What is Quality Assurance???

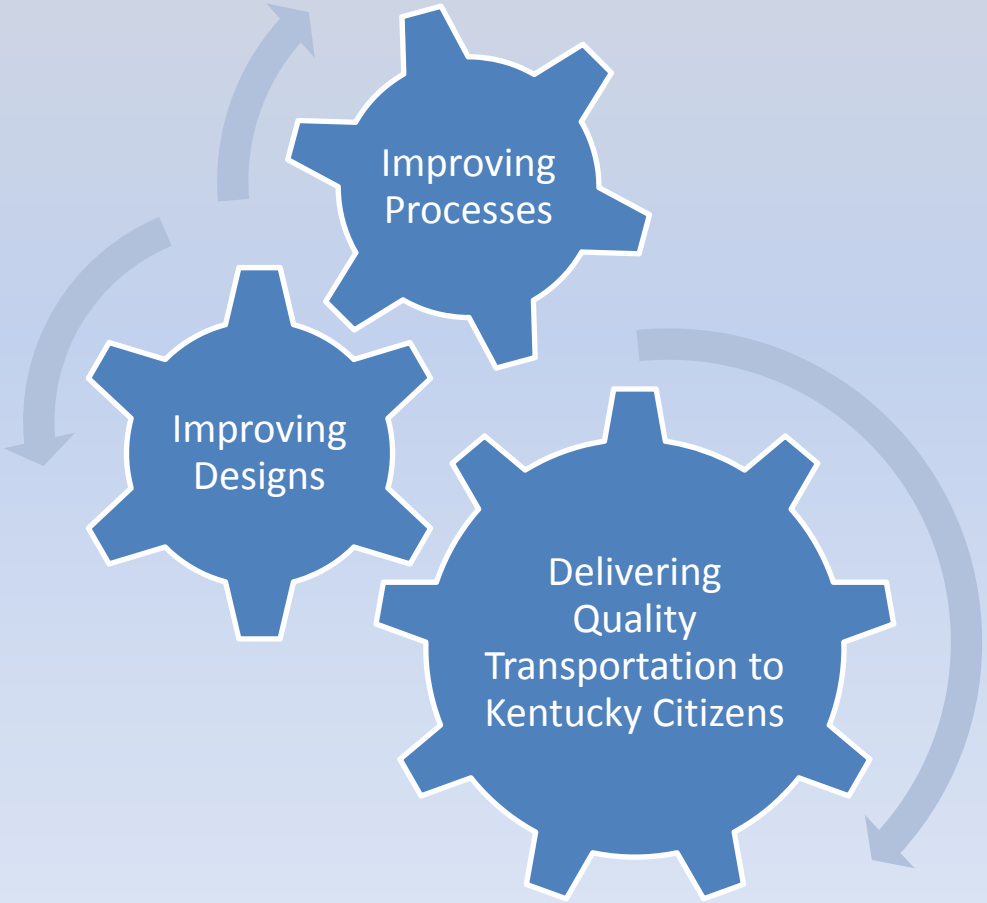
Quality Assurance Branch

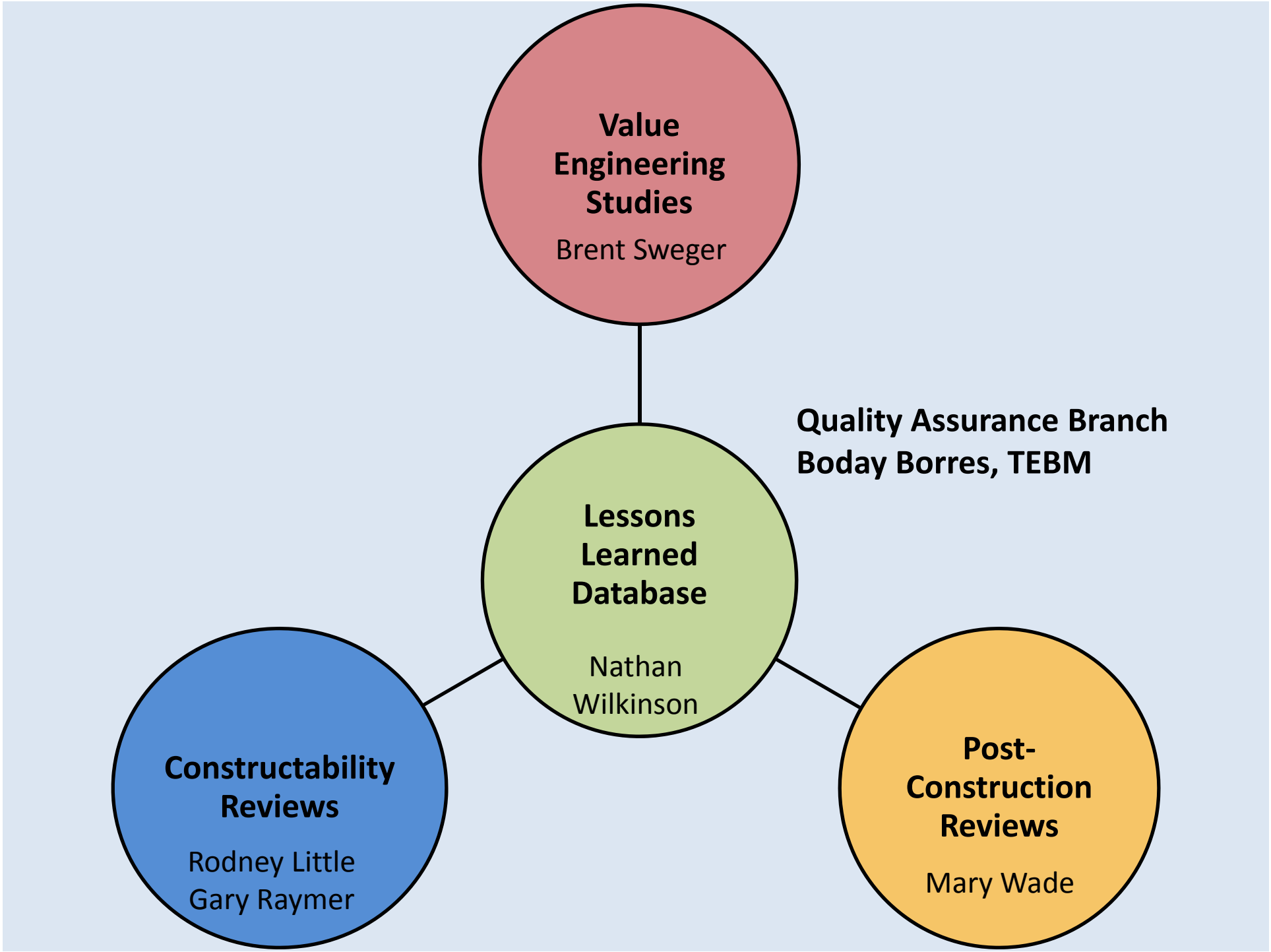
Vision Statement

We are civil servants dedicated to developing transportation designs of **Excellence**. We find ways to **Improve** and design processes that assure **Common Sense** and **Accountability** balancing these values: maintaining **Fiscal Constraint** the transportation **Purpose** need, reflecting the public's needs and interests, preserving **Enhancing** the environment, ensuring **Constructability** and improving the **Quality of Life** for Kentucky communities.

Quality Assurance Branch

Division of Highway Design




Value Engineering Studies
Brent Sweger
Quality Assurance Branch
Boday Borres, TEBM
Lessons Learned Database
Nathan Wilkinson
Constructability Reviews
Rodney Little
Gary Raymer
Post-Construction Reviews
Mary Wade

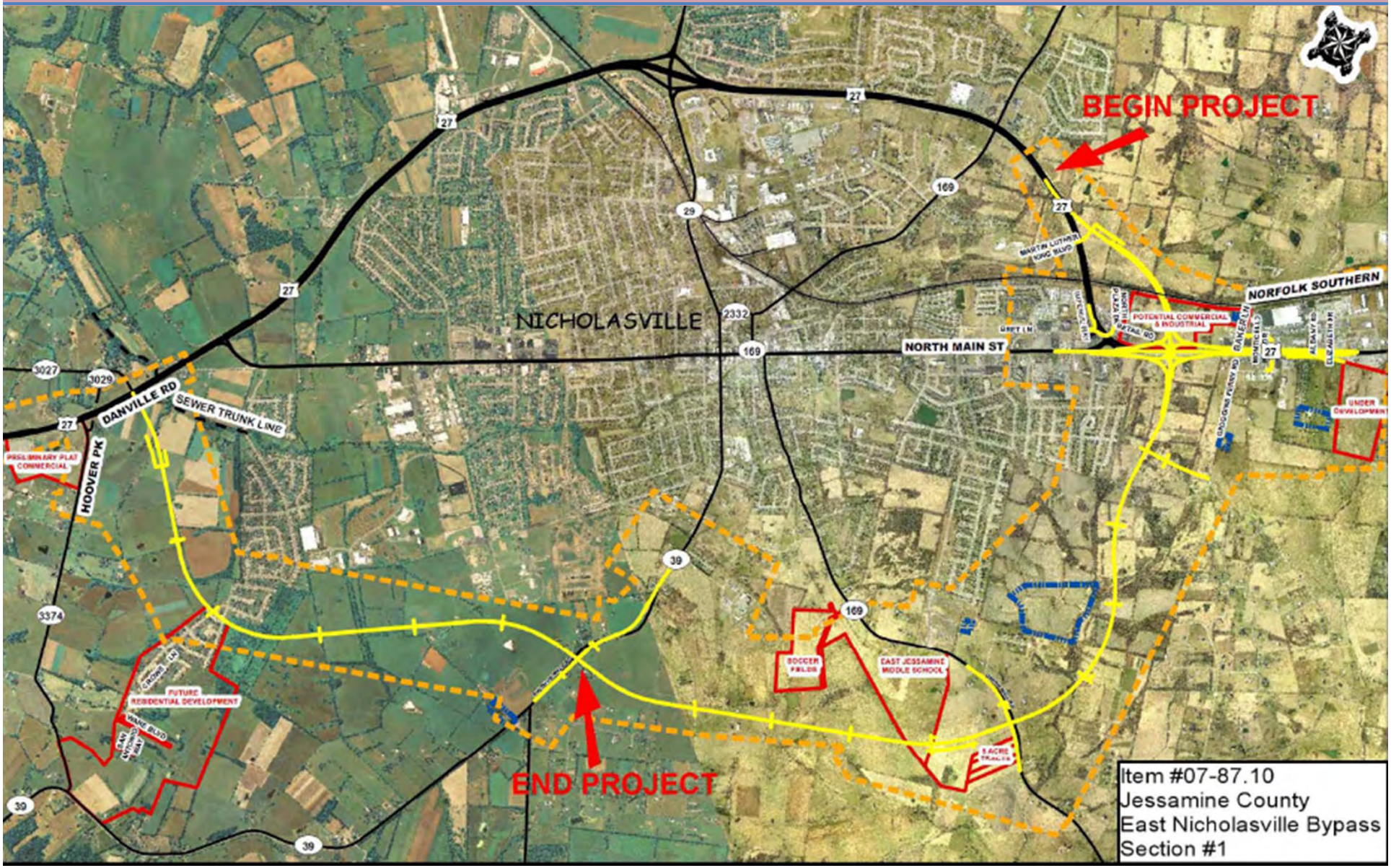
VALUE ENGINEERING

Value Engineering

- Goals of
  - improving design & adding value
  - affirm design objectives
  - removing unnecessary costs
- For projects >$25M and on the NHS
- Fresh look using new eyes
- Best time: at end of Phase I
- Can be used for any project

"There's a way to do better….find it." Thomas A. Edison

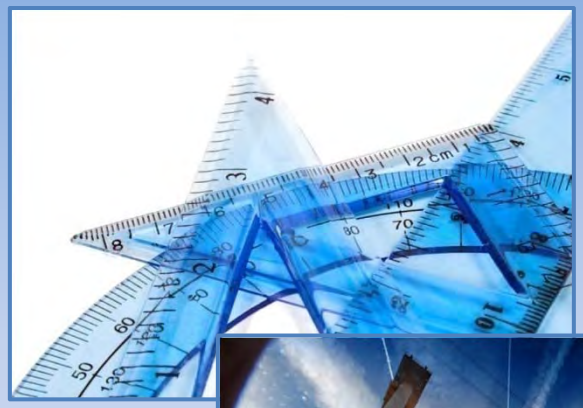
What is a VE project?



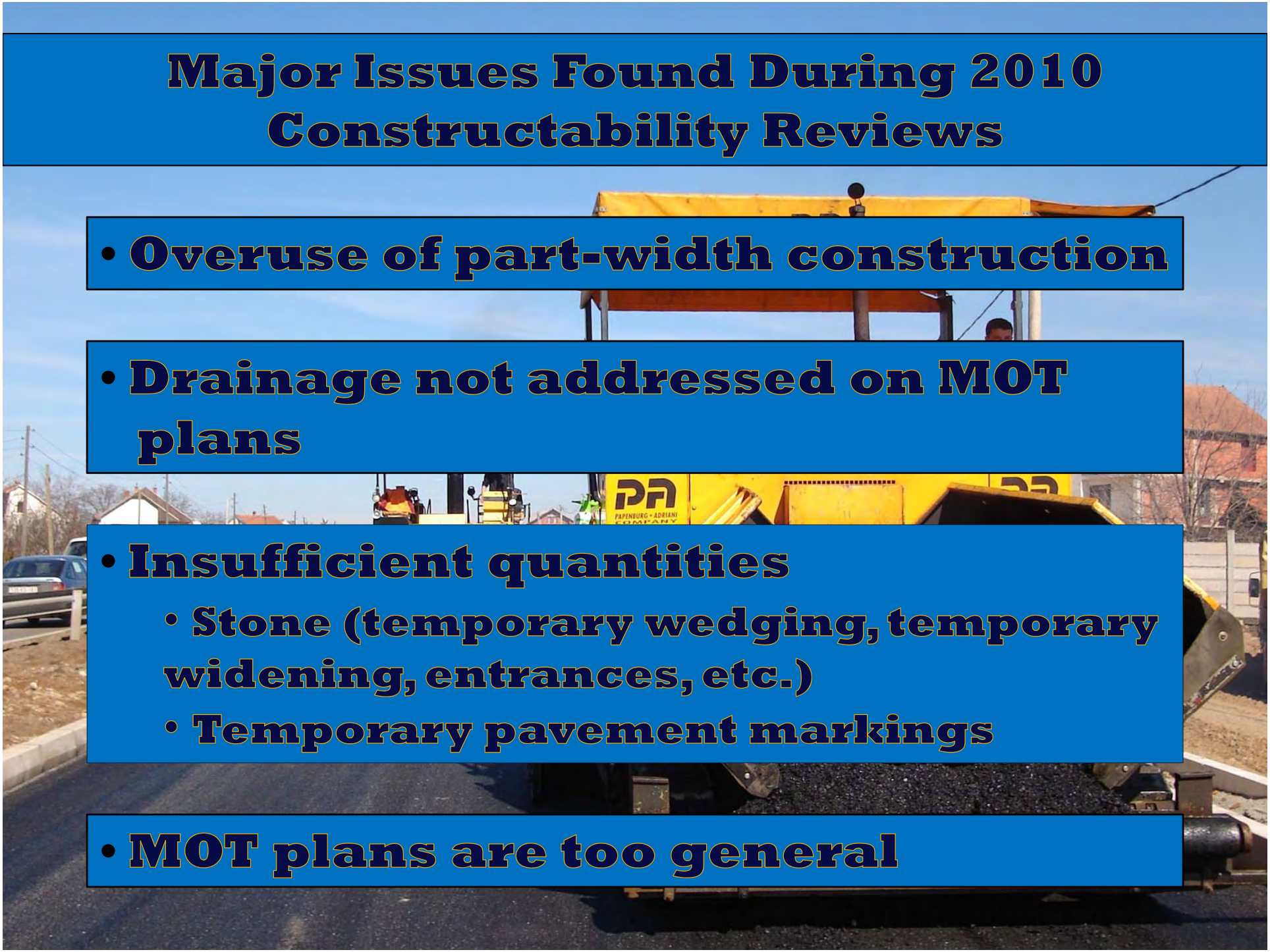
CONSTRUCTABILITY REVIEWS

Constructability Reviews

- Reviewing design plans
  - MOT
  - Road/bridge alignment
  - Reducing errors
- Improving communication & coordination
- Best time: during final joint inspection



Major Issues Found During 2010 Constructability Reviews



- Overuse of part-width construction
- Drainage not addressed on MOT plans
- Insufficient quantities
  - Stone (temporary wedging, temporary widening, entrances, etc.)
  - Temporary pavement markings
- MOT plans are too general

QUALITY ASSURANCE BRANCH
CONSTRUCTABILITY REVIEWERS

GARY RAYMER
KYTC Districts 1-6
GARY.RAYMER@KY.GOV
270-766-5066 ext. 286 (office)

CHARLES "RODNEY" LITTLE
KYTC Districts 7-12
RODNEY.LITTLE@KY.GOV
606-677-4017 ext. 310 (office)

AVAILABLE TO ASSIST YOU WITH:

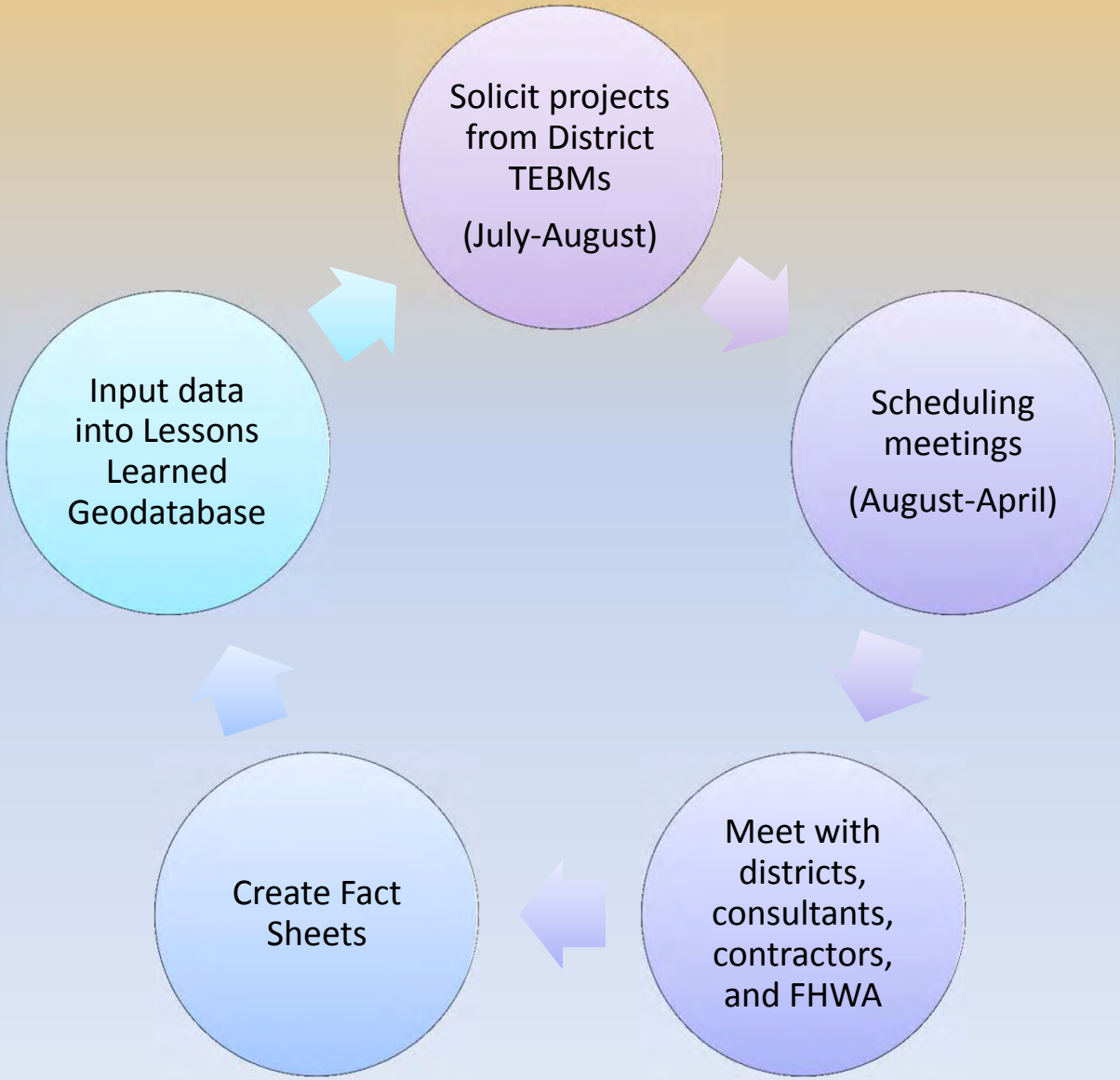
- **Plan Reviews**
- **Project Team Meetings**
- **Constructability Meetings**
- **Maintenance Of Traffic Meetings**
- **Other Concerns Or Questions**

POST-CONSTRUCTION REVIEWS

Post-Construction Reviews

- On projects with construction costs >$1M and open to public for at least a year
- Goal of 4 projects from each District per fiscal year
- Moving towards reviewing more projects that are smaller

Post-Construction Review Cycle



Post-Construction Review Fact Sheets

General Information

Project County:	**Pike**
Item Number:	**030749**
Route:	**US 119**
Type and Length:	**g, Grade, Drain & Asphalt Surface, 2.994 miles**
Project Description:	Bridge Replacement

Project Designer:	**Palmer Engineering**
	Bizzack Construction, LLC
Resident Engineer's Name:	**Weddington**
	eville-South Williamson Road

File Name:

Change Order Total:		**12**
Original Project Cost:	$	33,340,701.96
Change Order Total:	$	4,898,680.18
Total Amount	$	38,238,782.14
CO % Increase:		14.69%

Attendees:

Joe Tackett, KYTC D12
Samuel Hale, KYTC D12
Paxton Weddington, KYTC D12
Mary Westfall-Holbrook, KYTC D12
John Michael Johnson, KYTC D12
David Lindmeman, Palmer Engr.
Brad Robson, Palmer Engr.
Charles Allen, KYTC CO Design
Boday Borres, KYTC CO Design
Wheeler Nevels, KYTC CO Maintenance
Vibert Forsythe, KYTC CO Construction
Kevin Damron, KYTC D12
George Collins, KYTC D12
Shawn Ray, KYTC D12
Ronald Slone, KYTC D12

Structures	Right-of-Way
Geotechnical	Utilities
Drainage	Pavement
Environmental	Operations
Erosion Control Plan (ECP)	Design
Traffic	Construction
Maintenance of Traffic (MOT)	Materials

Notes:

Category: Design **Sub-Topic:** Omission

Settlement platforms were needed on the project and was written in the geotechnical report but not in the Plans.

Solution:

Review plans for constructability.

Sub-Topic: Top of Rock

Structure at Pier 1 (SB) had loose rock when excavated to the suggested elevation. Had to use mass concrete to remedy the situation.

Solution:

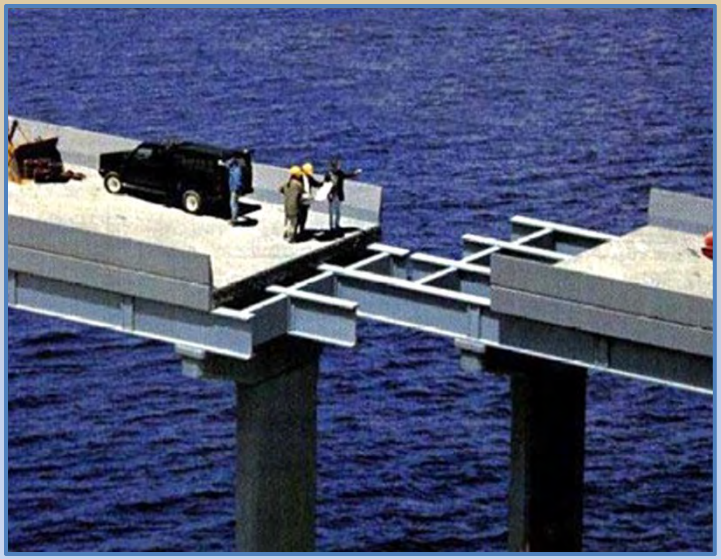
A thorough investigation for geotechinical data for areas where structures are involved. More borings are suggested possibly when substructure is designed and footer dimensions are known.

Reoccurring Post-Construction Review Issues

- Utilities
  - Relocation
    - Communication
    - Timely relocation
    - Documentation
    - Above Bridge Sites
  - Lighting Plans
    - Location of light poles
- Pavement
  - Pavement Depth
    - Where MOT uses shoulders
    - On Interstate median crossovers
    - Where heavy truck/bus traffic exists

Reoccurring Post-Construction Review Issues

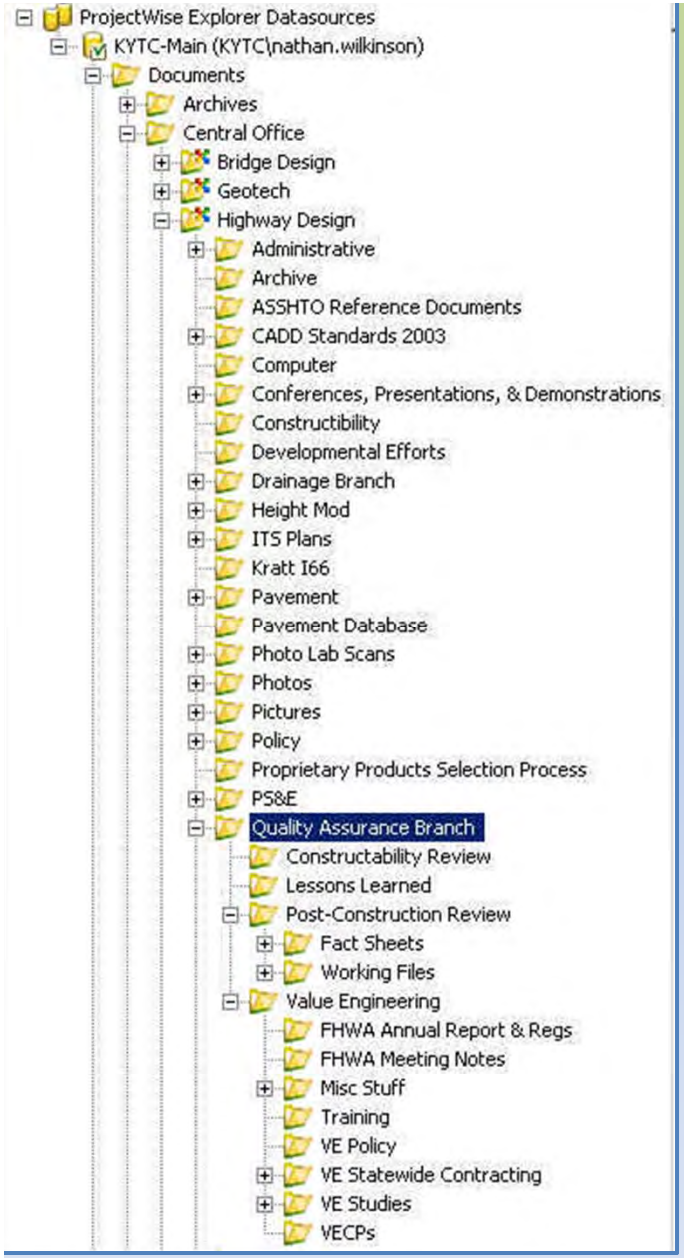
- Structures
  - Guardrail tie-ins
  - Roadway-structure alignment
  - Accuracy of elevations
    - More coring needed?
  - Settlement platforms
  - Masonry Coating
    - Specifications/designers?
- Geotechnical
  - Open cut
    - Landslides
      - Materials?
      - Plan note?
  - Use of existing material
    - Class IV channel lining



Reoccurring Post-Construction Review Issues

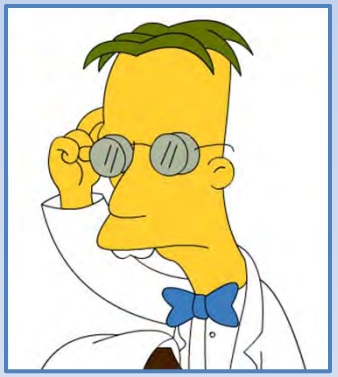
- Design
  - CAPs
  - Railroad flagmen
    - Estimating hours
    - Wages/rates
  - MOTs
  - Turning radius for truck/bus movements
  - Review & update plans from shelf

LESSONS LEARNED DATABASE

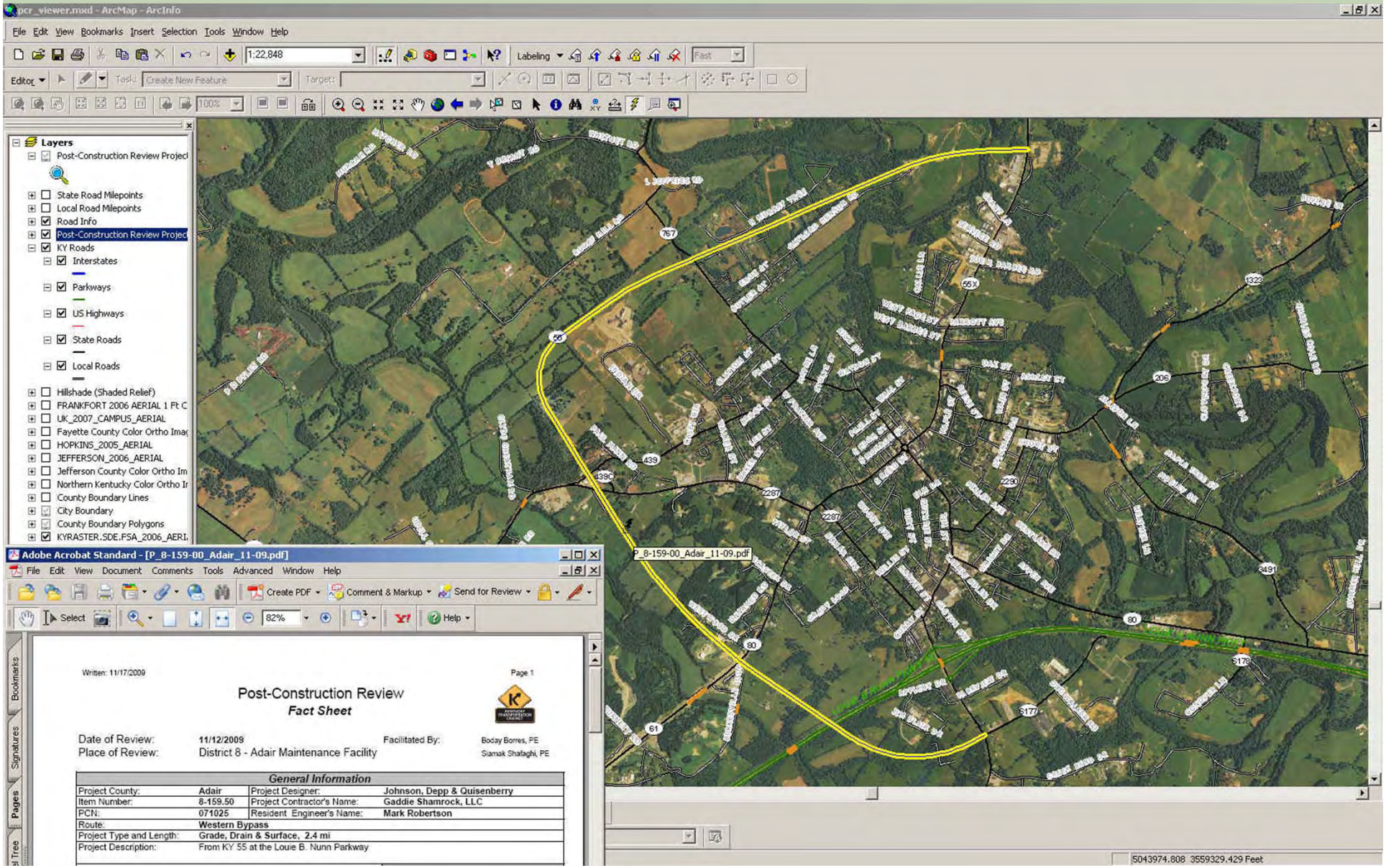


Lessons Learned Database

- Information from all 3 programs
- GIS mapping to track and analyze patterns
- Have solutions readily available
- Review annually to uncover historical trends



Linking Facts Sheets to GIS Data

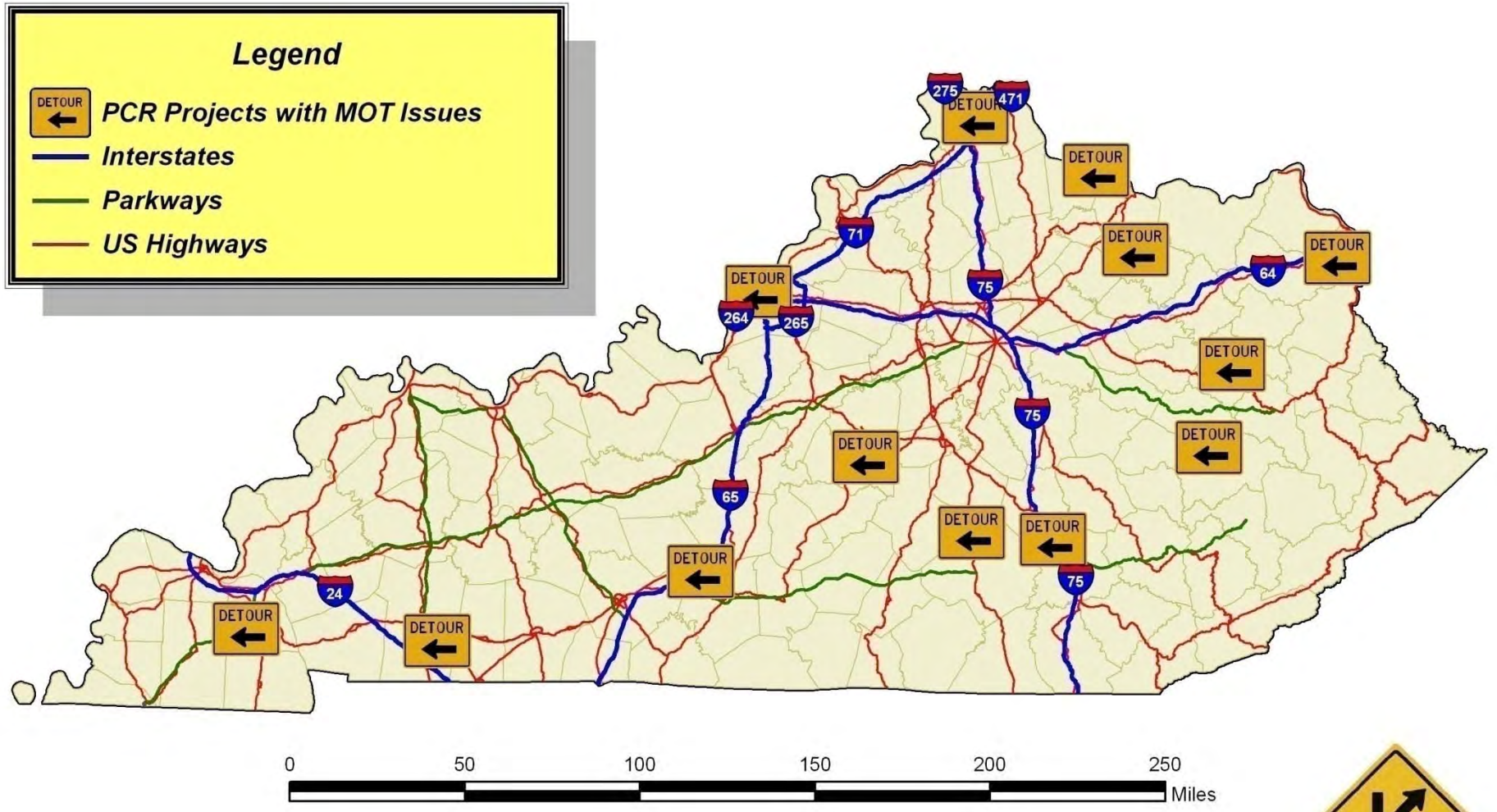


2010 Post-Construction Reviews

Kentucky
UNBRIDLED SPIRIT

KENTUCKY
TRANSPORTATION
CABINET

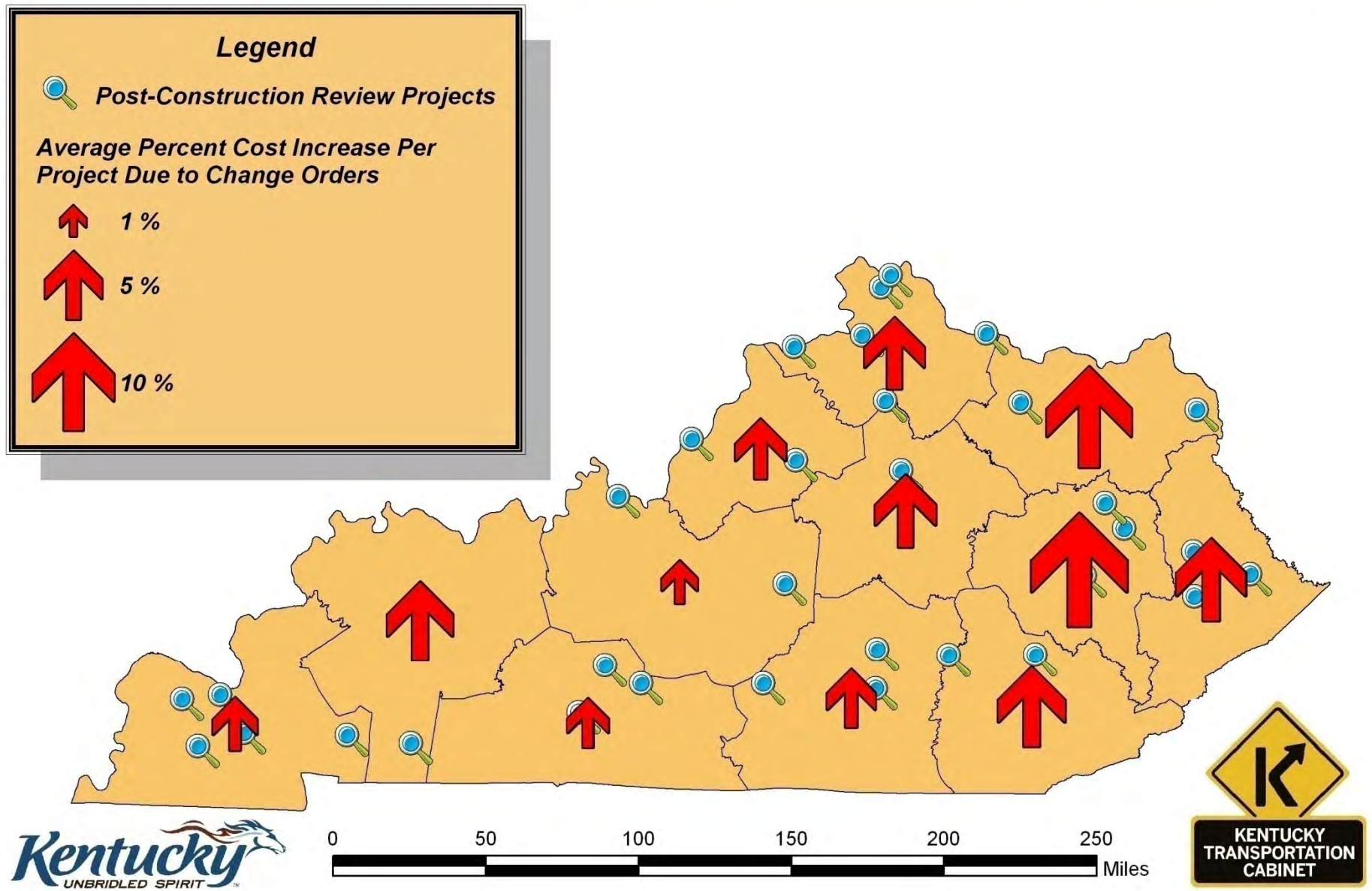
2010 Post-Construction Review Projects with MOT Issues



Kentucky
UNBRIDLED SPIRIT

KENTUCKY TRANSPORTATION CABINET

Average Change Order Percent Cost Increase Per PCR Project



The Future of Lessons Learned Database

- Mapping historical Post-Construction Reports
- Creating new datasets:
  - Value Engineering
  - VECPs
  - Constructability Reviews
- Launching website for sharing Lessons Learned GIS data

In Conclusion…

- Value Engineering
  - We need your help identifying projects
  - Keep your eyes open for new Design Memo
  - VE training in the fall
- Constructability Reviews
  - We have staff available to help assist you
- Post-Construction Reviews
  - Call for 2011 submittals

Thank You!

Quality Assurance Branch

Division of Highway Design

Boday Borres , P.E.

502-564-9900 x3362

~ It's Time To Get Serious About Quality Assurance ~