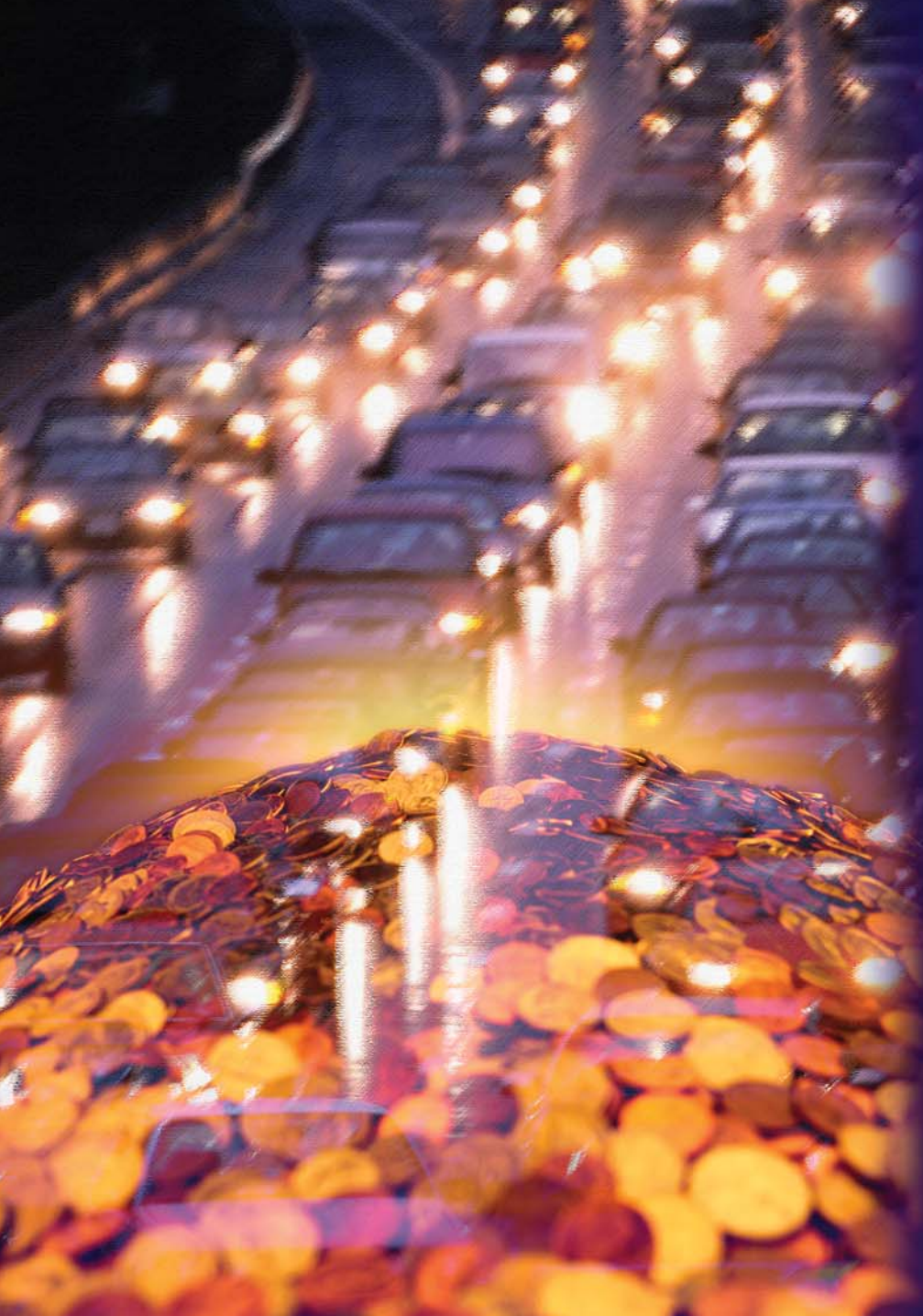


A composite image showing a road construction site. The top half shows a road with a yellow double line receding into the distance under a blue sky with utility poles. The bottom half shows a cross-section of a deep trench in the road. Inside the trench, there are several large blue pipes, a bundle of black cables, and a worker in a brown jacket and mask. Another worker in a yellow hard hat and orange safety vest is visible on the right side of the trench. The text 'WHAT LIES WITHIN' is overlaid in large orange letters across the middle of the image, with the subtitle 'The Hidden Challenge in Reconstructing Hoosier Highways' below it in white.

WHAT LIES WITHIN

The Hidden Challenge in Reconstructing Hoosier Highways



Indiana's highway system is a multi-billion dollar investment that carries the state's economy. Millions of Hoosiers depend on the system each day to get to work, to school, to visit family and make countless essential and recreational trips. This mobility, and the state's continued economic growth, will be threatened without continued improvement of these roads.

Lying within and around our highways is a complex network of public and private utilities that provide important services, such as electricity, gas, water, sewer, telecommunications and cable TV. In many cases, the highway and these numerous utility facilities share the same public road right-of-way.

Conflicts that arise on a highway construction project when these utility facilities need to be relocated threaten mobility, lead to frustration for drivers, adversely affect nearby businesses and add delay and expense for all parties.

Industry Challenge



Highways and utility services are essential in 21st century American life; yet frequently these necessities come into conflict when highways are being improved.

This increasing number of conflicts led the partners in the highway improvement process to create a Utility Relocation Task Force. The goal of the Task Force is to foster better coordination, cooperation and communication between the transportation and utility industries. This Task Force brought together representatives from the Indiana Department of Transportation (INDOT), Federal Highway Administration, highway contractors, design consultants and utility companies to identify the problems and offer creative solutions, which include a system of accountability.

The goal is simple: minimize and eventually eliminate delays in highway construction when utility facilities need to be relocated.



Defining the **Problem**

For decades, Indiana and other states have recognized that both highways and utility services are important to the public. As such, these important services share the right-of-way on public streets and roads to maximize taxpayer resources.

Under Indiana law, **utility companies may place facilities on public road right-of-way, at no cost, provided they don't interfere with the construction, maintenance or safe operation of the roadway.** If relocation of utility facilities located in the right-of-way is necessary to accommodate highway improvements, the facilities are normally moved at the utility company's expense. On the other hand, the relocation of utility facilities from land which is being acquired for public right-of-way and on which utility companies have an easement or other property interest, is paid for by the highway agency when this land is needed for a highway improvement.

Unfortunately, **additional public road right-of-way has become more difficult to obtain**, particularly in urban areas. With utility companies struggling to provide our growing population with additional services and highway agencies seeking to provide needed increases in highway capacity, conflicts are bound to occur.

Problems are further intensified by changes in utility company ownership from local to out-of-state control and budgetary and staffing constraints for both highway agencies and utility companies. These changes and limitations make it difficult to maintain effective communication as transportation projects advance through the development process.

How Bad Is It?

Not surprisingly, these factors increasingly lead to conflicts between highway improvements and utility facilities.

According to the U.S. General Accounting Office, about half of all highway and bridge projects eligible for federal funding involve the relocation of utility facilities. A study by Penn State University for the American Association of State Highway and Transportation Officials found that road construction projects generally take longer and cost more when utility facilities need to be relocated.

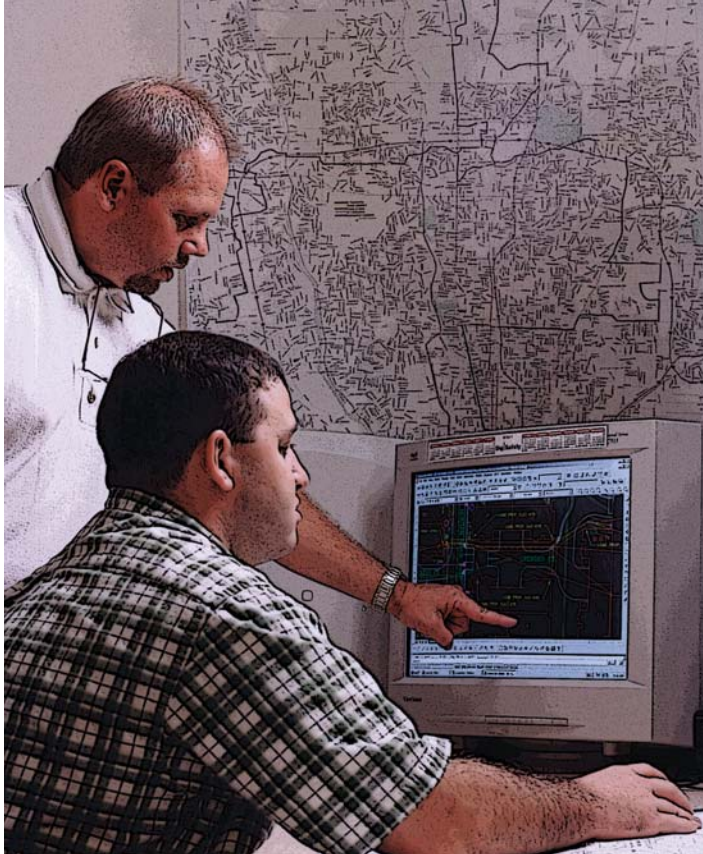
Several high-profile Indiana highway projects demonstrate the need for change. The reconstruction of U.S. Route 421, or Michigan Road, in Marion County was delayed for more than a year by a number of problems including those arising from the relocation of utility facilities. Prolonging construction schedules increases the possibility of traffic safety problems for both the public and industry workers.

In addition, a gas-line explosion on an INDOT project in Lafayette further illustrates the safety implications of this work. These situations and others acted as a catalyst to unite industry and state leaders in seeking significant change.



New Approaches

The stakes are high for Hoosier businesses, motorists and residents. These are the people who suffer most when highway costs escalate and projects are delayed.



Project delays can create:

- Congestion and travel delays
- Inconvenience
- Loss of business

The Utility Relocation Task Force has worked to identify the causes of these problems and suggest a road map for change.

The Task Force has offered a range of solutions, including:

- Improved awareness and better communication
- New procedures to better coordinate the relocation of utility facilities
- Policies and rules to clarify responsibilities and establish accountability

Ultimately, better cooperation is the key to improving the process. Without these changes, Indiana's economy and our quality of life will suffer.

Issue 1: Improve Accountability

Today, there is no adequate mechanism to hold all the parties – INDOT, highway designers, utility companies and contractors – accountable for failing to fulfill their roles and responsibilities in the process. In addition, these roles and responsibilities are not clearly defined. The lack of accountability is a significant flaw with today's process. Without accountability, only marginal improvements are likely.

Common problems include:

- No contractual relationship between contractors and utility companies
- A coordination process that does not yield timely and detailed utility company relocation plans
- Lack of compensation for additional costs due to delays
- Scheduling and budgetary problems for utility companies caused by unexpected highway improvements

Solution: Clarifying roles and responsibilities, and defining the consequences for failing to take appropriate actions should provide accountability and produce better coordination among all parties.

Recommendations include:

- Creating rules and/or pursuing legislation to clearly define the roles and responsibilities during each phase of the highway development process and to hold parties accountable for actions within their control
- Creating a reimbursement process between those parties that cause delays and those who lose money as a result

These new laws and policy changes should benefit all parties – including the public. Projects will be completed sooner with a lower overall cost and fewer unexpected delays.



Issue 2: Improve the Locating of Underground Utilities



Sometimes utility facilities are relocated unnecessarily because designers lack good information regarding their location underground. If these facilities can be identified during the early stages of design, it may be possible to design the highway improvements to minimize or eliminate the relocation of those facilities.

Common problems include:

- Difficulty obtaining information about the location of utility facilities during the design phase of a project
- Difficulty obtaining vertical location information even when horizontal location information is provided

Solution: Costly project delays should be minimized or eliminated by using better mechanisms to identify utility facilities and potential conflicts during the design phase of a highway project.

Recommendations include:

- Developing a process in which utility companies provide location information during the design phase of a highway project
- Increasing the use of a technology called Subsurface Utility Engineering (SUE), which uses ground-penetrating radar, acoustic pipe tracers and other techniques to improve the accuracy of underground utility location

The benefits of these changes are obvious. Armed with better information, highway designers may be able to minimize or avoid relocation of utility facilities. Contractors should benefit by having more timely and accurate information about utility facilities that could affect the construction of a project. In addition, all parties – including the public – should benefit by avoiding costly construction delays.

Issue 3: Improve Coordination during the Design Process

Once the data is collected and utility facilities have been identified, highway projects move through a plan-development process, which relies heavily on the continued input of utility companies to check and refine the highway design.

Common problems include:

- Lack of participation by some utility companies in site reviews and coordination meetings
- Lack of timely response to requests for information
- Lack of timely information about changes to project schedules and revisions to proposed project plans
- Frequent personnel changes over the life of a project, which can compromise good management and coordination

Solution: Clearly define the roles and responsibilities of the highway department, designers and the utility companies during the project-development process.

Recommendations include:

- Establishing rules and procedures, including timelines, to better define the coordination process
- Making project status reports available online
- Providing a single-point of contact for project coordination

Improving the coordination process should minimize conflicts and avoid costly construction delays. In addition, giving utility companies better access to project schedules and information should help them plan and budget for relocation work.



The background of the slide features a close-up, high-angle shot of a silver toy car on a black track. The car is positioned in the lower center, moving towards the right. Several brightly colored plastic cones (green, blue, yellow, red) are scattered around the track, creating a dynamic and colorful scene. The lighting is bright, highlighting the metallic sheen of the car and the vibrant colors of the cones.

Issue 4: Modify Highway Design to Minimize Utility Relocations

As demand for the finite space in and around the highway right-of-way increases, so does the difficulty and cost of adding new utility facilities or relocating existing ones. Yet, highway designers have little incentive to avoid utility facility relocation under the typical design process.

Common problems include:

- Designers have tight schedules that leave little time to explore alternatives that could minimize the impact on utility facilities
- Lack of complete information for early consideration of utility facilities increases the potential for later project delays, as well as cost increases

Solution: Assessing the impacts on utility facilities at the earliest stages of a highway project offers the best opportunity to modify the design in ways that benefit the highway project and utility companies.

Recommendations include:

- As part of the project scope and early design, highway designers should consider how highway projects would affect existing utility facilities

Considering the impact of a highway project on utility facilities during the early stages of its planned design should lead to highway designs that better accommodate utility facilities, reduce the cost for utility services and reduce the impact of construction on the environment.

Issue 5: Obtain Sufficient Right-of-Way to Accommodate Utility Relocation

The lack of sufficient right-of-way to accommodate both needed highway improvements and placement of utility facilities hinders efficient road construction. In addition, INDOT restricts utility companies from placing facilities in limited access highways (freeways or highways with few intersections or connecting driveways).

Common problems include:

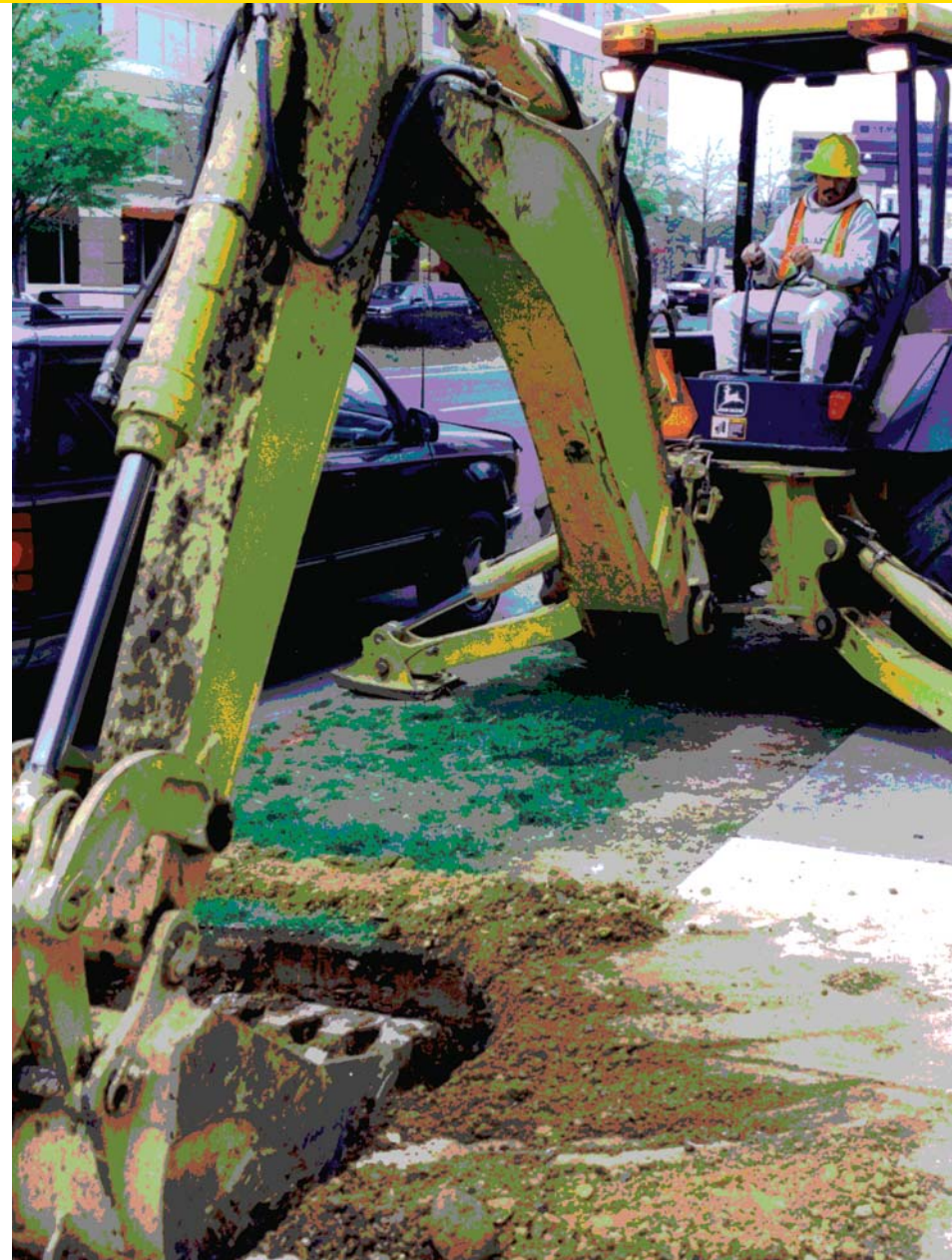
- Limited space on public right-of-way for utility facilities
- Project delays resulting from utility companies acquiring their own right-of-way

Solution: The time has come to reexamine the approach to right-of-way acquisition.

Recommendations include:

- Consider more flexibility in allowing utility facilities within limited-access right-of-way
- Consider acquiring, *at the same time*, sufficient right-of-way needed for both the highway improvement and utility facilities

New guidelines that provide more flexibility in locating utility facilities along limited access highways should help ensure that sufficient space is available for both. Improved cooperation in acquiring right-of-way should also lower costs, avoid delays and minimize inconvenience for the public.





Issue 6: Streamline the Right-of-Way Acquisition Process

Acquiring new right-of-way takes time, even when property owners agree to the project and proposed right-of-way limits. When INDOT and utility companies need additional right-of-way and the process takes place separately, utility companies often cannot begin their process until the land acquisition for highways is complete.

Common problems include:

- Delays in acquiring right-of-way can delay the relocation of utility facilities and the highway improvements
- Lengthy condemnation proceedings (legal proceedings to take property by eminent domain) can further delay the process

Solution: Look for ways to streamline the acquisition process for new right-of-way and easements. Examine laws in other states that expedite access to land involved in condemnation cases when there is a clear public need.

Recommendations include:

- Work with Indiana legislators to craft new legislation that expedites access to land while protecting individual property rights
- Consider allowing INDOT to acquire any additional land needed for utility facility relocation when it is deemed an integral part of the highway project

Streamlining these processes should permit highway projects to be completed sooner and at a lower cost to the public. Also, landowners may be more receptive when all land is acquired in one transaction.

Issue 7: Include Adequate Utility Relocation Work Plans in Highway Contract Documents

The final product of the utility coordination process is a utility relocation work plan. These plans should be submitted to INDOT for inclusion with the highway contract documents.

Common problems include:

- Utility work plans are submitted in a variety of formats from freehand to computer-drafted drawings
- The work plans are seldom available to potential bidders for the highway contract
- Insufficient review and coordination between utility work plans and highway construction plans

Solution: Make the utility company work plans available to highway contract bidders.

Recommendations include:

- Consider providing a complete layout of all proposed utility facility relocations, including a detailed schedule on how these activities should proceed
- Provide utility relocation work plans with realistic schedules
- Require the highway contractor to coordinate its work plan with the work plans provided by utility companies
- Require highway plan designers to coordinate utility work plans with the proposed construction design plans in order to minimize conflicts

Making adequate utility company work plans available to highway contractors should help avoid conflicts that result in construction-related delays and escalating costs. By providing the information as part of the construction bid documents, contractors can provide a more reliable bid, which benefits INDOT and taxpayers. Early and complete coordination should also give utility companies more advanced notice in planning for construction projects.

Issue 8: Prepare Right-of-Way for Utility Relocation

Right-of-way has to be staked and cleared before highway construction can proceed. This work is done by various entities – INDOT, utility companies and contractors – and at various stages of the planning and construction process.

Common problems include:

- No clear and consistent roles and responsibilities for clearing right-of-way
- Utility companies could clear right-of-way sooner in the process, but they are often not eligible for reimbursement of those costs
- Staking and clearing right-of-way prior to award of a highway contract – although beneficial to expediting relocation of utility facilities – can result in duplication of work
- Crews get in each other's way when contractors and utility companies must work in the right-of-way simultaneously

Solution: Clarify the roles and responsibilities for preparing right-of-way for construction and implement procedures that encourage the early relocation of utility facilities.

Recommendations include:

- Develop clear, written guidelines for preparation of the right-of-way. These guidelines should clarify roles and responsibilities, including what costs are reimbursable
- Consider making INDOT responsible for all staking, clearing and grading work needed within the highway right-of-way. INDOT could pay the utility company for the work, let an early contract for this purpose or make it part of the regular highway contract
- Consider during the design of a highway project whether early clearing and right-of-way staking would expedite the relocation of utility facilities and, if so, incorporate such requirements into the bidding documents
- Consider allowing the highway contractor to perform some or all of the utility facility relocation work as part of the highway construction contract, especially in congested urban areas with little room for multiple work crews
- Consider delaying a highway contract if there are known right-of-way problems that would preclude the timely relocation of utility facilities. If, however, a project goes forward, the bid documents should clearly reflect the status of land acquisition and the anticipated schedule for utility work

Paying utility companies for clearing and staking, or letting a separate contract for this work should eliminate a potential source of delay and disruption for highway improvement work. If the contractor is responsible for both utility relocation and highway work, the contractor can better control critical elements of the construction schedule. In addition, alternate methods for preparing the right-of-way may allow some work to be done in advance to shorten construction timeframes and minimize disruptions to the public.

Issue 9: Determine INDOT's Role in Managing Public Right-of-Way

INDOT'S role in managing public right-of-way along the state highway system is not clearly defined. It is also uncertain what responsibility INDOT has – or should have – in acquiring right-of-way for utility facilities that must be moved for a highway improvement project.

Common problems include:

- Multiple utility companies acting independently to acquire their own right-of-way and easements may not be cost effective or efficient
- Utility companies compete with one another for the “best” right-of-way location
- There is no well-defined process to keep utility relocation work on schedule
- Insufficient information, at times, on where utility facilities are located
- Some utility companies deviate from their relocation plan

Solution: Allow INDOT to acquire enough land to accommodate all utility facilities and manage the relocation process.

Recommendations include:

- Consider having INDOT acquire all the land necessary for highway improvements, including relocation of utility facilities
- Develop guidelines regarding the placement of utility facilities in the public right-of-way
- Develop procedures for a Geographic Information System database to record the location and depth of utility facilities in the public right-of-way

Highway agencies and utility companies can minimize the amount of land needed for highway and utility facility relocation by implementing new policies. Such policies can coordinate the placement of utility facilities within the right-of-way to avoid delays and minimize costs.



Issue 10: Improve Utility Coordination During Construction



Once a project is designed, the right-of-way acquired and the project has been awarded to a contractor, the construction phase of the process can begin. Despite years of planning, construction is typically the first time all the parties – designer, project engineer and staff, contractor and utility companies – are brought together.

Common problems include:

- The highway contractor is responsible for the successful and timely completion of the project, yet the contractor may not have sufficient information on the location and status of utility facilities
- Contractor and utility companies have no contractual relationship, but need each other's cooperation to complete the work in a timely and cost-efficient manner

Solution: Improved communication and coordination are needed among all parties throughout the construction process.

Recommendations include:

- INDOT should hold a pre-bid meeting, which includes utility companies, for all major highway projects, so contractors can obtain utility information directly from the utility companies involved
- INDOT should hold a pre-construction utility coordination meeting for all projects with significant utility relocation work. This should allow the contractor and utility companies to begin coordinating their construction activity
- Utility companies should be more involved in the formal communication process known as “Partnering,” which brings together on the jobsite the various parties on a project to encourage better management and cooperation

The contractor should benefit from having better information for bidding on projects, which should lead to lower costs for the public. Better communication between contractors and utility companies should result in fewer construction delays and disruptions for all parties, including the public.

Issue II: Develop Process for Dealing with Conflicts from Unexpected Utility Facilities

Even with additional effort and an improved coordination process, unexpected utility facilities may still be discovered during the construction phase of a project and can cause major delays.

Common problems include:

- Abandoned utility facilities
- Utility facilities whose owner is unknown
- Utility facilities that were mismarked

Solution: Clearly define the procedures for handling unknown, abandoned or unexpected utility facilities during construction.

Recommendations include:

- Develop procedures for dealing with an unknown utility facility
- Hold appropriate parties accountable for unknown facilities
- Establish procedures to compensate parties for additional costs incurred due to unknown utility facilities
- Develop construction specifications for handling unexpected utility facilities

Having a process in place to deal with unexpected utility facilities should improve job-site relationships, reduce the potential for conflicts, and provide compensation to affected parties. In the end, the public is the clear winner because projects can move more quickly toward a successful completion.

Conclusion

Events in recent years have made it clear that better ways are needed to handle highway projects that involve the relocation of utility facilities. The need to improve this process has never been more imperative.

A fundamental component of an improved process must be accountability. Improved processes, without accountability, are unlikely to produce the desired outcome.

Without these changes, motorists, businesses and residents throughout Indiana will continue to suffer as needed highway improvement projects fall further behind in schedule and escalate in costs.

Good communication, coordination and cooperation among the highway agency, design consultants, utility companies and highway contractors are essential to blazing a path to a better future, but these changes cannot be achieved without your help.

To find out how you can become an advocate for change, and/or to request a copy of the entire Utility Relocation Task Force Report, please contact:

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