
HMA TOP BINDER COURSE	(2.25")	13,500	13,500 SQ YD	\$11.19 / SQ YD	\$151,077 ~
HMA LOWER BINDER COURSE	(5.75")	13,500	13,500 SQ YD	\$27.00 / SQ YD	\$364,511 ~
HMA SHOULDER	(8.00")	0	0 TONS	\$72.00 / TON	\$0 ~
CURB & GUTTER		0	0 LIN FT	\$30.00 / LIN FT	\$0
SUBBASE GRAN MATL TY C (TONS)		0	0 TONS	\$25.00 / TON	\$0
IMPROVED SUBGRADE: Aggregate		13,500	13,500 SQ YD	\$12.63 / SQ YD	\$170,505
Reserved For User Supplied Item		0	0 UNITS	\$0.00 / UNITS	\$0
Reserved For User Supplied Item		0	0 UNITS	\$0.00 / UNITS	\$0
PAVEMENT REMOVAL		0	0 SQ YD	\$0.00 / SQ YD	\$0
SHOULDER REMOVAL		0	0 SQ YD	\$0.00 / SQ YD	\$0

Note: * Denotes User Supplied Quantity
 FLEXIBLE CONSTRUCTION INITIAL COST \$833,273
 FLEXIBLE CONSTRUCTION ANNUAL COST PER MILE \$71,491

MAINTENANCE COSTS:

ITEM	THICKNESS	MATERIAL	UNIT COST
ROUTINE MAINTENANCE ACTIVITY			\$0.00 LANE-MILE / YEAR
HMA OVERLAY PVMT SURF	(2.00")	Surface Mix	\$10.90 / SQ YD
HMA OVERLAY PVMT	(2.25")	Surface Mix	\$11.86 / SQ YD
HMA SURFACE MIX	(1.50")	Surface Mix	\$8.16 / SQ YD
HMA BINDER MIX	(0.75")	Leveling Binder Mix	\$3.70 / SQ YD
HMA OVERLAY SHLD (Year 30)	(2.25")	Shoulder Mix	\$9.07 / SQ YD
HMA OVERLAY SHLD	(2.00")	Shoulder Mix	\$8.06 / SQ YD
MILLING (2.00 IN)			\$2.00 / SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill Surf)		Surface Mix	\$79.83 / SQ YD
PARTIAL DEPTH SHLD PATCH (Mill & Fill Surf)		Shoulder Mix	\$77.06 / SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill +2.00")		Leveling Binder Mix	\$78.74 / SQ YD
PARTIAL DEPTH SHLD PATCH (Mill & Fill +2.00")		Shoulder Mix	\$77.06 / SQ YD
LONGITUDINAL SHOULDER JOINT ROUT & SEAL			\$2.00 / LIN FT
CENTERLINE JOINT ROUT & SEAL			\$2.00 / LIN FT
RANDOM / THERMAL CRACK ROUT & SEAL (100% Rehab = 110.00' / Station / Lane)			\$2.00 / LIN FT

FLEXIBLE TOTAL LIFE-CYCLE COST \$1,183,862
 FLEXIBLE TOTAL ANNUAL COST PER MILE \$101,570

FULL-DEPTH HMA PAVEMENT
HMA OVERLAY OF RUBBLIZED PCC PAVEMENT
Figure 54-7.C
STANDARD DESIGN

MAINTENANCE COSTS:	ITEM	%	QUANTITY	UNIT	UNIT COST	COST	PRESENT WORTH	
YEAR 5								
	LONG SHLD JT R&S	100.00%	10,040	LIN FT	\$2.00	\$20,080		
	CNTR LINE JOINT R&S	100.00%	5,020	LIN FT	\$2.00	\$10,040		
	RNDM / THRM CRACK R&S	50.00%	5,522	LIN FT	\$2.00	\$11,044		
	PD PVMT PATCH M&F SURF	0.10%	14	SQ YD	\$79.83	\$1,118		
	PWFn =	0.8626		PW =	0.8626 X	\$42,282	\$36,473	
YEAR 10								
	LONG SHLD JT R&S	100.00%	10,040	LIN FT	\$2.00	\$20,080		
	CNTR LINE JOINT R&S	100.00%	5,020	LIN FT	\$2.00	\$10,040		
	RNDM / THRM CRACK R&S	50.00%	5,522	LIN FT	\$2.00	\$11,044		
	PD PVMT PATCH M&F SURF	0.50%	68	SQ YD	\$79.83	\$5,428		
	PWFn =	0.7441		PW =	0.7441 X	\$46,592	\$34,669	
YEAR 15								
	MILL PVMT & SHLD 2.00"	100.00%	13,500	SQ YD	\$2.00	\$27,000		
	PD PVMT PATCH M&F ADD'L 2.00"	1.00%	135	SQ YD	\$78.74	\$10,629		
	HMA OVERLAY PVMT 2.00"	100.00%	13,500	SQ YD	\$10.90	\$147,180		
	HMA OVERLAY SHLD 2.00 "	100.00%	0	SQ YD	\$8.06	\$0		
	PWFn =	0.6419		PW =	0.6419 X	\$184,809	\$118,622	
YEAR 20								
	LONG SHLD JT R&S	100.00%	10,040	LIN FT	\$2.00	\$20,080		
	CNTR LINE JOINT R&S	100.00%	5,020	LIN FT	\$2.00	\$10,040		
	RNDM / THRM CRACK R&S	50.00%	5,522	LIN FT	\$2.00	\$11,044		
	PD PVMT PATCH M&F SURF	0.10%	14	SQ YD	\$79.83	\$1,118		
	PWFn =	0.5537		PW =	0.5537 X	\$42,282	\$23,411	
YEAR 25								
	LONG SHLD JT R&S	100.00%	10,040	LIN FT	\$2.00	\$20,080		
	CNTR LINE JOINT R&S	100.00%	5,020	LIN FT	\$2.00	\$10,040		
	RNDM / THRM CRACK R&S	50.00%	5,522	LIN FT	\$2.00	\$11,044		
	PD PVMT PATCH M&F SURF	0.50%	68	SQ YD	\$79.83	\$5,428		
	PWFn =	0.4776		PW =	0.4776 X	\$46,592	\$22,253	
HMA_SD								
YEAR 30 NON-INTERSTATE								
	MILL PVMT & SHLD 2.00"	100.00%	13,500	SQ YD	\$2.00	\$27,000		
	PD PVMT PATCH M&F ADD'L 2.00"	2.00%	270	SQ YD	\$78.74	\$21,259		
	PD SHLD PATCH M&F ADD'L 2.00"	1.00%	0	SQ YD	\$77.06	\$0		
	HMA OVERLAY PVMT 2.25 "	100.00%	13,500	SQ YD	\$11.86	\$160,126		
	HMA OVERLAY SHLD 2.25 "	100.00%	0	SQ YD	\$9.07	\$0		
	PWFn =	0.4120		PW =	0.4120 X	\$208,385	\$85,852	
YEAR 35								
	LONG SHLD JT R&S	100.00%	10,040	LIN FT	\$2.00	\$20,080		
	CNTR LINE JOINT R&S	100.00%	5,020	LIN FT	\$2.00	\$10,040		
	RNDM / THRM CRACK R&S	50.00%	5,522	LIN FT	\$2.00	\$11,044		
	PD PVMT PATCH M&F SURF	0.10%	14	SQ YD	\$79.83	\$1,118		
	PWFn =	0.3554		PW =	0.3554 X	\$42,282	\$15,026	
YEAR 40								
	LONG SHLD JT R&S	100.00%	10,040	LIN FT	\$2.00	\$20,080		
	CNTR LINE JOINT R&S	100.00%	5,020	LIN FT	\$2.00	\$10,040		
	RNDM / THRM CRACK R&S	50.00%	5,522	LIN FT	\$2.00	\$11,044		
	PD PVMT PATCH M&F SURF	0.50%	68	SQ YD	\$79.83	\$5,428		
	PWFn =	0.3066		PW =	0.3066 X	\$46,592	\$14,283	
							\$350,589	
ROUTINE MAINTENANCE ACTIVITY				1.90 Lane Miles	0.00	\$0	\$0	
							MAINTENANCE LIFE-CYCLE COST	\$350,589
45	YEAR LIFE CYCLE	CRFn = 0.0407852			MAINTENANCE ANNUAL COST PER MILE		\$30,079	

PCC PAVEMENT

JPCP

ROUTE **FAU 6584 & 6585**
 SECTION **105; (72-7HB)BY**
 COUNTY **PEORIA**
 LOCATION **Allen Road from Townline to Van Winkle**

FACILITY TYPE **NON-INTERSTATE**

PROJECT LENGTH **2510 FT ==> 0.48 Miles**
 # OF CENTERLINES **2 CL**
 # OF LANES **4 LANES**
 # OF EDGES **4 EP**
 LANE WIDTH - AVERAGE **12 FT**
 SHOULDER WIDTH **0 FT**
 PCC Inside **0 FT**
 PCC Outside **0 FT**

PAVEMENT THICKNESS (RIGID) **JPCP 8.75 IN TIED SHLD**
 SHOULDER THICKNESS **8.75 IN**

POLICY OVERLAY THICKNESS **2.50 IN**

RIGID PAVEMENT	TRAFFIC FACTORS	MINIMUM	ACTUAL	USE
		No Min	3.53	No Min
Worksheet Construction Type is	New Construction		The Pavement Type is	JPCP

INITIAL COSTS

ITEM	THICKNESS	100% QUANTITY	UNIT	UNIT PRICE	COST
JPC PAVEMENT	(8.75")	13,500	SQ YD *	\$45.17 /SQ YD	\$609,795
PAVEMENT REINFORCEMENT		0	SQ YD	\$22.00 /SQ YD	\$0
STABILIZED SUBBASE	(4.00")	0	SQ YD *	\$9.89 /SQ YD	\$0
PCC SHOULDERS	(8.75" to 8.75")	0	SQ YD *	\$40.00 /SQ YD	\$0
CURB & GUTTER		0	LIN FT	\$30.00 /LIN FT	\$0
SUBBASE GRAN MATL TY C	(~ 0.00")	0	TONS	\$25.00 /TON	\$0
IMPROVED SUBGRADE:	Aggregate	13,500	SQ YD *	\$12.63 /SQ YD	\$170,505
Reserved For User Supplied Item		0	UNITS	\$0.00 /UNITS	\$0
Reserved For User Supplied Item		0	UNITS	\$0.00 /UNITS	\$0
PAVEMENT REMOVAL		0	SQ YD *	\$0.00 /SQ YD	\$0
SHOULDER REMOVAL		0	SQ YD	\$0.00 /SQ YD	\$0

Note: * Denotes User Supplied Quantity

RIGID CONSTRUCTION INITIAL COST	\$780,300
RIGID CONSTRUCTION ANNUAL COST PER MILE	\$66,946

MAINTENANCE COSTS:

ITEM	THICKNESS	MATERIAL	UNIT COST
ROUTINE MAINTENANCE ACTIVITY			\$0.00 /LANE-MILE /YEAR
HMA POLICY OVERLAY	(2.50")		\$13.10 /SQ YD
HMA POLICY OVERLAY PVMT	(2.50")		\$13.10 /SQ YD
HMA SURFACE MIX	(1.50")	Surface Mix	\$8.16 /SQ YD
HMA BINDER MIX	(1.00")	aling Binder Mix	\$4.94 /SQ YD
HMA POLICY OVERLAY SHLD	(2.50")	Shoulder Mix	\$10.08 /SQ YD
CLASS A PAVEMENT PATCHING			\$195.00 /SQ YD
CLASS B PAVEMENT PATCHING			\$150.00 /SQ YD
CLASS C SHOULDER PATCHING			\$145.00 /SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill HMA Surf)		Surface Mix	\$77.12 /SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill HMA 2.50")		Surface Mix	\$82.53 /SQ YD
LONGITUDINAL SHOULDER JOINT ROUT & SEAL			\$2.00 /LIN FT
CENTERLINE JOINT ROUT & SEAL			\$2.00 /LIN FT
REFLECTIVE TRANSVERSE CRACK ROUT & SEAL			\$2.00 /LIN FT
RANDOM CRACK ROUT & SEAL	(100% Rehab = 100.00' / Station / Lane)		\$2.00 /LIN FT

RIGID TOTAL LIFE-CYCLE COST	\$995,869
RIGID TOTAL ANNUAL COST PER MILE	\$85,441

JOINTED PLAIN CONCRETE PAVEMENT
UNBONDED JOINTED PLAIN CONCRETE OVERLAY
Figure 54-7.A

MAINTENANCE COSTS:	ITEM	%	QUANTITY	UNIT	UNIT COST	COST	PRESENT WORTH	
YEAR 10	PAVEMENT PATCH CLASS B							
		0.10%	14	SQ YD	\$150.00	\$2,100		
		PWFn = 0.7441			PW = 0.7441 X	\$2,100	\$1,563	
YEAR 15	PAVEMENT PATCH CLASS B							
		0.20%	27	SQ YD	\$150.00	\$4,050		
		PWFn = 0.6419			PW = 0.6419 X	\$4,050	\$2,600	
YEAR 20	PAVEMENT PATCH CLASS B							
		2.00%	270	SQ YD	\$150.00	\$40,500		
	SHOULDER PATCH CLASS C							
		0.50%	0	SQ YD	\$145.00	\$0		
	LONGITUDINAL SHLD JT R&S							
		100.00%	10,040	LIN FT	\$2.00	\$20,080		
	CENTERLINE JT R&S							
		100.00%	5,020	LIN FT	\$2.00	\$10,040		
		PWFn = 0.5537			PW = 0.5537 X	\$70,620	\$39,101	
YEAR 25	PAVEMENT PATCH CLASS B							
		3.00%	405	SQ YD	\$150.00	\$60,750		
	SHOULDER PATCH CLASS C							
		1.00%	0	SQ YD	\$145.00	\$0		
		PWFn = 0.4776			PW = 0.4776 X	\$60,750	\$29,015	
YEAR 30	NON-INTERSTATE							
	PAVEMENT PATCH CLASS B							
		4.00%	540	SQ YD	\$150.00	\$81,000		
	SHOULDER PATCH CLASS C							
		1.50%	0	SQ YD	\$145.00	\$0		
	HMA POLICY OVERLAY 2.5" (PVMT)							
		100.00%	13,500	SQ YD	\$13.10	\$176,827		
	HMA POLICY OVERLAY 2.5" (SHLD)							
		100.00%	0	SQ YD	\$10.08	\$0		
		PWFn = 0.4120			PW = 0.4120 X	\$257,827	\$106,221	
YEAR 35	NON-INTERSTATE							
	LONGITUDINAL SHLD JT R&S							
		100.00%	10,040	LIN FT	\$2.00	\$20,080		
	CENTERLINE JT R&S							
		100.00%	5,020	LIN FT	\$2.00	\$10,040		
	RANDOM CRACK R&S							
		50.00%	5,020	LIN FT	\$2.00	\$10,040		
	REFLECTIVE TRANSVERSE CRACK R&S							
		40.00%	3,206	LIN FT	\$2.00	\$6,412		
	PD PVMT PATCH M&F HMA 2.50"							
		0.10%	14	SQ YD	\$82.53	\$1,155		
		PWFn = 0.3554			PW = 0.3554 X	\$47,727	\$16,961	
YEAR 40	NON-INTERSTATE							
	PAVEMENT PATCH CLASS B							
		0.50%	68	SQ YD	\$150.00	\$10,200		
	LONGITUDINAL SHLD JT R&S							
		100.00%	10,040	LIN FT	\$2.00	\$20,080		
	CENTERLINE JT R&S							
		100.00%	5,020	LIN FT	\$2.00	\$10,040		
	REFLECTIVE TRANSVERSE CRACK R&S							
		60.00%	4,810	LIN FT	\$2.00	\$9,620		
	RANDOM CRACK R&S							
		50.00%	5,020	LIN FT	\$2.00	\$10,040		
	PD PVMT PATCH M&F HMA 2.50"							
		0.50%	68	SQ YD	\$82.53	\$5,612		
		PWFn = 0.3066			PW = 0.3066 X	\$65,592	\$20,108	
							\$215,569	
	ROUTINE MAINTENANCE ACTIVITY				1.90 Lane Miles	\$0.00	\$0	\$0
	MAINTENANCE LIFE-CYCLE COST						\$215,569	
45	YEAR LIFE CYCLE		CRFn = 0.0407852	MAINTENANCE ANNUAL COST PER MILE		\$18,495		

LIFE-CYCLE COST ANALYSIS: NEW DESIGN

Calculated / Revised : 7/31/13 1:54 PM

			JPCP	HMA
CONSTRUCTION	INITIAL COST	PRESENT WORTH	\$780,300	\$833,273
		ANNUAL COST PER MILE	\$66,946	\$71,491
MAINTENANCE	LIFE-CYCLE COST	PRESENT WORTH	\$215,569	\$350,589
		ANNUAL COST PER MILE	\$18,495	\$30,079
TOTAL	LIFE-CYCLE COST	PRESENT WORTH	\$995,869	\$1,183,862
		ANNUAL COST PER MILE	\$85,441	\$101,570

LIFE-CYCLE COST ANALYSIS: FINAL SUMMARY

LOWEST COST OPTION	=====>	JPCP	\$85,441	
OTHER OPTIONS (LOWEST TO HIGHEST):	TYPE / PERCENTAGE	HMA	\$101,570	18.9%