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# Minimize construction problems with early infrastructure planning

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While often overlooked in preliminary design, early planning for utilities and infrastructure can improve the success of your development project. While a typical building design may have many hours spent early in the project on concept planning, renderings, and program development, utility and infrastructure coordination are often delayed until later in the design. This process can lead to under estimating construction costs and schedules for enabling work that is required to open the project.

Developments generally fall into three broad categories. Urban projects, which have developed sites, often involve older infrastructure that is materially or functionally obsolete and needs to be upgraded. Rural/suburban projects, where utilities systems are smaller or non-existent, often require infrastructure to be extended to the site or enhanced for the proposed use. Linear projects, such as road improvements or utility trunk upgrades, often require the relocation of utilities along the project corridor.

Some urban projects require complicated enabling work in order to proceed. When infrastructure investigation is done early in the project the costs and timetables to relocate and upgrade utilities can be incorporated into the overall project schedule. This homework early in the project takes time, but it can help avoid surprises and unnecessary delays later during construction.

One example is a recent office building project in downtown New Haven that required the relocation of overhead power lines along the property line in order to accommodate the construction crane. The overhead lines were temporarily relocated across the street while the office building is under construction, then they will be placed underground in the city street as a permanent location. The enabling work had to be coordinated with utility work in the area associated with other construction projects that involved the re-siting of aerial transformer banks, and modifying circuits on some underground lines for several surrounding city blocks. Moving the aerial transformers also required obtaining permission from the City Parking Authority to move the transformers onto their property.

In addition, there were other utility relocations required due to off-site traffic improvements, traffic signal upgrades, and pedestrian cross walk improvements. We had many meetings with the utility companies, owners, contractors, and the design team to coordinate all the changes that had to occur. All in all, nearly 18 months elapsed between the time we started the design coordination and the time that construction started at this site. The owner was able to incorporate these costs and schedules into the overall project plan to minimize delays and extra charges during construction.

Another aspect of utility planning is to dovetail project requirements with overall utility company capital plans to minimize disruption to neighborhoods and lessen future costs. One recent project required the extension of new 8-inch diameter water mains to service the development; however, the water company requested that 12 inch diameter mains be installed in the town street leading up

to the site to accommodate future extension of service to surrounding areas. The water company offered to pay a portion of the cost of the project for the larger pipe, and the developer agreed. This coordination now has the potential to lessen future costs because the street will not have been re-opened.

Developments often have positive benefits to the surrounding community by improving infrastructure. A project that upgrades water service for one development can improve fire protection and reduce insurance costs for nearby homes and businesses.

Some of the typical steps for improved infrastructure coordination that can be incorporated into most projects include:

* Develop a utility contact list and investigate utility capacity early in the project.
* Determine what the utility company's long-range capital plans are for the area. Are there other projects on the horizon that will need utility work and possibly share costs? Are there municipal or state projects planned that may impact the project?
* Develop preliminary project utility demand estimates early for utility coordination and update the utility companies as the project progresses.
* Outline scopes, schedules, and fees early in the project for utility upgrades or construction. Are there any other on or off-site activities, like roadway widening, that may require additional infrastructure work?
* Identify special equipment that may have long lead times for purchase. Allow sufficient time to prepare legal agreements for easements, etc. that may be required. Determine the schedule for various utility companies to switch over service and de-commission existing service lines.

Incorporating infrastructure planning into a public or private project early in the design can help minimize costly problems and delays. This coordination may require considerable effort, but it will yield significant benefits later in construction. Coordinating infrastructure improvements with utility companies is like voting; do it early and often.

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