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## Integration of Utility Engineering, Coordination, and Highway Design

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### Abstract

State Departments of Transportation (DOTs) strive to deliver highway projects on time and within budget. Utility relocations have been cited as one of the primary reasons for highway project construction delays. Research and practice suggest that these delays can be alleviated with early coordination, partnership, and enhanced communication. Since utility facilities are essential to our communities and are largely permitted to occupy road rights of way, national perceptions are changing about how DOTs should work with utility facilities in road improvement projects. This philosophical change has encouraged the Kentucky Transportation Cabinet (KYTC) to investigate how to improve the integration between the utility coordination and the project development to gain efficiencies in these processes and minimize utility-related delays and costs for KYTC transportation projects. This research effort has allowed the development of a new approach for enhancing the alignment of these processes in this DOT. This approach was crafted based on the findings of a comprehensive review of the KYTC written procedures, a literature review on a national and local level, and the experiences of other DOTs, such as the Indiana Department of Transportation (InDOT). The InDOT approach served as a benchmark for illustrating how strategic integration of utility coordination and roadway design can provide the synergy necessary to expedite the delivery of highway projects. The findings of the KYTC research effort were put together in a guidance document to facilitate the implementation of this new approach and an associated Utility Coordination Training and Certification Program. This guidance document includes suggestions for identifying, managing, and mitigating utility-related risks using Utility Conflict Management (UCM), provides information on the use of Subsurface Utility Engineering (SUE) and offers recommendations for managing consultant-led utility coordination. All personnel engaged in project design and delivery, such as district utility coordinators, consultant utility coordinators, project designers, project managers, surveyors, right-of-way staff, construction staff, and central office utility coordinators, are expected to benefit from the proposed guidance.