

KYTC TAMP RESILIENCY PLAN

October 2021
FHWA Peer Exchange



TAMP OBJECTIVES

- Meet requirement
- Sustainable method to communicate asset management goals
- Support KYTC in estimating current and future funding needs
- Build acceptance for asset management and be useful for knowledge transfer



KYTC TAMP

Tell Your Story More Effectively

- Document needs
- Improve accountability in decisions
- Assess and manage risk
- Make better use of technology

Manage Assets As Effectively As Possible

- Align investments with priorities
- Extend asset service life
- Preserve asset value
- Reduce annualized costs

KYTC TAMP SCOPE



**37,569 lane miles
out of 63,063 lane
miles**



**9,069 State
Owned Structures**

TAMP LESSONS

- Good Foundation of Asset Management Language in Pavements and Bridges
- Strong Relationship between Maintenance and Planning
- Many Forecasting Enhancement Needs
- Require Organizational Support



IMPROVEMENTS

- Expand on state of good repair objectives and policies
- Public facing process description
- Better define roles and responsibilities
- Define how risk defines investment strategy
- Link TAMP to other strategic documents

TRANSPORTATION RESILIENCY



- Climate change and extreme weather events present significant and growing risks to the safety, reliability, effectiveness, and sustainability of transportation infrastructure and operations.
- The impacts of a changing climate and extreme weather events are affecting the lifecycle of transportation systems and are expected to intensify.
- Transportation infrastructure is designed to handle a broad range of impacts based on historic climate.
- Preparing for climate change and extreme weather events is critical to protecting the integrity of the transportation system.

KY NATURAL HAZARDS

Natural Hazards

- Flash floods, river floods, slides, and sinkholes cause the most frequent damage to transportation infrastructure.
- Other potential hazards include seismic activity, tornados/severe thunderstorms, hail/ice, wildfire.

Emergency Repairs

- KYTC generally averages 200-300 emergency repair sites annually.
- Average 25-35 million dollars in ER costs.
- Both of these numbers trending upward in recent years.



COMPLETED RESEARCH

- KYSR 16-524: Transportation System Preparedness and Resilience to Extreme Weather Events
 - Focused on Kentucky's National Highway System (NHS).
 - Traveled to and met with KYTC personnel at all 12 districts.
 - Overall vulnerability rating generated for each segment based upon threat and criticality.
- FHWA Pilot Project: Asset Management, Extreme Weather, and Proxy Indicators (completed in 2019)
 - Developed bridge sensitivity index to flooding; index updated in Fall of 2021.
 - Conducted pavement sensitivity analysis to heat using 30-year projected climate data.
 - Provided recommendations for KYTC process improvements pertaining to resiliency.

FUTURE ACTIVITIES

- Transportation Resiliency Improvement Plan
 - Plan to prioritize and direct resiliency improvements.
 - Having such a plan in place allows for a higher Federal share under the PROTECT formula and discretionary programs.
- Incorporation of resiliency metrics into SHIFT and asset management project prioritization.
- Continuation of Kentucky Resiliency Working Group (statewide multi-agency group).