

Mining Highway Designs Webpage





It's YOUR Money!



improvements.

Approximately \$148 million of the stimulus must be obligated to eligible projects on or before July 1, 2009.

A list of projects by state can be found on the US Department of Transportation Web site at <http://testimony.dot.gov>

Learn how to make your community healthier and how to win a bicycle package.

<http://www.transportation.ky.gov>

Out more at cleanair.ky.gov

1-800-598-2644

- Inside the Cabinet -

Office of the Secretary

- Office of Budget & Fiscal Management
- Office of Audits
- Office for Civil Rights &
- Small Business Development
- Office of the Inspector General
- Office of Human Resource Management (Recruitment & Employment)
- Office of Human Resource Management (KYTC Employees access only)
- Office of Legal Services
- Office of Transportation Delivery
- KYTC Conference Center

Where Can I Find?

Congestion Toolbox

Engineering Scholarship Program

Forms Library

Highway Districts

Highway Maintenance Facilities

Information Guide

Intranet (KYTC Employees access only)

Kentucky Transportation Center

KYTC (Research)

Organizational Charts

Policy Manuals

Contractor listing for tree and brush removal

Department of Highways

Division of Program Management

Office of Project Development

- Division of Environmental Analysis
- Division of Highway Design
- Division of Planning
- Division of Professional Services
- Division of Right of Way & Utilities
- Division of Structural Design

Office of Project Delivery & Preservation

- Division of Construction
- Division of Materials
- Division of Construction Procurement
- Division of Equipment
- Division of Maintenance
- Division of Traffic Operations

Office of Highway Safety

- Division of Incident Management
- Division of Highway Safety Programs

Department of Aviation

Kentucky Airport Zoning Commission

Department of Rural and Municipal Aid

- Division of Rural & Secondary Roads
- Division of Local Programs

Department of Vehicle Regulation

- Division of Driver Licensing
- Division of Motor Carriers
- Kentucky Motor Vehicle Commission
- Division of Motor Vehicle Licensing



RSS Feeds

- KYTC Press Releases
- KYTC 511 Traffic Conditions
- KYTC Minute



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- KYTC on Twitter
- KYTC511 on Twitter
- KYTCminute on Twitter

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August 10-12
Louisville, KY

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2008 WINNER

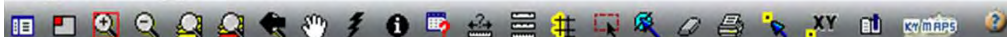
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Click [here](#) for more Examples.



Pop-Up Blocker Must Be Turned Off

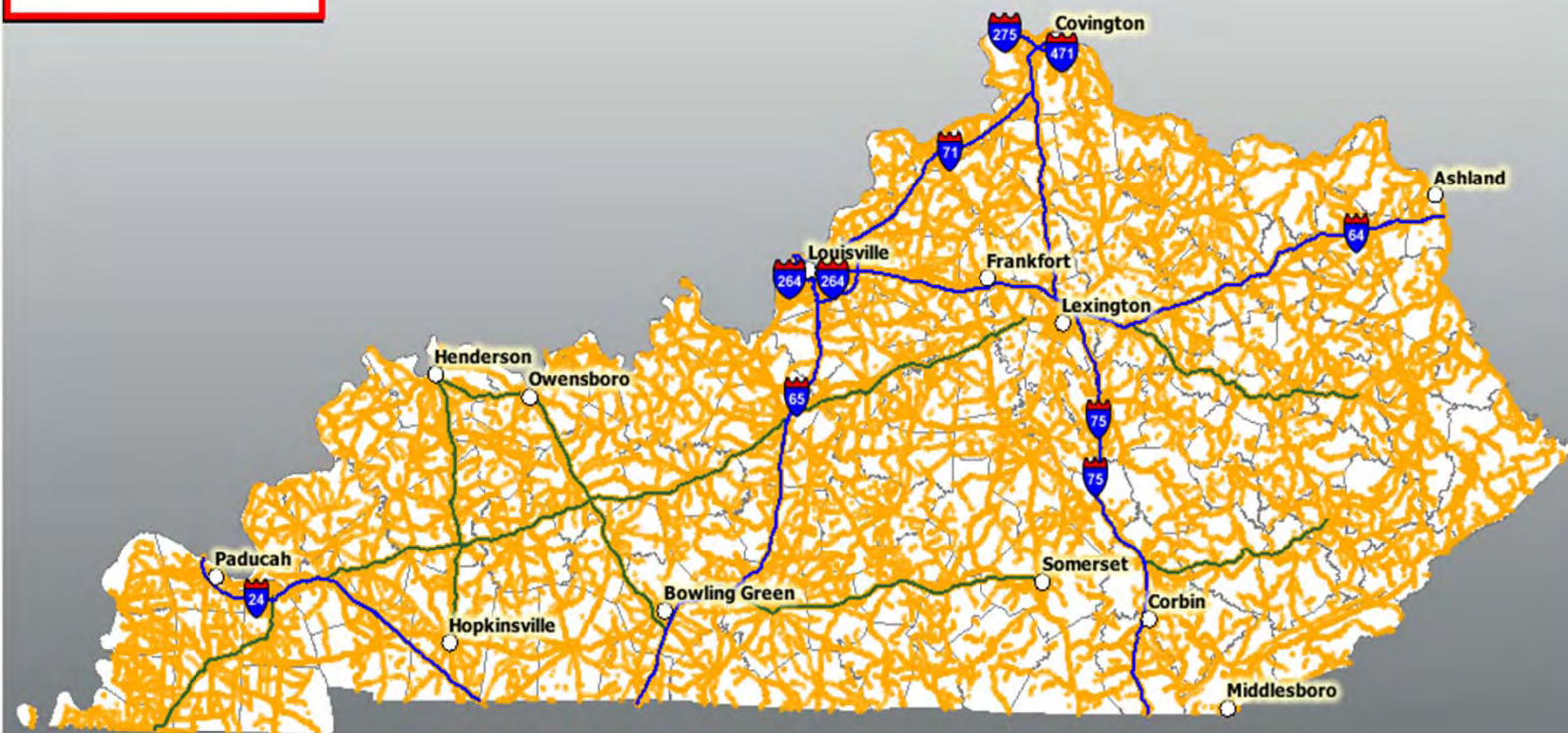
LAYERS

- ☒ All Layers
- ☒ Transportation
 - ☐ Route Log
 - ☐ Local Road Milepc
 - ☐ State Road Milepc
 - ☐ Interstate
 - ☐ Parkway
 - ☐ US Highway
 - ☐ State Road
 - ☐ Local Road
 - ☐ Local Road Route Name
 - ☐ Road Improver
 - ☒ KYTC Projects Ar
 - ☐ Bridge
 - ☐ Truck Network
 - ☐ National Highway
 - ☐ Railroad
 - ☐ KYTC District
- ☒ Base Map
- ☒ Base Imagery

Refresh Map

Help:

- A closed group, click to open.
- An open group, click to close.
- A map layer.
- A hidden group/layer, click to make visible.
- A visible group/layer, click to hide.
- A visible layer, but not at this scale.
- A partially visible group, click to make visible.
- An inactive layer, click to make active.
- The active layer.



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0 63mi

Zoom In

Where is...?

Zoom to Scale

24000

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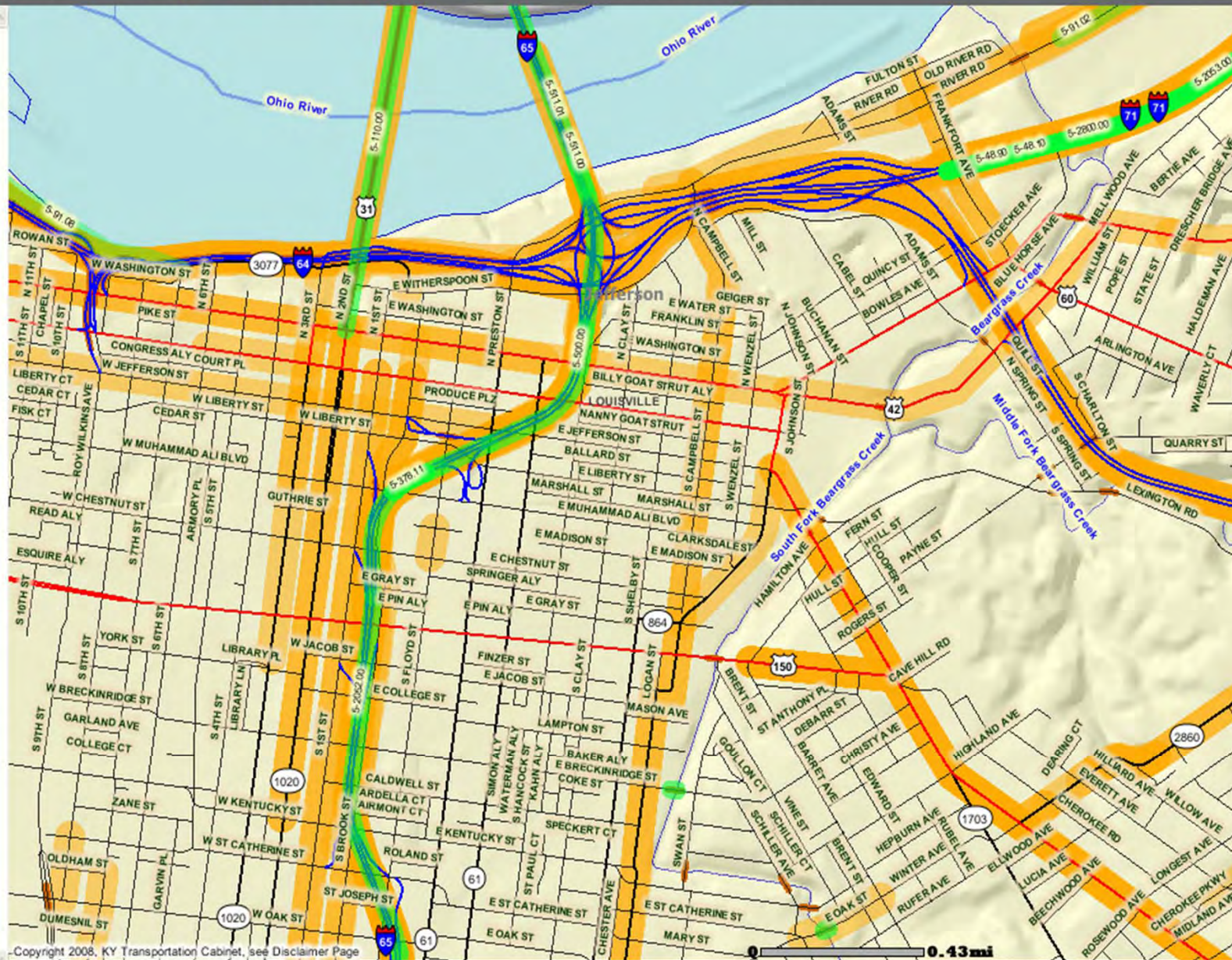
LAYERS

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 - ☒ Route Log
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 - ☒ State Road Milepc
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 - ☒ Parkway
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- ☐ An inactive layer, click to make active.
- ☒ The active layer.



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Pan

Where is...?

Zoom to Scale

20227

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DIVISION OF HIGHWAY DESIGN	502-564-3280
Director	Jeff Jasper
Assistant Director	Bill Gulick
Administrative Support Supervisor	Joette Fields
Project Delivery Branch TEBM	Dan Hite
Developmental Branch TEBM	Kevin Martin
Roadway Design Branch TEBM	Brad Eldridge
Pavement Branch TEBM	Paul Looney
Technical Support Branch BM	John Wells
Drainage Branch TEBM	David Moses
Quality Assurance Branch TEBM	Jeff Jasper (Acting)
KEY CONTACTS	
Kentucky State Clearinghouse / Public Involvement Coordinator	Carolyn Weber
Statewide Roadway Design Services	Kevin Martin
Standard Drawings	Tim Gatewood
Survey Coordinator	Dan Farrell
Blueprint	Brad Poole
Plan Processing	Bill Greene
Value Engineering Coordinator	Siamak Shafaghi (Acting)
Roadway Sign Design Coordinator	Vicki Boldrick
LOCATION ASSIGNMENTS	
4	Brad Eldridge
5, 8	Bob Farley
7, 10, 11	Keith Caudill
3, 12	Chuck Allen
6, 9 & Rest Area Coordinator	Jim Simpson
1, 2	David Martin
Interstate Widening & Reconstruction Commercial Vehicle Monitoring Stations	Dan Hite
DRAINAGE ASSIGNMENTS	
5, 6	Craig Ashby
1, 2, 4, 10	Kenny Barrett
3, 7, 9	Richard Thomas
12 Drainage Folder Requests & Archiving	Rokshad Khan
8, 11	Ron Matar
Drainage Manual Rewrite	David Moses
PAVEMENT	
Pavement Design Cost Analysis	Paul Looney
Pavement Design Cost Analysis	Leo Frank
Pavement Rehab Projects	Joe Tucker
CADD TECH SUPPORT	
ProjectWise, Microstation	Alex Smith
Microstation, Plotting	Henry Wells
ProjectWise, Estimator	Jeremy Gould
ProjectWise	Pam Kolze
ProjectWise	Karen Jones

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V8 version 2 CADD STANDARDS

Current Software Releases recognized by KYTC CADD Standards:

MicroStation Version 08.05.02.35 Windows x86

Bentley InRoads 2004 Edition V08.05.00.00 Service Pack 4

KYTC CADD Standards Version 2.08.00

[Consultants Please Click here
for Cadd Standards](#)

**Per Design Memo 02-08
Right-of-Way Summary Sheet and Layout Sheet**



New!! [Download](#) the Data Set from the MicroStation 2 Class

Inroads Survey Users Please see tech notes listed below

Cadd Standards Memo

Documentation *Word Format

The KYTC CADD Standards Policy
Set Up Directions
Electronic Files Checklist

Tech Notes PDF format

Tech Notes for InRoads PDF format

Level Presentation *Excel Format

Environmental

Sheet

Structures

Traffic

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ROADWAY

BARRIERS

STANDARD DRAWING NUMBER

GUARDRAIL AND BRIDGE END DRAINAGE

GUARDRAIL AND BRIDGE END DRAINAGE FOR SINGLE STRUCTURES
GUARDRAIL AND BRIDGE END DRAINAGE FOR TWIN STRUCTURES
LAYOUT OF GUARDRAIL AT TWIN STRUCTURES-(DEPRESSED MEDIAN)
GUARDRAIL TRANSITION FROM NORMAL SHOULDER TO NARROW BRIDGE

DGN

PDF

[RBB-001-07](#) [RBB-001-07](#)
[RBB-002-08](#) [RBB-002-08](#)
[RBB-003-02](#) [RBB-003-02](#)
[RBB-010-04](#) [RBB-010-04](#)

GUARDRAIL CONNECTORS TO BRIDGE ENDS

GUARDRAIL CONNECTOR TO BRIDGE END TYPE A AND A-1
GUARDRAIL CONNECTOR TO BRIDGE END TYPE A AND A-1 COMPONENTS
GUARDRAIL CONNECTOR TO BRIDGE END TYPE A AND A-1 COMPONENTS
GUARDRAIL CONNECTOR TO BRIDGE END TYPE "D"
GUARDRAIL CONNECTOR TO CONCRETE MEDIAN BARRIER END
CONNECTION DETAILS OF CRASH CUSHION TYPE VI TO DOUBLE FACE GUARDRAIL

[RBC-001-09](#) [RBC-001-09](#)
[RBC-002-01](#) [RBC-002-01](#)
[RBC-003-07](#) [RBC-003-07](#)
[RBC-004-05](#) [RBC-004-05](#)
[RBC-100-03](#) [RBC-100-03](#)
[RBC-110-09](#) [RBC-110-09](#)

ENERGY ABSORPTION DEVICES

CRASH CUSHION TYPE VII CLASS B AND C (ONE & TWO DIRECTION)
CRASH CUSHION TYPE VI (ONE & TWO DIRECTION)
CONCRETE MEDIAN BARRIER END
CONCRETE MEDIAN BARRIER END FOR CRASH CUSHION TYPE IX
CRASH CUSHION TYPE VI-BT & CT
CRASH CUSHION TYPE IX
CRASH CUSHION TYPE IX-A

[RBE-040-09](#) [RBE-040-09](#)
[RBE-060-13](#) [RBE-060-13](#)
[RBE-065-06](#) [RBE-065-06](#)
[RBE-070-04](#) [RBE-070-04](#)
[RBE-100-09](#) [RBE-100-09](#)
[RBE-200-04](#) [RBE-200-04](#)
[RBE-205-04](#) [RBE-205-04](#)

TYPICAL BARRIER INSTALLATIONS

TYPICAL GUARDRAIL INSTALLATIONS
TYPICAL GUARDRAIL INSTALLATIONS

[RBI-001-09](#) [RBI-001-09](#)
[RBI-002-06](#) [RBI-002-06](#)

Notice: The Standard Drawings contained herein are intended to provide guidance for typical applications.
Other solutions may be appropriate when conditions warrant.

You will need to have Adobe Reader Version 7 or newer to view the pdf's. To download the newest version go [Here](#).



Authorized copies of Kentucky Transportation Cabinet's Standard Drawings book can be obtained from:

Office of Policy and Budget
Transportation Office Building
Frankfort, KY 40622

[John B. Roberts](#)

For questions about Standard Drawings, contact:

Division of Highway Design
Transportation Office Building
Frankfort, KY 40622

[Tim Gatewood](#)

ROADWAY — barriers — drainage — fences and gates — general — pavement — roadside development —
TRAFFIC — permanent — temporary —
BRIDGES — bearing devices — deck units — general — handrail — joints and expansion devices — piling —
HEADWALL — **Subject Index** —



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[What is the Sepia List?](#)

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Software & Support

MicroStation

[Importing Digital Ortho Images Into MicroStation](#)

[E Sheet Macro Tips](#)

Estimator

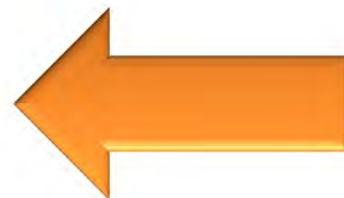
[Estimator Software Homepage](#) (Purchase the software here)

[Instructions](#)

[Estimator Guidance Videos](#)

[Catalog 07-09 \(Spec Year 2008\)](#)

[Highway Design Estimator Template](#)



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Highway Design Manual

Cover Letters

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	A	B	C
1	Item-Number	Long-Description	Unit
2	00001	DGA BASE	TON
3	00003	CRUSHED STONE BASE	TON
4	00004	RESHAPE-COMPACT EXIST DGA BASE	SQYD
5	00005	GEOGRID REINFORCEMENT FOR SUBGRADE	SQYD
6	00007	STABILIZED AGGREGATE BASE	TON
7	00008	CEMENT STABILIZED ROADBED	SQYD
8	00013	LIME STABILIZED ROADBED	SQYD
9	00014	LIME	TON
10	00018	DRAINAGE BLANKET-TYPE II-ASPH	TON
11	00019	DRAINAGE BLANKET-TYPE III-CEM	SQYD
12	00020	TRAFFIC BOUND BASE	TON
13	00021	DRAINAGE BLANKET-EMBANKMENT	CUYD
14	00022	JPC PAVEMENT DRAINAGE BLANKET	TON
15	00067	AGGREGATE FOR SHOULDERS	TON
16	00068	AGGREGATE FOR ENTRANCES	TON
17	00069	CRUSHED AGGREGATE SIZE NO 3	TON
18	00071	CRUSHED AGGREGATE SIZE NO 57	TON
19	00077	AGGREGATE FOR MAILBOX TURNOUTS	TON
20	00078	CRUSHED AGGREGATE SIZE NO 2	TON
21	00080	CRUSHED AGGREGATE SIZE NO 23	TON
22	00082	CRUSHED AGGREGATE SIZE NO 9	TON
23	00100	ASPHALT SEAL AGGREGATE	TON
24	00101	SAMI	TON
25	00102	SAMI COVER AGGREGATE	TON
26	00103	ASPHALT SEAL COAT	TON
27	00110	GEOGRID REINFORCEMENT FOR ASPH	SQYD
28	00190	LEVELING & WEDGING PG64-22	TON
29	00191	ASPHALT SCRATCH COURSE PG64-22	TON
30	00193	ASPHALT SCRATCH COURSE PG76-22	TON
31	00194	LEVELING & WEDGING PG76-22	TON
32	00199	AGGREGATE FOR SLURRY	TON

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DRAINAGE SUBMITTAL FORMS

WORD FILES

Drainage Folder Cover.doc	Includes editable fields
TC 61-100.dot	Design Drainage Summary Template
TC 61-504.dot	Bridge and Culvert Summary Template
TC 61-507.dot	Channel Analysis Template
Bridge Risk Analysis.doc	Bridge Risk Analysis Template
Grated Inlet Sag.doc	Graphic file

LIBRARIES

English_Forms.zip	Includes editable TC forms
FEMA.zip	FIS Forms and Hydraulic Policy Statements

3 SIDED CULVERT POLICY

Approved List 3-Sided Culverts.pdf	Drawings for approved culvert shapes
3-sided_preconstruction_guidance.doc	Guidance Document for use of 3-sided culverts
Example 3-sided culvert.dgn	Example Microstation Sheets for 3-sided culverts
Wingwalllayout.dgn	Guidance for Wing Wall Layouts

CALCULATION TOOLS

KTDID Suite	KYTC Computer Programs
IDF Files	.dat files (for Hydrain)

EXCEL SPREADSHEETS

Regional Calculations, 2003	Calculates Rural Regional, Urban and Gage Based Flows (Beta)
Rational Method Calculations	Calculates Design Flow using the Rational Method and FHWA Kinematic Wave Theory (BETA)
Silt Trap Volumes	Design a Storm Sewer System using one Pipe Roughness
Storm Sewer Capacity	Size Silt Traps along a Uniform Ditch Slope
Storm Sewer Capacity	Design a Storm Sewer System with multiple Pipe Roughness
Curb Box Inlet Spacing	Calculate spread, LTI, intercepted flow and by-pass flow (BETA)
Entrance Pipe Summary	Hydraulic Parameter Summary Sheet
Channel Design Summary	Summary of Ditch Design Analysis

REFERENCE DOCUMENTS

DOCUMENT NAME	DESCRIPTION
	Regional Flow Methods
Kentucky Region Flow Method	USGS Regional Flow Method for KY, 2003 (WRIR 03-4180)
Estimated Peak Gage Flows	Estimated Peak flows at Selected Gages (WRIR 03-4180)
KY Regional Map	Regional boundaries and Gage Site Locations (WRIR 03-4180)
Jefferson County Flows	USGS Regression Flow Equations for Jefferson County (WRIR 97-4219)

SOFTWARE SUPPORT

LINK	SOURCE	PRODUCT
http://www.fhwa.dot.gov/engineering/hydraulics/software.cfm	FHWA	Hydraulic Software
http://www.fhwa.dot.gov/engineering/hydraulics/library_listing.cfm	FHWA	Hydraulic Publications
http://www.aquaveo.com/wms	Aquaveo	Watershed Modeling System (WMS)
http://www.hec.usace.army.mil/	USCOE	HECRAS
Cross Section Generation Instructions		How to generate hydraulic sections in Microstation



KPDES B.M. Plan & NOI

CONTACT US



[David Moses](#)
(Drainage Manual Rewrite)

[Richard Thomas](#)
(Districts 3,7,9)

[Kenny Barrett](#)
(Districts 1,2,4,10)

[Ron Matar](#)
(Districts 8,11)

[Rokshad Khan](#)
(Districts 12 & All Drainage Folder Requests & Archiving)

[Robert Ashby](#)
(Districts 5,6)

DISTRICTS



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- [CADD Standards](#)
- [Standard Drawings](#)
- [Software & Support](#)
- [ProjectWise Standard Folder Structure Policy](#)
- [ProjectWise Standard Folder Structure Policy Guide](#)
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Visualizations



Click [here](#) for more Examples.



The Pavement Design Spreadsheet can be used to develop pavement designs for full-depth pavement projects off the National Highway System.

The spreadsheet walks the designer from start to finish and develops the Pavement Design signature form that needs to be submitted to get formal approval for a pavement design.

Appendix C
Notes
Appendix D. Warrants for
Mixtures
Appendix E. Pavement Type Selection
Policy

PDF

PDF

Excel

Pavement Design Spreadsheet
(V5.04--Updated 9/04/08)

LINKS OF INTREST

- Kentucky Transportation Center
- FHWA Pavement
- Traffic Forecasting
- Geotechnical Reports

The Pavement Branch in the Division of Highway Design is responsible for overseeing the development of pavement structural designs for all Kentucky Transportation Cabinet projects. The Pavement Branch staff is available to assist District Offices and Consultant Engineers in developing pavement designs.

Staff in the Pavement Branch manages pavement rehabilitation and reconstruction projects on all Interstate, Parkway and National Highway System routes.

PAVEMENT DESIGN REFERENCES

Kentucky Transportation Center Reports:

UKTRP-81-17 "Design Guide for Bituminous Pavement Structures"

UKTRP-84-3 "Thickness Design Curves for Portland Cement Concrete Pavements"

UKTRP-87-26 "Breaking and Seating of Rigid Pavements"

UKTRP-87-29 "Pavement Designs Based on Work"

Applicable Special Notes:

Special Note 10B "Special Note for Geogrid Used for Reinforcement of Subgrade and Aggregate Base Courses"

"Special Note for Perforated Pipe-4 Inch for Aggregate Backfilled Trench"

"Special note for Pavement Surface drainage Outlet"

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Plan Processing



Plan Processing, a section in the Division of Highway Design, works with Design Consultants, District Design offices and other Divisions within the Transportation Cabinet, checking bid items and codes, standard drawings, receiving and attaching Utility plans, checking notes and specifications and assuring that plan sets meet the latest standards as set out in the Standard Specifications for Road and Bridge Construction as well as Design Memorandums. The Plan Processing Staff is available to assist District Offices and Design Consultants with any issues regarding the procedures for plan submittals to Construction Procurement.

Contact Plan Processing Staff:

Bill Greene- Section Head
Dee McElmurray
Pam Kolze
Jeff Lail

PLAN PROCESSING GUIDANCE	LINKS OF INTEREST:
2009 Check Print & Plan Submittal Schedule	Highway Design Memorandums
2008 Check Print & Plan Submittal Schedule Revised January 28, 2008	Sepia List
Plan Development Checklist	Geotechnical Reports
Plan Review Checklist *Please review these items prior to submitting check prints or plans	Construction Procurement
Fuel Adjustment Spreadsheet (Revised September 3, 2008) October 08 - Forward *Use this spreadsheet to determine the quantities for the Fuel Adjustment Bid Items established by Design Memorandum 1-06.	2008 Special Notes and Provisions
Contractor QAS Suspension Memo *Contractor QAS Special Note 11A suspended effective August 6, 2007	General Notes Updated October 30, 2008
Check Print Submittal Documents *Documents and information to be included with the Check Print Submittal	
Final Contract Plans Submittal Documents *Documents and information to be included with the Final Contract Plan Submittal	

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Survey Coordination

Dan Farrell- State Survey Coordinator
Danielle Buchanan - Height Modernization

NGS Control Information Data Sheet Search Options

Kentucky NGS Advisor

<http://ngs.ky.gov>

Link to the Kentucky FBN (High Accuracy Reference Network)

GPS Downloads

Obstruction Diagram

GPS Fast Static Survey Field Log

Other Downloads

Using State Plane and Project Datum Coordinates (Manual)

Example Coordinate Control Sheet for Plan Set

Know These Markers

State plane to project datum.xls

Two OPUS solutions to project datum.xls

Calculating the Project datum Factor

Control Monument Data Sheet & Data Collector Codes

View an image of the Control Monument Data Sheet.

Download a design file of the Control Monument Data Sheet.

Data Collector Codes

Surveying References

SUE

QLASUMMARY.DGN

National Geodetic Survey

Kentucky Single Zone

State Plane Projections

CORS Data

(Continuously Operating Reference Stations)

Area CORS Station Information

Nationwide CORS Station Information

OTHER ITEMS OF INTEREST

County Maps

Digital Orthos

Quad Sheets

Commonwealth Map

SURVEYING REFERENCES

CELL BLUE TOOTH SETUPS TRIMBLE

WRSN Network Connection	5700-TSCE Cell Phone (via cable)
WRSN Network Connection	R8-TSCE Cell (via cable)
Connecting Trimble TSCE Field Device	TSCe Connecting to GPS Receiver using BT
Connecting Trimble TSC2 Controller	Phone and Controller setup for Ntrip
Using Survey Pro VRS	TSC2 Ranger Survey Pro RTN

CELL BLUE TOOTH SETUPS VARIOUS VENDORS

Connecting to Surveyor Plus data Collector with AT&T or Cingular	AT&T or Cingular Connect to SurveyorPlus Collector
Manual Connection with Enfora GSM 0110 modem with AT&T or Cingular	EnforaGSM0110 with AllegroCX collector
Manual Connection with Tmobile on Carlson Explorer I & II or Juniper Allegro	TMobile Connect to Carlson Explorer
Connection using Enfora GSM Card and AT&T or Cingular on a Carlson Mini or Juniper Archer	Enfora GSM on Carlson Mini or Juniper
General Bluetooth Cell Phone Configuration for use with VRS Networks	General Bluetooth Cell Phone configuration for use with VR Networks
TopSurv/Cell Phone Configuration or Network Operations Quick Reference Guide	TopSURV Network via Cell BT

CORS

Trimble NetR5 Reference Station-Datasheet	NetR5 Datasheet
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TRIMBLE TSC2 HELP

[Trimble Survey Controller Help Guide](#)
[In Survey controller, can I add more than one code to a point?](#)
[How to add Items to the Favorites Menu](#)
[How to export an ASCII File from the TSC2 Using Survey Controller](#)
[How to create your own *.wav file in Survey Controller](#)
[Why are there no GPS styles displayed in my Survey Controller program ?](#)
[I just added an active map to my job but nothing on the map is selectable. Why?](#)
[What coordinate system should I select if I am creating a job that will have an arbitrary 10000N, 5000E coordinate system?](#)
[How to transfer Calibration from one job to another job](#)
[How to copy a file from the Trimble TSC2 to a USB thumb drive.](#)
[How to access a wireless network with the TSC2](#)

RINEX CONVERSION

[Rinex Conversio from Trimble format for OPUS](#)

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Value Engineering

Siamak.Shafaghi - Value Engineering Section Coordinator (acting)

The Lessons Learned Database is a knowledge base consisting of Post-construction review reports, minutes of Constructability reviews, site-specific description of lessons learned, and value engineering reports.

LLDB is designed to provide user friendly access to information to be used during the design process to prevent recurrence of avoidable change orders and a means of improving the overall quality of roadway designs.

The Value Engineering staff also conducts post construction reviews on projects. Approximately 36 reviews (three per district) are conducted each year. These reviews attempt to pull designers, construction personnel, operations personnel, contractors, and others together to discuss the construction of a project. Discussion of the projects attempts to identify areas where operational aspects of the roadway can be improved, construction plans can be clarified, or typical design details can be improved. A "lessons learned" database of comments from post construction reviews is being compiled in order to help designers identify areas where roadway designs and plans can be improved.

Additional links:

[Lessons Learned Database](#)

