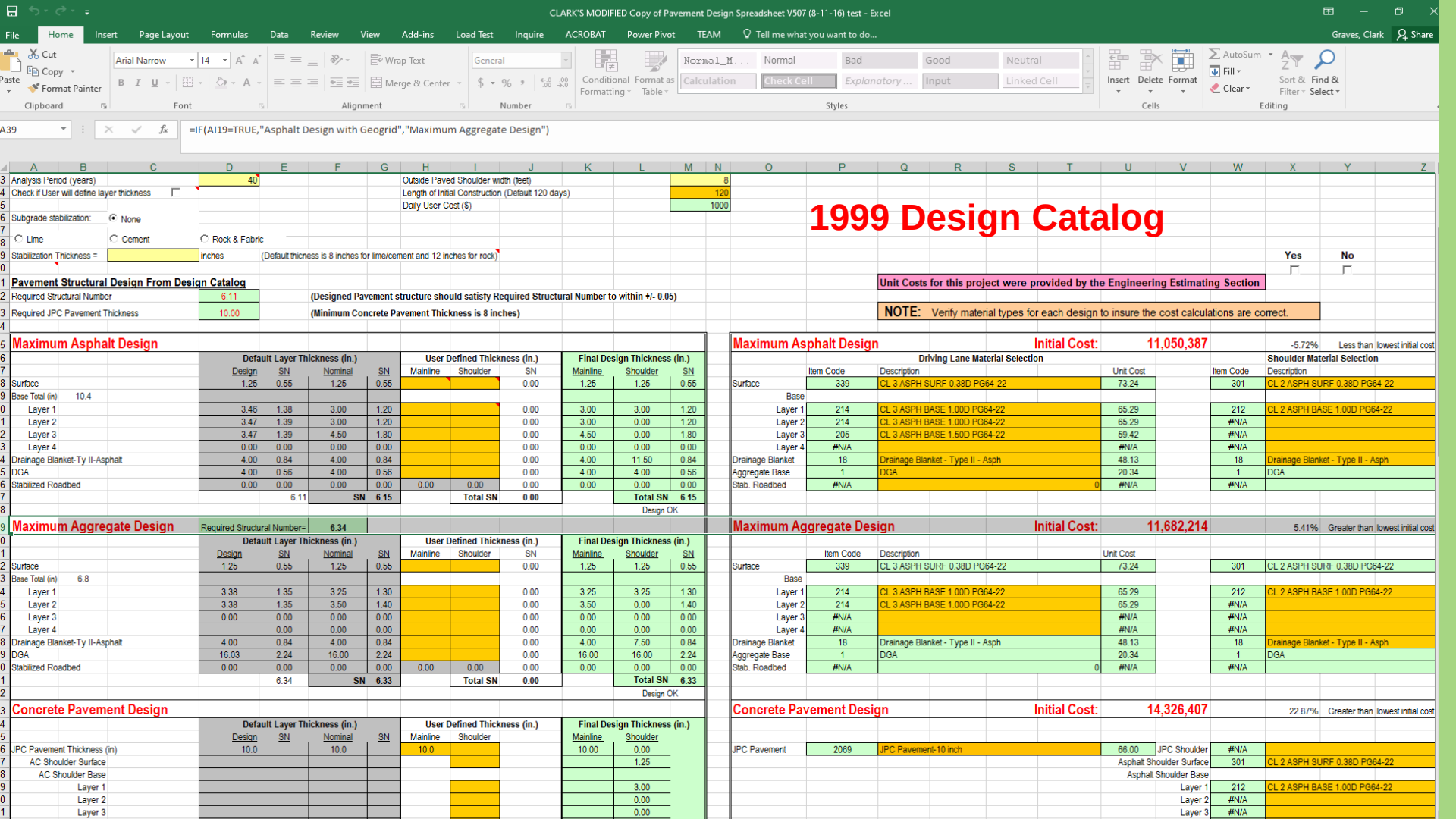
KYTC Online Pavement Policies & Design Program

Kentucky Pavement Design History

- Mechanistic-Empirical Design Procedure
- Developed Started in the 1940’s, Last Major Revision 1981
- Based on Mechanistic Analysis and Field Experience
- Design Catalog Developed in 1999, Excel Based
- Web Based Catalog Developed based on PaveME Processes 2018

1999 Design Catalog

- Developed Using 1981 Kentucky Pavement Design Process, 1/3 AC and 2/3 granular base designs
- Thickness developed for range of traffic levels and subgrade strength, design table developed
- Converted to AASHTO Structural Number for ease of use, using standard layer coefficients (0.4, 0.44, 0.14, etc)
- Several Levels of Conservatism



Analysis Period (years)	40
Check if User will define layer thickness	☐
Subgrade stabilization:	◉ None
○ Lime ○ Cement ○ Rock & Fabric	
Stabilization Thickness =	inches (Default thicness is 8 inches for lime/cement and 12 inches for rock)
Outside Paved Shoulder width (feet)	8
Length of Initial Construction (Default 120 days)	120
Daily User Cost ($)	1000

Pavement Structural Design From Design Catalog

Required Structural Number	6.11
Required JPC Pavement Thickness	10.00

(Designed Pavement structure should satisfy Required Structural Number to within +/- 0.05)

(Minimum Concrete Pavement Thickness is 8 inches)

1999 Design Catalog

Yes ☐ No ☐

Unit Costs for this project were provided by the Engineering Estimating Section

NOTE: Verify material types for each design to insure the cost calculations are correct.

Maximum Asphalt Design

	Default Layer Thickness (in.) Design	SN	Nominal	SN	User Defined Thickness (in.) Mainline	Shoulder	SN	Final Design Thickness (in.) Mainline	Shoulder	SN
Surface	1.25	0.55	1.25	0.55			0.00	1.25	1.25	0.55
Base Total (in) 10.4										
Layer 1	3.46	1.38	3.00	1.20			0.00	3.00	3.00	1.20
Layer 2	3.47	1.39	3.00	1.20			0.00	3.00	0.00	1.20
Layer 3	3.47	1.39	4.50	1.80			0.00	4.50	0.00	1.80
Layer 4	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Drainage Blanket-Ty II-Asphalt	4.00	0.84	4.00	0.84			0.00	4.00	11.50	0.84
DGA	4.00	0.56	4.00	0.56			0.00	4.00	4.00	0.56
Stabilized Roadbed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6.11	SN	6.15			Total SN	0.00		Total SN	6.15
									Design OK	

Maximum Asphalt Design Initial Cost: 11,050,387 -5.72% Less than lowest initial cost

	Driving Lane Material Selection Item Code	Description	Unit Cost	Shoulder Material Selection Item Code	Description
Surface	339	CL 3 ASPH SURF 0.38D PG64-22	73.24	301	CL 2 ASPH SURF 0.38D PG64-22
Base					
Layer 1	214	CL 3 ASPH BASE 1.00D PG64-22	65.29	212	CL 2 ASPH BASE 1.00D PG64-22
Layer 2	214	CL 3 ASPH BASE 1.00D PG64-22	65.29	#N/A	
Layer 3	205	CL 3 ASPH BASE 1.50D PG64-22	59.42	#N/A	
Layer 4	#N/A		#N/A	#N/A	
Drainage Blanket	18	Drainage Blanket - Type II - Asph	48.13	18	Drainage Blanket - Type II - Asph
Aggregate Base	1	DGA	20.34	1	DGA
Stab. Roadbed	#N/A	0	#N/A	#N/A	

Maximum Aggregate Design

Required Structural Number= 6.34

	Default Layer Thickness (in.) Design	SN	Nominal	SN	User Defined Thickness (in.) Mainline	Shoulder	SN	Final Design Thickness (in.) Mainline	Shoulder	SN
Surface	1.25	0.55	1.25	0.55			0.00	1.25	1.25	0.55
Base Total (in) 6.8										
Layer 1	3.38	1.35	3.25	1.30			0.00	3.25	3.25	1.30
Layer 2	3.38	1.35	3.50	1.40			0.00	3.50	0.00	1.40
Layer 3	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Layer 4		0.00	0.00	0.00			0.00	0.00	0.00	0.00
Drainage Blanket-Ty II-Asphalt	4.00	0.84	4.00	0.84			0.00	4.00	7.50	0.84
DGA	16.03	2.24	16.00	2.24			0.00	16.00	16.00	2.24
Stabilized Roadbed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6.34	SN	6.33			Total SN	0.00		Total SN	6.33
									Design OK	

Maximum Aggregate Design Initial Cost: 11,682,214 5.41% Greater than lowest initial cost

	Item Code	Description	Unit Cost	Item Code	Description
Surface	339	CL 3 ASPH SURF 0.38D PG64-22	73.24	301	CL 2 ASPH SURF 0.38D PG64-22
Base					
Layer 1	214	CL 3 ASPH BASE 1.00D PG64-22	65.29	212	CL 2 ASPH BASE 1.00D PG64-22
Layer 2	214	CL 3 ASPH BASE 1.00D PG64-22	65.29	#N/A	
Layer 3	#N/A		#N/A	#N/A	
Layer 4	#N/A		#N/A	#N/A	
Drainage Blanket	18	Drainage Blanket - Type II - Asph	48.13	18	Drainage Blanket - Type II - Asph
Aggregate Base	1	DGA	20.34	1	DGA
Stab. Roadbed	#N/A	0	#N/A	#N/A	

Concrete Pavement Design

	Default Layer Thickness (in.) Design	SN	Nominal	SN	User Defined Thickness (in.) Mainline	Shoulder	Final Design Thickness (in.) Mainline	Shoulder
JPC Pavement Thickness (in)	10.0		10.0		10.0		10.00	0.00
AC Shoulder Surface								1.25
AC Shoulder Base								
Layer 1								3.00
Layer 2								0.00
Layer 3								0.00

Concrete Pavement Design Initial Cost: 14,326,407 22.87% Greater than lowest initial cost

JPC Pavement	2069	JPC Pavement-10 inch	66.00	JPC Shoulder	#N/A
				Asphalt Shoulder Surface	301 CL 2 ASPH SURF 0.38D PG64-22
				Asphalt Shoulder Base	
				Layer 1	212 CL 2 ASPH BASE 1.00D PG64-22
				Layer 2	#N/A
				Layer 3	#N/A

Why An Updated Design Catalog

- Easy transition from current catalog system
- Efficiently develop pavements designs by engineers with limited PaveME experience
- Consistent cost estimation process
- PaveME to be use for specialized designs and forensic evaluations
- State Highway Engineer’s Office looking for quick implementation

Web-Based Design Catalog Development

- Developed design space of typical designs
- Standard DGA Thicknesses
- Standard HMA and PCC Mix Properties from historical designs
- Typical subgrade strengths and properties
- Formulate for easy transition from current design catalog and design process

PROGRAM DEVELOPMENT

- Table of possible solutions based on results from PaveME
- Calibration/Verification done using surrounding states calibration factors and Kentucky verification sites
  - Various thicknesses, traffic levels and subgrade strengths
    - Traffic Levels AADTT from 100 – 11,000
    - Base AC Thicknesses from 6.75” – 15.75”
    - PCC Thickness 7” to 13”
    - Subgrade CBR from 1 to 11 (Kentucky CBR)
    - Minimum AC Design 6.75” AC over 6” DGA
    - Maximum AC Design 14” AC over 6” DGA

Program Development (Cont.)

- Using standard default input values for materials from historical data
- Performance thresholds selected
  - 10% fatigue cracking
  - 0.25-inch rutting
  - 0.1-inch Transverse Faulting for PCC Pavements
  - Performance Thresholds are fixed can’t be changed, same for all roadway types
  - Reliability 95%
- Design table developed based on AADTT and subgrade strength
- Essentially just an update to the current process, using PaveME

Web Based Design Process

- Replacement of previous Excel Pavement Design Spreadsheet
- Based on AASHTO PaveME design process
- Web-Based Tool
- Provides tracking of designs and approvals
- User Credentials Required
- http://kytcpavementdesign.engr.uky.edu/

Title and Information Page

- Project Manager must be KYTC Employee
- AADT vs AADTT
  - AADT – Average Annual Daily Traffic
  - AADTT – Average Annual Daily Truck Traffic
- Project may have several pavement design sections
- Is project on Extended Weight System

KYTC Pavement Design

HOME | EXISTING DESIGN | NEW DESIGN | MY ACCOUNT | USER ADMIN | DB MAINT | INSTRUCTIONS

New Design

Title & Info. | Subgrade | AC | PCC | Cost Analysis | Attachments | Design Selection & Notes | Approval

PROJECT INFO Multiple pavement designs required? Yes

Item No. 03-2042.20
ON NHS? Yes
# of Diff. Pavement Designs 2 This field is automatically filled by program.
Project Description KY 9007 / US 231 Interchange Reconstruction
Project Mainline Length* 0.552 miles
Designer Rodney Little
Mainline Max. # of Lanes * 4
Project Manager Andrew Stewart
Highest Section AADTT * 1182
PM's Email *** Andrew.Stewart@ky.gov
Highest Design Speed * 55 M.P.H.
Construction Year 2020
Notes and Comments (Pertaining to entire project) Interchange reconstruction for conversion of Natcher Parkway to I-165. Pavement designs for full-depth pavements on US 231 and the new ramps. Parkway requires only mill and

Pavement Design Section # (for retrieving different section only) 1

Lane Width ** 12 ft.
Facility Category** Other Road
Total # of Lane, One Direction** 2
County** Warren District 3
Number of Direction** 2
Route No.** US 231 e.g. US 27
Inside Paved Shoulder Width** 0 ft. ☐ Same Design as Driving Lane
Section Description 4-lane undivided w/ flush median / turn lanes
Outside Paved Shoulder Width** 8 ft. ☐ Same Design as Driving Lane
Station from 35+00 to 64+15 e.g. 23+37.43
Construction Year ADT** 14067 KYTC Traffic Count
MP from 15.138 to 14.586
Construction Year Truck %** 8.4 (%)
Section Length ** 0.552 miles
Section AADTT ** 1182
Design Speed ** 55 M.P.H.
Would you like to input your own traffic growth rate? Yes
Traffic Growth Rate 1.6 (%)
Is this on Extended Weight Highway System? No AADTT will be doubled for design if Yes is selected. Click here for detail
Existing Type N/A
Existing Thickness N/A in.

* Ignorable Fields will be automatically filled by program. ** Required Fields. *** Project Manager's Email Address has to be provided when this design is submitted.

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Project Subgrade

- Current Catalog uses CBR
  - Will be transitioning to average Resilient Modulus in the future…stay tuned
- Multiple Subgrade Stabilization Options
  - CBR less than 6 requires stabilization
- Chemical is preferred, constructability may impact decision

KYTC Pavement Design

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New Design

Title & Info. | Subgrade | AC | PCC | Cost Analysis | Attachments | Design Selection & Notes | Approval

The stabilized subgrade soil layer provides both an improved subgrade layer serving as a stable paving platform as well as a structural layer resulting in substantial savings in pavement costs. The majority of soils in Kentucky loose strength as water seeps into them, requiring some method to boost strength and durability. Chemical stabilization is preferred as it provides a water barrier, provides increased strength for constructing the pavement, and continues to increase in strength for several years. Some form of Subgrade Stabilization is recommended for any CBRs less than 6. See the project's Geotechnical Report for specific stabilization information.

Design CBR # [3] Preferably from Geotechnical Report, but may be estimated based on previous reports or local knowledge. Use 3 if small project and no other known soil information.

Design M_R # [ ] Preferably from Geotechnical Report, but may be estimated as 1500 X CBR.

Geotechnical Report stabilization recommendation: [None]

Chosen Stabilization Method:

- ☐ Chemical Stabilization — Note: May be cement or lime stabilized as determined by the Geotechnical Branch. Typically provides the most economical pavement design.
- ☐ Geogrid, Fabric, & 6 additional inches of DGA/CSB
- ☑ 2s, 3s, or 23s underlain with TY V fabric and TY IV Fabric on Top: Depth = [12] in. (Minimum 12")
- ☐ Other: [ ] Note: May not be accurately accounted for structurally in the pavement design.
- ☐ None — Note: Not recommended in most instances.

Either one is a required Field

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Stabilization Options

Design CBR # 3 Preferably from Geotechnical Report, but may be estimated based on previous reports or local knowledge. Use 3 if small project and no other known soil information.

Design M_R # Preferably from Geotechnical Report, but may be estimated as 1500 X CBR.

Geotechnical Report stabilization recommendation: None

Chosen Stabilization Method:

- ☐ Chemical Stabilization Note: May be cement or lime stabilized as determined by the Geotechnical Branch. Typically provides the most economical pavement design.
- ☐ Geogrid, Fabric, & 6 additional inches of DGA/CSB
- ☑ 2s, 3s, or 23s underlain with TY V fabric and TY IV Fabric on Top: Depth = 12 in. (Minimum 12")
- ☐ Other: Note: May not be accurately accounted for structurally in the pavement design.
- ☐ None Note: Not recommended in most instances.

AC and PCC Designs

- Standard Design Process
- Making modifications to default information
- Comments/Note Section …use this section if making changes that are not matching the program, example would be matching existing, etc.
- User Defined Design

KYTC Pavement Design

HOME | EXISTING DESIGN | NEW DESIGN | MY ACCOUNT | USER ADMIN | DB MAINT | INSTRUCTIONS

New Design

Title & Info. | Subgrade | AC | PCC | Cost Analysis | Attachments | Design Selection & Notes | Approval

Section Description: Item Number: 03-2042.20; Route: US 231; Warren County; 4-lane undivided w/ flush median / tu

Analysis Date: 2019-07-16

Structural Design Inputs:

Design CBR: 3 Design M_R: AADTT: 1182 Traffic Growth Rate Input by User: 1.6 (%)

Pavement Structural Design from Design Catalog:

User Defined AC Design? No *Choose 'Yes' only when inputting existing approved pavement designs into the database for recordkeeping purposes.*

Total minimum Asphalt thickness are 6.75 inches (for route class 2) and 7.5 inches (for route class 3 or 4). The recommended AC thickness for Curb & Gutter section is 8 inches. The minimum aggregate thickness is 4 inches.

Required total AC Thickness on 6 inches of aggregate base: 7.50 in.

	Driving Lane Material Selection				Shoulder Material Selection			
	Thickness	Item Code	Description	Unit Price	Thickness	Item Code	Description	Unit Price
Surface:	1.5	00388	CL3 ASPH SURF 0.38B PG64-22	71.35	1.5	00301	CL2 ASPH SURF 0.38D PG64-22	65.68
Base:			**Polish-resistant type B** is correct.					
Layer 1:	3	00214	CL3 ASPH BASE 1.00D PG64-22	63.98	3	00212	CL2 ASPH BASE 1.00D PG64-22	68.42
Layer 2:	3	00214	CL3 ASPH BASE 1.00D PG64-22	63.98	0	0	None	
Layer 3:		0	None		0	0	None	
Drain. Blanket:	0	0	None	0	0	0	None	0
Aggr. Base:	6	00003	CRUSHED STONE BASE	24.74	9	00003	CRUSHED STONE BASE	24.74
Stab. Roadbed:	12	00078	Crushed Aggregate Size No 2	19.39	12	00078	Crushed Aggregate Size No 2	19.39
Stab. Material:		22861EN	High Strength Geotextile Fabric TY V	3.18		22861EN	High Strength Geotextile Fabric TY V	3.18
		02599	FABRIC-GEOTEXTILE TYPE IV (at top)	1.45		02599	FABRIC-GEOTEXTILE TYPE IV (at top)	1.45

More AC Item Selections

Initial Cost: $1,084,204.68

Note for Unit Price Change:

Comments: Widening & overlay of US 231. Due to relatively small quantities and construction phasing required, D3 staff recommended using mechanical stabilization in lieu of chemical.

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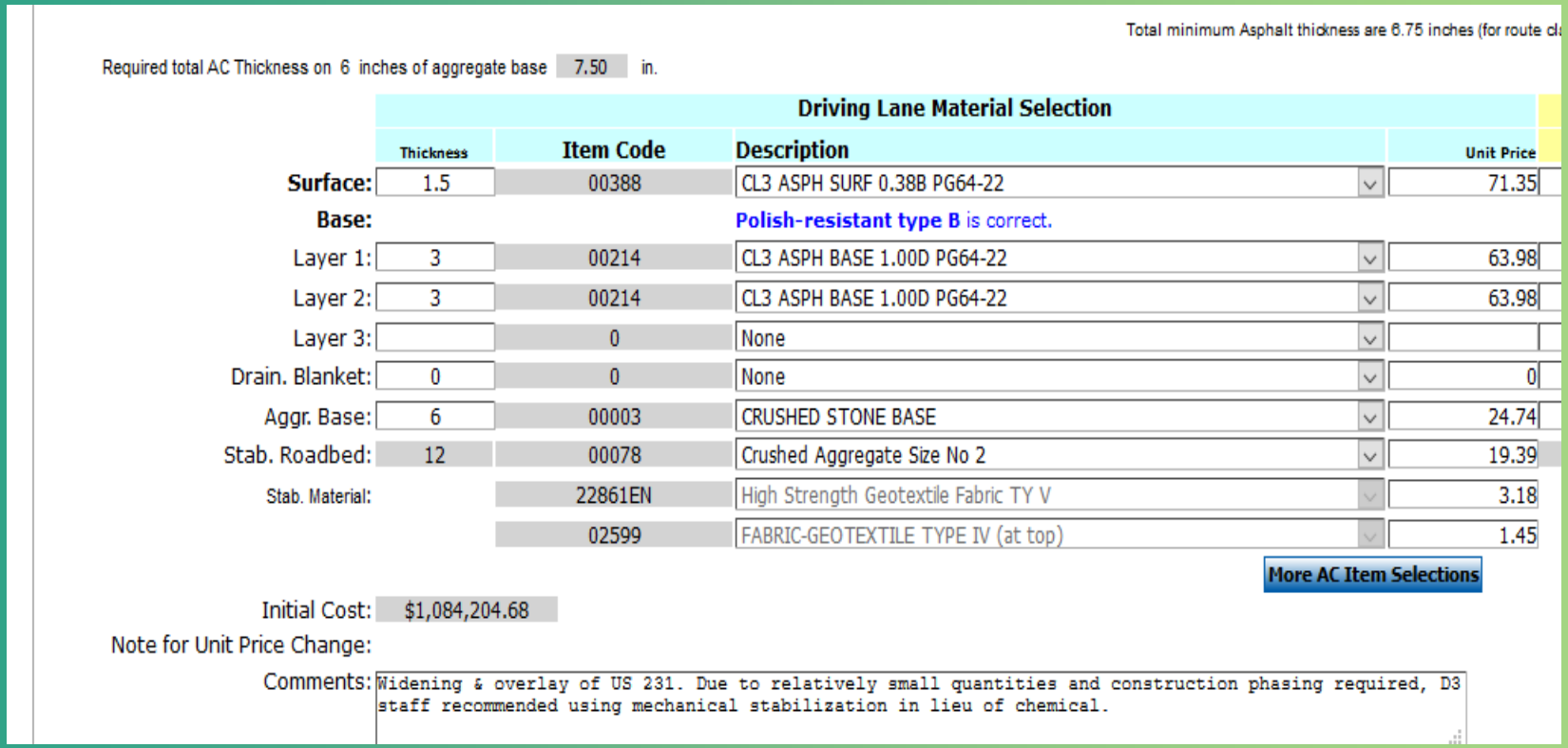
AC Design Information



Total minimum Asphalt thickness are 6.75 inches (for route cl

Required total AC Thickness on 6 inches of aggregate base 7.50 in.

Driving Lane Material Selection

	Thickness	Item Code	Description	Unit Price
Surface:	1.5	00388	CL3 ASPH SURF 0.38B PG64-22	71.35
Base:			**Polish-resistant type B** is correct.	
Layer 1:	3	00214	CL3 ASPH BASE 1.00D PG64-22	63.98
Layer 2:	3	00214	CL3 ASPH BASE 1.00D PG64-22	63.98
Layer 3:		0	None	
Drain. Blanket:	0	0	None	0
Aggr. Base:	6	00003	CRUSHED STONE BASE	24.74
Stab. Roadbed:	12	00078	Crushed Aggregate Size No 2	19.39
Stab. Material:		22861EN	High Strength Geotextile Fabric TY V	3.18
		02599	FABRIC-GEOTEXTILE TYPE IV (at top)	1.45

More AC Item Selections

Initial Cost: $1,084,204.68

Note for Unit Price Change:

Comments: Widening & overlay of US 231. Due to relatively small quantities and construction phasing required, D3 staff recommended using mechanical stabilization in lieu of chemical.

KYTC Pavement Design

HOME | EXISTING DESIGN | NEW DESIGN | MY ACCOUNT | USER ADMIN | DB MAINT | INSTRUCTIONS

New Design

Title & Info. | Subgrade | AC | PCC | Cost Analysis | Attachments | Design Selection & Notes | Approval

Section Description: Item Number: 03-2042.20; Route: US 231; Warren County; 4-lane undivided w/ flush median / tu

Analysis Date: 2019-05-09

Structural Design Inputs:

Design CBR: 3 | Design M_R: | AADTT: 1182 | Traffic Growth Rate Input by User: 1.6 (%)

Pavement Structural Design from Design Catalog:

User Defined PCC Design? No — *Choose "Yes" only when inputting existing approved pavement designs into the database for recordkeeping purposes.*

Required Thickness: 9.00 in. | Designed Thickness: 9 in. | **Shoulder Option:** JPC

	Driving Lane Material Selection				Shoulder Material Selection			
	Thickness	Item Code	Description	Unit Price	Thickness	Item Code	Description	Unit Price
JPC Pavement:		02073	JPC PAVEMENT-9 IN	61		02078	JPC PAVEMENT-6 IN SHLD	54
Drain. Blanket:	0	0	None	0	0	0	None	0
Aggr. Base:	6	00003	CRUSHED STONE BASE	24.74	9	00003	CRUSHED STONE BASE	24.74
Stab. Roadbed:	12	00078	Crushed Aggregate Size No 2	19.39	12	00078	Crushed Aggregate Size No 2	19.39
Stab. Material:		22861EN	High Strength Geotextile Fabric TY V	3.18		22861EN	High Strength Geotextile Fabric TY V	3.18
		02599	FABRIC-GEOTEXTILE TYPE IV (at top)	1.45		02599	FABRIC-GEOTEXTILE TYPE IV (at top)	1.45

Initial Cost: $1,805,908.09

Note for Unit Price Change:

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PCC Design Information

Pavement Structural Design from Design Catalog:

Required Thickness 9.00 in. Designed Thickness 9 in.

Driving Lane Material Selection

	Thickness	Item Code	Description	Unit Price
JPC Pavement:		02073	JPC PAVEMENT-9 IN	61
Drain. Blanket:	0	0	None	0
Aggr. Base:	6	00003	CRUSHED STONE BASE	24.74
Stab. Roadbed:	12	00078	Crushed Aggregate Size No 2	19.39
Stab. Material:		22861EN	High Strength Geotextile Fabric TY V	3.18
		02599	FABRIC-GEOTEXTILE TYPE IV (at top)	1.45

Initial Cost: $1,805,908.09

Note for Unit Price Change:

Cost Analysis

- Cost analysis, for project decision making only
- LCCA with fixed rehabilitation intervals based on roadway type
  - Interstate/Parkways, AC – 10 years, PCC – 15 years
  - Other Routes, AC – 15 years, PCC 25 years
- MOT cost, initial and future rehabilitations
- Present Worth Analysis

New Design

LIFE CYCLE COST ANALYSIS*

Maximum Asphalt Design

Design CBR 3 **Design MR**

FLEXIBLE PAVEMENT

ONE OR TWO DIRECTIONS:	2	7.5	in. ASPHALT PAVEMENT
ANALYSIS PERIOD (YEARS):	40	0	in. DRAINAGE BLANKET
CONSTRUCTION YEAR:	2020	6	in. Aggregate Base
		0.552	MILES (LENGTH OF PROJECT)
MAINT.OF TRAFFIC($/MILE):	10000 Init. Const.	5000	Rehabilitation
COST on MAINT.OF TRAFFIC:	$5,520.00 Init. Const.	$2,760.00	Rehabilitation
Analysis DATE:	2019-07-16		

*NOTE - These analyses compare only the pavement types and Maintenance of Traffic. They are not total project costs.

ECONOMIC ANALYSIS **Maximum Asphalt Design**

YEAR		INTEREST	P/F	COST	PW
0	PW OF INITIAL CONSTRUCTION	4	1.00	$1,084,204.68	$1,084,204.68
15	PW OF REHABILITATION	4	0.56	$113,200.84	$62,856.41
30	PW OF REHABILITATION	4	0.31	$222,598.65	$68,631.32
40	PW OF SALVAGE	4	0.21	$389,373.56	

* Salvage Values are considered equivalent and are currently not included in Life Cycle Cost Analysis

PW OF Maximum Asphalt Design $1,215,692.41

INITIAL CONSTRUCTION ITEM COST

	Driving Lane Item Quantity and Cost					Shoulder Item Quantity and Cost				
	Code	Description	Quantity	Unit	Cost	Code	Description	Quantity	Unit	Cost
Surface:	00388	CL3 ASPH SURF 0.38B PG64-22	1283	TON	$91,542.05	00301	CL2 ASPH SURF 0.38D PG64-22	428	TON	$28,111.04
Base:										
Layer 1:	00214	CL3 ASPH BASE 1.00D PG64-22	2565	TON	$164,108.70	00212	CL2 ASPH BASE 1.00D PG64-22	855	TON	$58,499.10
Layer 2:	00214	CL3 ASPH BASE 1.00D PG64-22	2565	TON	$164,108.70					
Layer 3:										
Drain. Blanket:										
Aggr. Base:	00003	CRUSHED STONE BASE	5363	TON	$132,680.62	00003	CRUSHED STONE BASE	2682	TON	$66,352.68
Stab.Roadbed:	00078	Crushed Aggregate Size No 2	10726	TON	$207,977.14	00078	Crushed Aggregate Size No 2	3576	TON	$69,338.64
Stab. Material:	22861EN	High Strength Geotextile Fabric TY V	15545	SY	$49,433.10	22861EN	High Strength Geotextile Fabric TY V	5182	SY	$16,478.76
	02599	FABRIC-GEOTEXTILE TYPE IV (at top)	15545	SY	$22,540.25	02599	FABRIC-GEOTEXTILE TYPE IV (at top)	5182	SY	$7,513.90

Initial Total Item Cost: $1,078,684.68

New Design

JPC Pavement

Design CBR 3 **Design MR**

RIGID PAVEMENT

ONE OR TWO DIRECTIONS:	2	9	in. JPC PAVEMENT
ANALYSIS PERIOD (YEARS):	40	0	in. DRAINAGE BLANKET
CONSTRUCTION YEAR:	2020	6	in. Aggregate Base
COST on MAINT.OF TRAFFIC:	$5,520.00 Init. Const.	0.552	MILES (LENGTH OF PROJECT)
Analysis DATE:	2019-05-09	$2,760.00	Rehabilitation

ECONOMIC ANALYSIS **JPC Pavement**

YEAR		INTEREST	P/F	COST	PW
0	PW OF INITIAL CONSTRUCTION	4	1.00	$1,805,908.09	$1,805,908.09
25	PW OF REHABILITATION	4	0.38	$184,799.53	$56,977.15
40	PW OF SALVAGE	4	0.21	$199,013.15	

* Salvage Values are considered equivalent and are currently not included in Life Cycle Cost Analysis

PW OF Maximum JPC Design $1,862,885.24

INITIAL CONSTRUCTION ITEM COST

	Driving Lane Item Quantity and Cost					Shoulder Item Quantity and Cost				
	Code	Description	Quantity	Unit	Cost	Code	Description	Quantity	Unit	Cost
JPC Pavement:	02073	JPC PAVEMENT-9 IN	15545	SY	$948,245.00	02078	JPC PAVEMENT-6 IN SHLD	5182	SY	$279,828.00
Drain. Blanket:										
Aggr. Base:	00003	CRUSHED STONE BASE	5363	TON	$132,680.62	00003	CRUSHED STONE BASE	2682	TON	$66,352.68
Stab.Roadbed:	00078	Crushed Aggregate Size No 2	10726	TON	$207,977.14	00078	Crushed Aggregate Size No 2	3576	TON	$69,338.64
Stab. Material:	22861EN	High Strength Geotextile Fabric TY V	15545	SY	$49,433.10	22861EN	High Strength Geotextile Fabric TY V	5182	SY	$16,478.76
	02599	FABRIC-GEOTEXTILE TYPE IV (at top)	15545	SY	$22,540.25	02599	FABRIC-GEOTEXTILE TYPE IV (at top)	5182	SY	$7,513.90

Initial Total Item Cost: $1,800,388.09

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Project Attachments

- Examples
  - Typical Sections
  - Traffic Forecast
  - Geotechnical Report
  - Design Executive Summary
  - Etc.

KYTC Pavement Design

HOME | EXISTING DESIGN | NEW DESIGN | MY ACCOUNT | USER ADMIN | DB MAINT | INSTRUCTIONS

New Design

Title & Info. | Subgrade | AC | PCC | Cost Analysis | Attachments | Design Selection & Notes | Approval

Select the attachment you wish to open and click on it. If a window appears asking DO YOU WANT TO SAVE THIS FILE? that means you must save the file to your hard drive and then open it from your hard drive. We apologize for the inconvenience.

Attached Files for This Pavement Design

File Name	Type	Size	Uploaded By	Organization	Date	Registered User Only	Delete
Geotech Info_from R-002-2018.pdf			Rodney Little			☐	☐
Ramp TS_rev.pdf			Rodney Little			☐	☐
US 231 TS.pdf			Rodney Little			☐	☐
Warren_Traffic Info_Ramps.pdf			Rodney Little			☐	☐
Warren_Traffic Info_US 231.pdf			Rodney Little			☐	☐

Update Attachments

Link to the project documents (Limited to 120 characters):

Reset | Delete | Print Design Form

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Design Selection and Notes

- Select all notes that apply
  - Pavement Type Selection
  - Common Plan Notes
  - Special Notes

KYTC Pavement Design

HOME | EXISTING DESIGN | NEW DESIGN | MY ACCOUNT | USER ADMIN | DB MAINT | INSTRUCTIONS

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Pavement Design Selected:* Asphalt Pavement

Pavement Design Notes: ***(Select following notes for this design by checking the front check box)***

Common Plan Notes

- ☐ 233 – Earthwork adjustments for alternate pavement designs
- ☐ 275 – Cement stabilized roadbed
- ☐ 276 – Lime stabilized roadbed
- ☑ 444a – Asphalt pavement ride quality (specify category A) (>0.4 mi. unbroken length, all interstate/parkways)
- ☐ 444b – Asphalt pavement ride quality (specify category B) (>0.4 mi. unbroken length, all interstate/parkways)
- ☑ 447 – Specifies Compaction option A (>1000 tons of any one mix)
- ☐ 448 - Specifies Compaction option B (<1000 tons of any one mix)
- ☑ 455 – Edge Key
- ☐ 555a – JPC ride quality (specify category A) (>0.4 miles unbroken length, all interstate/parkways)
- ☐ 555b – JPC ride quality (specify category B) (>0.4 miles unbroken length, all interstate/parkways)

Special Notes

ASPHALT

- ☑ 11N LONGITUDINAL PAVEMENT JOINT ADHESIVE (5-30-14)
- ☑ Use a Material Transfer Vehicle (MTV) according to Section 403.03.05A of the Standard Specifications.

JPC PAVEMENT

- ☐ 11J FULL DEPTH CONCRETE PAVEMENT REPAIR (6-15-12)
- ☐ 11K PARTIAL DEPTH CONCRETE PAVEMENT REPAIR (6-15-12)
- ☐ Special Note for Dowel Bar and Tie Bar Placement in JPC Pavement

OTHERS

- ☑ Special Note for Inlaid Pavement Markers
- ☑ Asphalt Seal Coat required from the outside edge of the paved shoulder to a point 2 feet down the ditch or fill slope. Apply two (2) applications at the rate of:

```
2.40 Lbs/SY     Item: 00103 Asphalt Seal Coat
20 Lbs/SY       Item: 00100 Asphalt Seal Aggregate
```

- ☐ Special Note for Fog Seal
- ☐ Special Note for Fiber Reinforcement of Asphalt
- ☑ Special Note for Asphalt Material for Tack Non-Tracking
- ☐ Special Note for Geogrid Reinforcement for Asphalt
- ☐ Special Note for Subgrade Stabilization Alternates

* Required field when this design is submitted.

Save | as New Project | Reset | Delete | Print Design Form

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Common Plan Notes

Common Plan Notes

- [ ] 233 – Earthwork adjustments for alternate pavement designs
- [ ] 275 – Cement stabilized roadbed
- [ ] 276 – Lime stabilized roadbed
- [x] 444a – Asphalt pavement ride quality (specify category A) (>0.4 mi. unbroken length, all interstate/parkways)
- [ ] 444b – Asphalt pavement ride quality (specify category B) (>0.4 mi. unbroken length, all interstate/parkways)
- [x] 447 – Specifies Compaction option A (>1000 tons of any one mix)
- [ ] 448 - Specifies Compaction option B (<1000 tons of any one mix)
- [x] 455 – Edge Key
- [ ] 555a – JPC ride quality (specify category A) (>0.4 miles unbroken length, all interstate/parkways)
- [ ] 555b – JPC ride quality (specify category B) (>0.4 miles unbroken length, all interstate/parkways)

Special Notes

Special Notes

Special Notes

ASPHALT

- [x] 11N LONGITUDINAL PAVEMENT JOINT ADHESIVE (5-30-14)
- [x] Use a Material Transfer Vehicle (MTV) according to Section 403.03.05A of the Standard Specifications.

JPC PAVEMENT

- [ ] 11J FULL DEPTH CONCRETE PAVEMENT REPAIR (6-15-12)
- [ ] 11K PARTIAL DEPTH CONCRETE PAVEMENT REPAIR (6-15-12)
- [ ] Special Note for Dowel Bar and Tie Bar Placement in JPC Pavement

Other Notes

OTHERS

- [x] Special Note for Inlaid Pavement Markers
- [x] Asphalt Seal Coat required from the outside edge of the paved shoulder to a point 2 feet down the ditch or fill slope. Apply two (2) applications at the rate of:

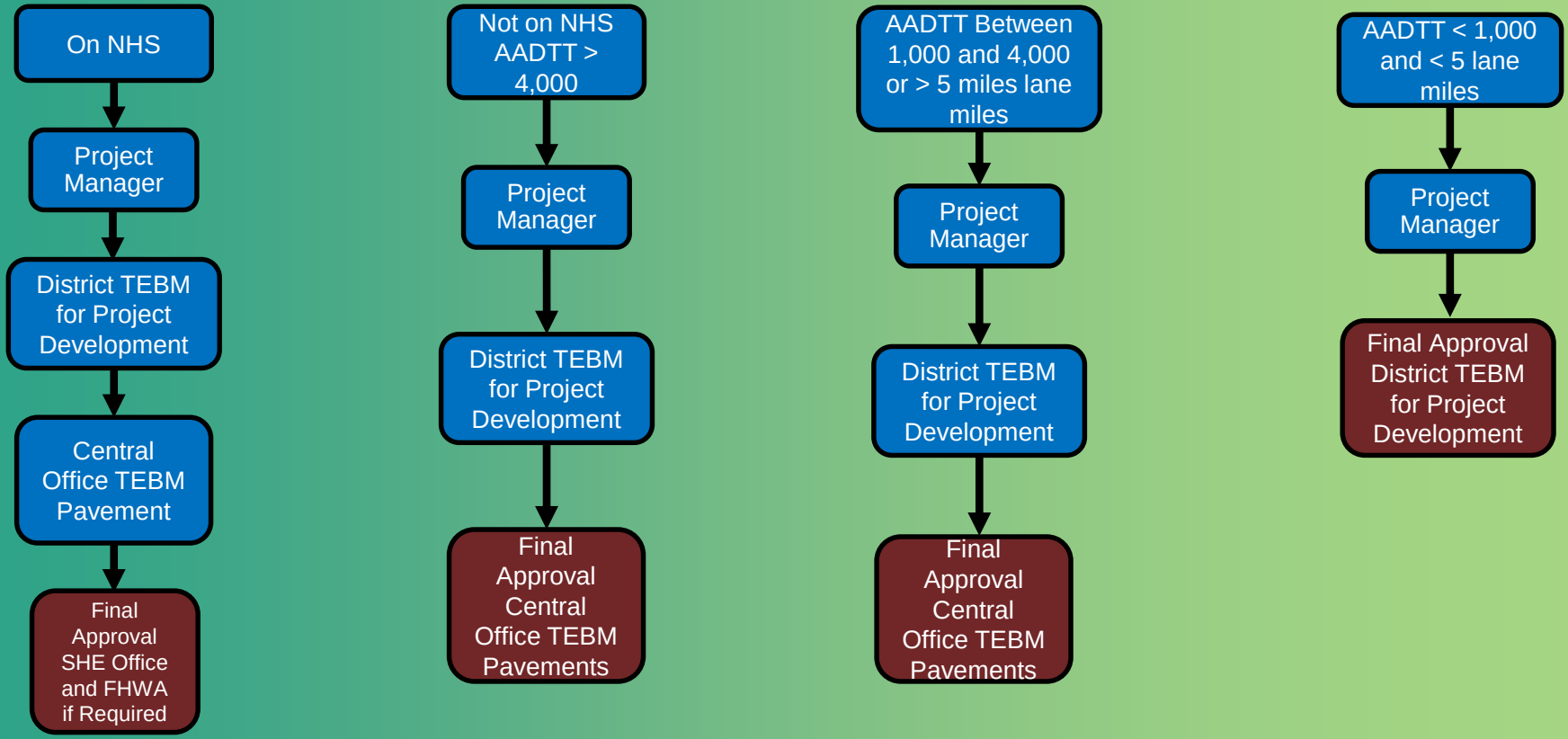
  2.40 Lbs/SY Item: 00103 Asphalt Seal Coat
  20 Lbs/SY Item: 00100 Asphalt Seal Aggregate

- [ ] Special Note for Fog Seal
- [ ] Special Note for Fiber Reinforcement of Asphalt
- [x] Special Note for Asphalt Material for Tack Non-Tracking
- [ ] Special Note for Geogrid Reinforcement for Asphalt
- [ ] Special Note for Subgrade Stabilization Alternates

Project Approval Process

- Steps in Approval
  - Project Manager
  - District Project Development Branch Manager
  - Central Office Pavement Branch Manager
- Ability to request changes along the way
- Program outlines process from Highway Design Manual

KYTC Pavement Design Approval Flowchart



All projects over 1 mile with full depth pavement require JPC/Asphalt alternate pavements be bid unless approval is given by the State Highway Engineer to not bid alternates.

Alternative – Use AASHTO PaveME

- AASHTO PaveME may be used after consultation with Pavement Design Branch
- KYTC Input Guide must be used

Thank You

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