Best Practices for Electronic File Sharing Kentucky Utility and Rail Tracking System (KURTS)

SEPTEMBER 14, 2018

ALLEN RUST, PE

TROY CREASY

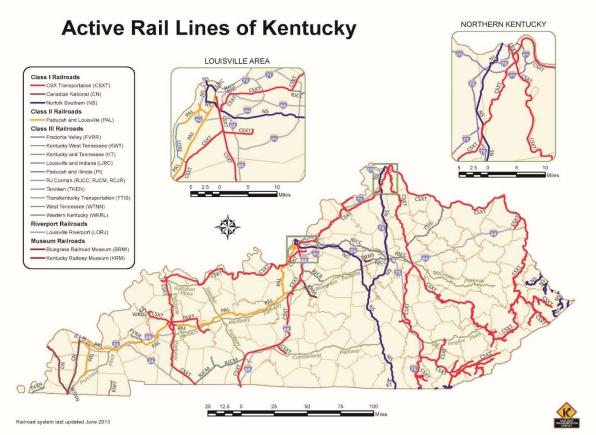
RAIL COORDINATOR

PROJECT MANAGER-PUBLIC PROJECTS

KENTUCKY TRANSPORTATION CABINET

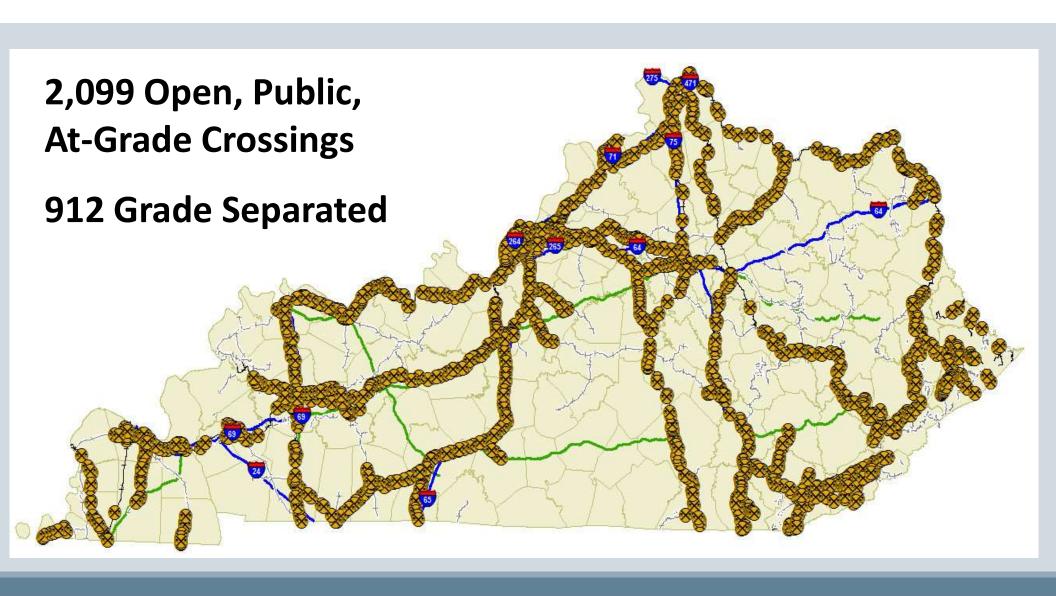
CSX TRANSPORTATION, INC.

Railroads in Kentucky



| | , |
|------------------------|-------------------------|
| Railroad | Miles of Track in KY |
| CSX | 1,685 |
| Norfolk Southern | 429 |
| Paducah and Louisville | 280 |
| RJ Corman | 197 |
| Illinois Central (CN) | 98 |
| TTI | 50 |
| Others | 452 |

Total: 3,191 miles

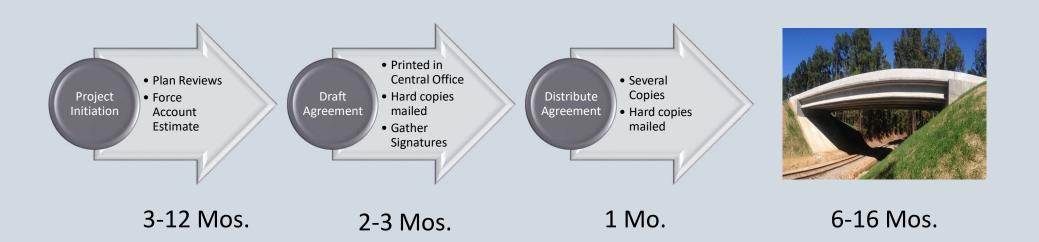


Rail Crossing Inventory

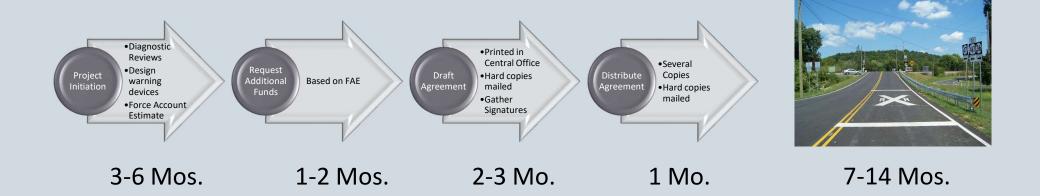
- Rail Crossing Inventory (RCI)
 - Every open, public, at-grade crossing in state
 - Inventory every 3 years
 - Hazard Ranking Index
 - Full GIS implementation



Construction Agreements in the past...



Sect. 130 Agreements in the past...



Invoices in the past...



30+ Days

Kentucky Utility and Rail Tracking System (KURTS)

SHRP2

R15B

Identifying and Managing Utility Conflicts

R16

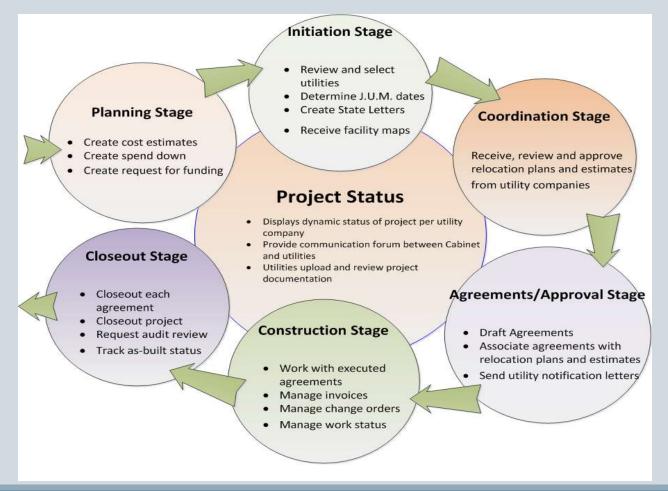
Railroad-DOT Mitigation Strategies

KURTS Primary Functions

- Project organization
- Document Management
 - Generation
 - Sharing
 - Record retainage

- Invoice Management
 - Generation
 - Approval
 - Tracking
- Contact directory

KURTS Structure



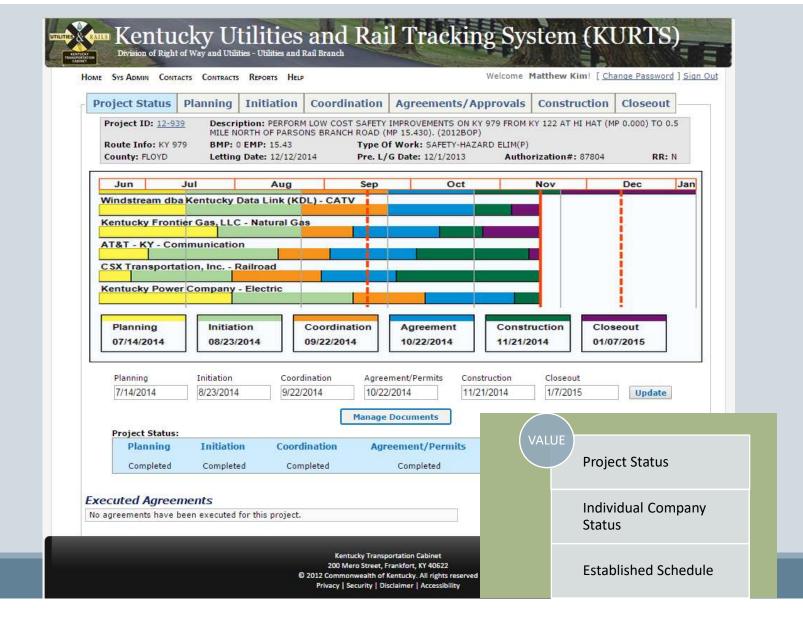


| SEARCH KURTS PROJECTS | |
|-----------------------------|------------------------|
| KURTS PROJECT STAGES/STATUS | |
| Initia | ate Utility Project |
| KURTS PROJECTS | Centralized 288 record |
| UPCOMING SYP PROJECTS | 116 record |
| FUNDING ACTIVITIES | 72 record |
| INITIATION ACTIVITIES | 12 record |
| COORDINATION ACTIVITIES | 50 record |
| AGREEMENTS ACTIVITIES | 97 record |
| CONSTRUCTION ACTIVITIES | 35 record |

Kentucky Transportation Cabinet 200 Mero Street, Frankfort, KY 40622



| MILE KILDS | | 200 | | | | | |
|----------------|-----------------|--------|------------------|----------------------|----------------------|--------------------------|---|
| - NOR | TS PROJECT STAC | ES/STA | TUS | | | | |
| | | | | · · | 1 | | |
| | | | | Initi | iate Utility Project | | |
| Kuri | TS PROJECTS - | | | | | | |
| | | Proje | ct Id | County | C+ | age | Letting Date |
| View | 1-1055 | | | Cracken | Planning | age | 09/25/2015 |
| View | 1-1056 | | 1000 | eves | Planning | | 10/23/2015 |
| /iew | 1-1059 | | | ingston | Coordination | | 10/23/2015 |
| /iew | 1-1061 | | 3500 | lloway | Planning | | 06/11/2014 |
| /iew | 1-1062 | | | :kman | Planning | | 120000000000000000000000000000000000000 |
| /iew | 1-1115 | .7 | Mc | Cracken | Planning | | 04/25/2014 |
| /iew | 1-1132 | | Ca | lloway | Planning | | 07/31/2015 |
| /iew | 1-1133 | | Tri | | Initiation | | 04/24/2015 |
| /iew | 1-1134 | | 100 | aves | Initiation | | 10/24/ 14 |
| liew | 1-1135 | | Mc | Cracken | Planning | | The second |
| rt | 1 1100 | | | 1 | Tathiana | Conti | ralized 288 rec |
| | | | | | | centr | alizeu 200 lect |
| THE COLUMN TWO | | | | | | | |
| il Upco | OMING SYP PRO | ECTS T | | | | | |
| | | | | | | | 116 rec |
| | | | | | | | |
| FUNE | DING ACTIVITIES | | | | | | |
| | | | | | | | |
| | ProjectID | No. | Requested Amt | SubmittedBy | Submission Date | Dist. Util Supervisor | Proj. Dev Branch Manager |
| View | 9-1075 | 1 | \$110,000.00 | lisa.grimes@ky.gov | 04/02/2014 | Resubmitted | Resubmitted |
| View | 9-1072 | 1 | \$100,000.00 | lisa.grimes@ky.gov | 04/02/2014 | Resubmitted | Resubmitted |
| View | 9-1080 | 1 | \$265,000.00 | lisa.grimes@ky.gov | 04/07/2014 | Resubmitted | Resubmitted |
| | 0 1000 | 1 | #50 000 00 | lisa.grimes@ky.gov | 04/07/2014 | Resubmitted | Resubmitted |
| View | 9-1086 | 1 | 330,000.00 | ilsa griffes wky gov | - 1, 01, 2041 | | Transportition of |



Home Sys Admin Contacts Contracts Reports Help Welcome Jennifer McCleve! [Change Password] Sign Out

Project ID: 04-8304 Description: RECONSTRUCT KY-49 FROM LEBANON TO THE CANEY CREEK BRIDGE. (06CCN)(12CCR)

Route Info: KY 49 BMP: 13 EMP: 15,50 Type Of Work: RECONSTRUCTION(0)

County: MARION Letting Date: 9/3/2014 Pre. L/G Date: 12/15/2011 Authorization#: 79987 RR: N

Manage Project Documents

| | Utility | Document | Description | FileType | Last Updated By | Last Updated |
|------|------------------------------|-------------------------------|---------------|----------|-----------------------|--------------|
| View | Lebanon Water Works Co. | Relocation Estimates | | PDF | thomas.capshaw@ky.gov | 10/27/2014 |
| View | Marion County Water District | Engineering Services Estimate | | pdf | tim.wilson@ky.gov | 07/24/2014 |
| View | Lebanon Water Works Co. | Engineering Services Estimate | Cost Estimate | pdf | tim.wilson@ky.gov | 10/20/2014 |
| View | Marion County Water District | Relocation Plans | Plans | pdf | tim.wilson@ky.gov | 08/25/2014 |
| View | Lebanon Water Works Co. | Relocation Estimates | Cost Estimate | pdf | tim.wilson@ky.gov | 10/20/2014 |
| View | Marion County Water District | Relocation Estimates | Cost Estimate | pdf | tim.wilson@ky.gov | 08/25/2014 |
| View | Lebanon Water Works Co. | Relocation Plans | Plans | pdf | tim.wilson@ky.gov | 10/20/2014 |

Users Can Upload / Share

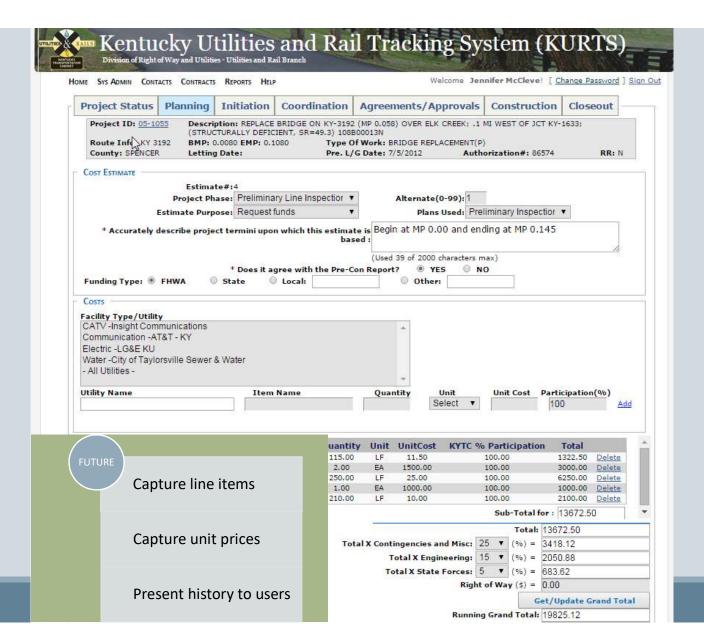
Upload Document

Return

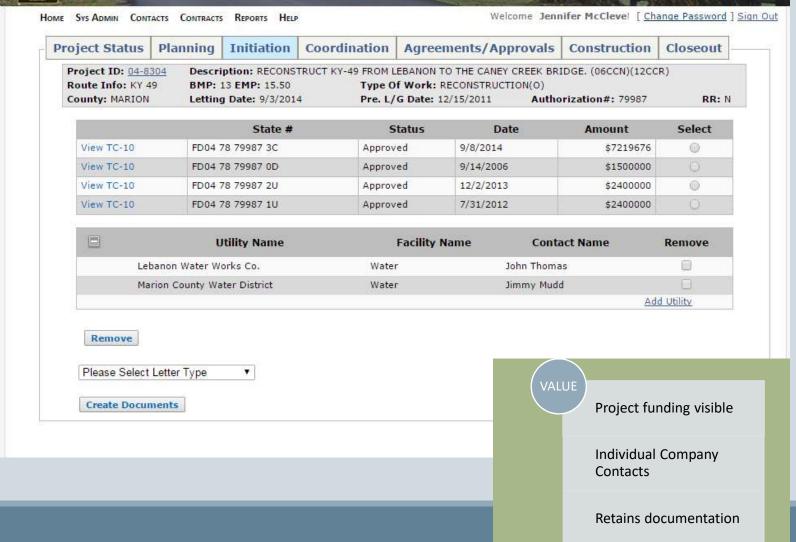
VALUE

Retains documentation

Shares documentation









HOME SYS ADMIN CONTACTS CONTRACTS REPORTS HELP Welcome Jennif

Welcome Jennifer McCleve! [Change Password] Sign Out

Project Status Planning Initiation Coordination Agreements/Approvals Construction Closeout

Project ID: 04-8304 Description: RECONSTRUCT KY-49 FROM LEBANON TO THE CANEY CREEK BRIDGE. (06CCN)(12CCR)

Route Info: KY 49 BMP: 13 EMP: 15.50 Type Of Work: RECONSTRUCTION(0)

County: MARION Letting Date: 9/3/2014 Pre. L/G Date: 12/15/2011 Authorization#: 79987 RR: N

| | Document | Description | Date Submitted | Status | Date Reviewed | Last Updated By |
|-----------|----------------------------------|---------------|-------------------|----------|------------------|-------------------|
| Utility:l | _ebanon Water Works (| Co. | | | | |
| | Engineering Services Estimate | Cost Estimate | 10/20/2014 | Approved | 10/27/2014 | tim.wilson@ky.gov |
| Review | Relocation Estimates | Cost Estimate | 10/20/2014 | Rejected | 10/27/2014 | tim.wilson@ky.gov |
| Review | Relocation Plans | Plans | 10/20/2014 | Approved | 10/27/2014 | tim.wilson@ky.gov |
| Review | Relocation Estimates | | 10/27/2014 | Approved | 10/27/2014 | tim.wilson@ky.gov |
| Utility:I | Marion County Water D | istrict | | | | |
| Review | Engineering Services Estimate | | 7/24/2014 | Approved | 7/24/2014 | tim.wilson@ky.gov |
| Review | Relocation Estimates | Cost Estimate | 8/25/2014 | Approved | 8/25/2014 | tim.wilson@ky.gov |
| Review | Relocation Plans | Plans | 8/25/2014 | Approved | 8/25/2014 | tim.wilson@ky.gov |

Conflict Matrix

VALUE

Retains / Shares Data

Includes approvals



| roje | ct Status Planni | ng Initi | ation Co | ordination | Agreeme | nts/Approvals | Construction | Closeout |
|---------|-------------------------------|---|-------------------------|------------------------------------|-------------|--|--------------------|---------------|
| Rou | ite Info: KY 49 BM | scription: 1P: 13 EMP tting Date: | : 15.50 | Туре О | | HE CANEY CREEK BRI ONSTRUCTION(O) 5/2011 Autho | DGE. (06CCN)(12CC) | R) RR: N |
| | | | | f Way Clearand Utility Clearand | | | | |
| 1 | Agreement Home | Draft A | greement | Upload Ag | reement | Create Notifica | tion Upload N | otification |
| | Utility | | Documer | nt Type | | Agreemer | nt # Amount | Status |
| | Marion County Water I View | N/A View | Market New York Control | | e Agreement | 1300005533 | \$94,47 | 3.76 Executed |
| | Lebanon Water Works | Co. | KRS 177 Eng | jineering Servic | e Agreement | 1400001138 | \$34,55 | 2.32 Executed |
| | | | 77 Eng | ineering Servic | e Agreement | N/A | | N/A Rejected |
| JE / | Facility due for days | | 77 Ke | ep Cost Agreem | ent | 1400003431 | \$421,03 | 2.00 Executed |
| | Easily draft doc | ument | 77 Ke | ep Cost Agreem | ent | 1400003094 | \$122,60 | 6.00 Executed |
| | Includes approv | /als | | | | | | |
| | Retains docume | | - | | | | | |

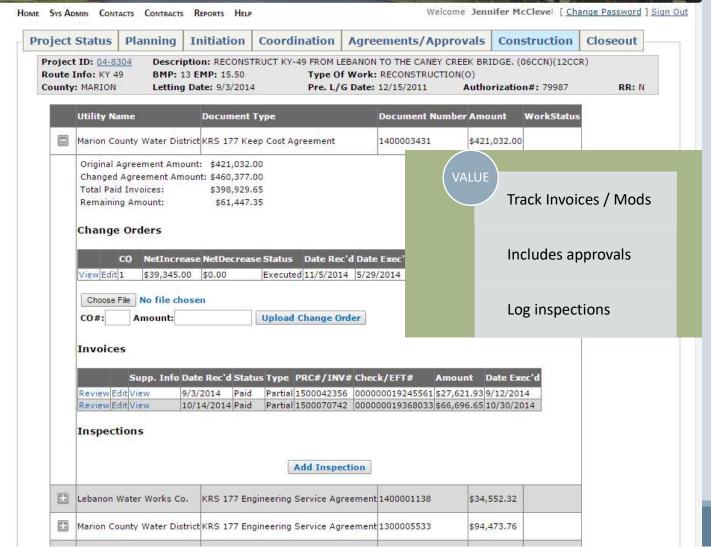


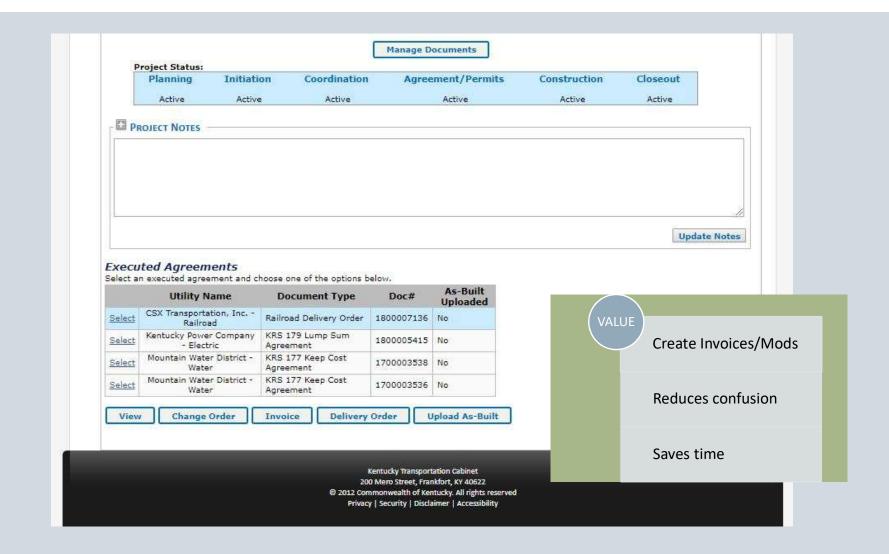
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| District 12 - Pikeville | | | efix Route | Suffix | Section I | D | BMP 10.279 | EMP 10.319 |
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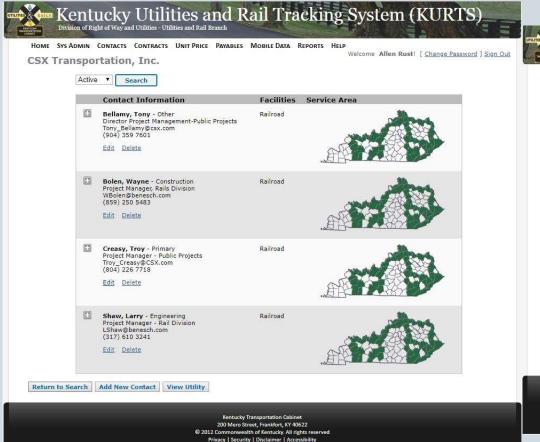
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|--|--|--|---------------------------------------|---------------|---|----------------|-----------------|
| Project ID: 02-8 Authorization#: RR DOT#: RR: Y Letting Date: 2/ Distric 2 - Madison | 83604 Pro Typ 22/2019 Pre t | gram Year: oe Of Work: MAJO c. L/G Date: 2/22/ County Muhlenberg | R WIDENING(O) '2019 Utility | Clearance: 7/ | 1. (08CCN)(10CCR)(1 /1/2019 Right uffix Section | of Way Clearar | * |
| Agreemen | t Home E | Praft Agreeme | ent Upload A | greement | Create Notifica | ntion Uploa | ad Notification |
| * Document Typ Railroad 130 Agreem | | • | | | | | |
| Utility | | Descri Railroad PE Plan | | | | | |
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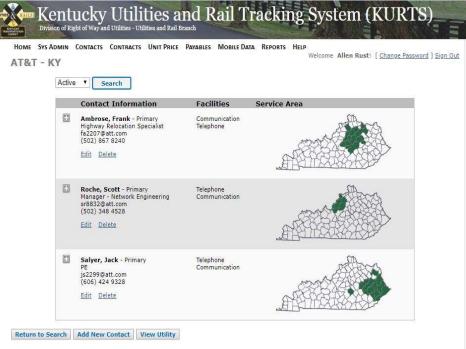






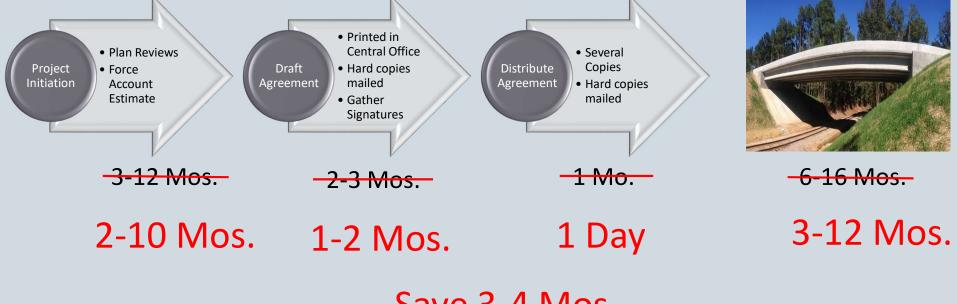
Contact Directory





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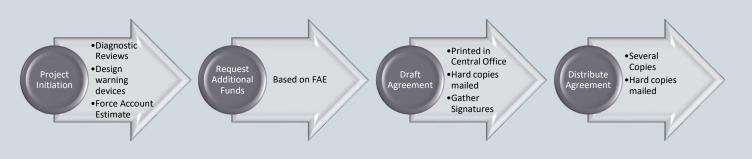
Construction Agreement Efficiency Realized



Save 3-4 Mos.

As little as 2 Months

Sect. 130 Agreement Efficiency Realized



3-6 Mos.

1-2 Mos.

2-3 Mo.

1 Mo.

7-14 Mos.

2-6 Mos.

1-2 Mos.

1-2 Mos.

1 Day

4-10 Mos.

Save 3-4 Mos.

Invoice Efficiency Realized





30+ Days

1 Week

Save 3 Weeks

RR/DOT Relationship Benefits

- Time savings
 - Time = Money
- Less stress
- Transparency
- Ability to track payments

SHRP2 R15B Case Study



Managing Utilities in Kentucky SHRP2 CASE STUDY



Managing Utility Conflicts in Kentucky through the SHRP2 Solution:



Challenges in addressing utility conflicts

Utility relocations are a significant investment for departments of transportation (DOTs) and utility companies. This investment in Kentucky can easily total in the tens of millions annually, so minimizing the cost holds intrinsic value to the DOT. As a result, the Kentucky Transportation Cabinet (KYTC) is working to streamline and create standard procedures for its designers and utility experts, while minimizing utility conflicts.

Although the KYTC has worked effectively with its utility companies in the past, the second Strategic Highway Research Program (SHRP2) onened the door to an opportunity to improve this coordination. By incorporating new methodologies developed through Identifying and Managina Utility Conflicts (see sidebar), the agency is enhancing and upgrading its current tracking database while offering training to all potential users.

Under KYTC's prior utility program, roadway projects were often designed to a significant degree before utility companies were actively involved. Consequently, utility relocations could not be completed prior to road construction. In some cases, this situation set up serious the potential for utility strikes. These

strikes can delay the roadwork and traffic, be a safety concern, and result in a loss of utility services. The possibility of utility strikes and longer construction and design time frames can also lead to added costs.

No clear standards or policies for utility conflict identification existed to help designers communicate and mitigate utility conflicts during the design process. In addition, with 12 separate KYTC Districts, the process of identifying and managing utility locations was inconsistent



Kentucky's implementation activities have led to the development of new "smarter" software that may be applicable to other states.

KYTC developed a new vision for executing its utility program based on initial SHRP2 research findings conducted by the Transportation Research Board (TRB). Working with its information technology (IT) staff, analysts, and central and District office utility branches, they designed

What is the SHRP2 Solution Identifying and Managing **Utility Conflicts?**

Identifying and Managing Utility Conflicts second Strategic Highway Research Program (SHRP2) to help public agencies utility companies, and transportation professionals improve the overall process of minimizing utility relocations on can identify, resolve, and manage utility onflicts, which will ultimately expedite The materials included are:

- Utility Conflict Data Model and
- . Utility Conflict Matrix (UCM) Training

Seven state departments of transportation are now implementing Utility Conflicts through the EHWA/AASHTO Implementation Assistance Program. This case study documents activities underway in the Kentucky Transportation Cabinet to address utility conflict management durin roadway project process.





the Kentucky Utilities and Rail Tracking System or KURTS.

Deployed in March 2014, KURTS is a database that allows utility and design subject matter experts to access project information remotely and securely with an Internet connection. The system provides a streamlined experience for approval of relocation plans, agreements, and invoices, as well as the ability to view utility relocation change orders and project status changes

The system is intuitive and requires minimal training. The database has been designed to retain historical records of all documents. With a diverse set of audiences, KURTS allows all users to interact with the utility conflict matrix (UCM) in ways that are most helpful for them and their organization

Multiple Benefits

If you don't identify utility conflicts on the front end of a project, the costs can be significantthe SHRP2 Utility Conflict Matrix enables utility subjec matter experts to communicate with design subject matter experts in a forum that is standardized and understandable to both."

> -Jennifer McCleve, Branch Manager for Utilities and Rail, KYTC

Utility companies will have readonly access to the status of invoices and change orders. Four utility companies are working with KYTC to pilot KURTS, including Columbia Gas, Duke Energy, and two small municipal water

active projects at various degrees of completion throughout the 12 District offices have been entered into the system.

companies.

Currently 390

Steps to enhance KURTS using SHRP2 funding and technical assistance are underway.

Now KYTC is using the funding and technical assistance provided by the SHRP2 FHWA/AASHTO Implementation Assistance Program to improve upon the UCM already built into the first release of the system. The implementation, named KURTS Release 2, involves the expansion of the UCM to include the collection of alternative solutions for each conflict. These alternatives can include cost comparisons and schedule impacts, thereby giving KYTC decision makers a clearer perspective of the potential impacts to the road project as a whole. Release 2 will also enable the field collection of relocation inspection logs and the establishment of a database to collect historical unit prices

As part of the statewide roll out of KURTS Release 2. Kentucky will be developing instructional materials to allow new users to learn about the system and educate themselves on its functionality and potential. The KYTC

is currently updating its processes and procedures for utility coordination within the system, and making LICM and inspection data collection available through mobile applications. This will allow for real-time and spatially tied project updates in the field or in the office.

With the development of KURTS Release 2, efforts are under way to ensure that highway design and utility

As part of SHRP2 implementation, upon completion of KURTS Release 2, KYTC has offered to work with other states to share their findings in regard to the development of this utility coordination management system, UCM, and mobile device application.

staff are aware of the advantages of bringing utility coordination earlier into the project planning and design process, In July, KYTC will hold a two-day workshop with its utility and design staff to discuss how the utility conflict matrix will work in KURTS. In August, an annual conference held in Kentucky will provide an opportunity to educate other potential users about KURTS and utility conflict matrix concepts. The conference will be a platform to help educate utility subject experts, consultants, and



What's in the KURTS System?

KURTS is web-enabled, using SQL Server database written in .NET C#. Documents are stored in Sharepoint (Version 2012): and can be used with mobile devices (tablets) using ArcGIS for Mobile

Capabilities and information included · Project search by county, district.

- · Links to preliminary line and grade
- . Links to spatially enabled data · Program to create cost estimates
- spend-down plans, funding requests Program to create standardized letters and agreements
- · Access to invoices, change orders, and status of agreements
- · Tracking capability of all documents
- . Capability for utilities to upload and
- share documents: facility maps. relocation plans, and estimates · Electronic approvals of documents maintained in the system

design engineers on the matrix to improve project development and utility

Lessons Learned During Implementation

Kentucky identified four specific users for their system; utility matter experts. design matter experts, project consultants, and utility companies. Each user comes into a project with a wide range of skills, knowledge, and capabilities. Developing a standardized and technologically based system in an industry with few standard protocols has been a challenge for the transportation agency. Implementing the utility conflict matrix (UCM) as part of KURTS is expected to encourage improvements to existing business processes and utility coordination. As more users engage the system and the UCM, the value will become evident and become incorporated into standard project development practices in Kentucky

Benefits of Using a Utility Conflict Matrix

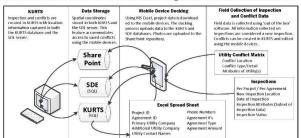
By using the tools and methodologies included in the product, these agencies can identify, resolve, and manage utility conflicts, which will ultimately expedite the project development process

Capabilities and information included

- Lists all utility conflicts to aid in coordination and resolution
- Provides alternative conflict resolution nathways
- Provides opportunities to avoid and minimize impacts, not simply relocation For more information on the KURTS system or on Kentucky's Utility Program

contact Jennifer McCleve at jennifer.mccleve@ky.gov or by calling 502-782-4944. For information on the SHRP2 implementation of Identifying and Managina Utility Conflicts, contact Matthew DeMarco at FHWA, Matthew, DeMarco@dot.gov or 720-963-3520, or Keith Platte at AASHTO, at kplatte@aashto.org or 202-624-3697.

KURTS Release 2: Mobilization of KURTS through Mobile Device Data Collection



Resources

https://transportation.ky.gov/RightofWay/Pages/Utility-Coordination.aspx

- Promo Video
- Basics Training Video
- Plans and Estimates Quick Start Video
- Invoicing Quick Start Video
- KURTS User Agreement



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