

Doing More with Less through Combined Infrastructure Replacement

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In today's economic environment where municipalities are trimming resources to balance budgets, it is especially important to identify ways to reduce the cost of renewing or replacing antiquated infrastructure prior to failure.

Municipalities, through asset management, routinely identify and prioritize areas of their aging infrastructure in need of renewal or replacement. Annual asphalt overlay programs, yearly pipe replacement programs, and short-term/long-term capital improvement programs are all examples of planned asset management and replacement. Each jurisdiction may properly plan and organize for its own replacement projects; however, at times this effort may not be coordinated or prioritized with other jurisdictions that may also be planning to renew or replace infrastructure within the same area. Combining municipal infrastructure replacement projects and teaming with other municipalities can result in significant cost savings throughout the project lifecycle (from design through construction) and ultimately allow each municipality to do more while spending less.

PACE has completed many combined infrastructure replacement projects that have resulted in significant cost savings for both stakeholders and citizens. We have highlighted one recently completed project and another current project in the shaded textbox, and have expanded below on the benefits of combined infrastructure replacement.

Teaming Opportunities

How can a roadway jurisdiction (such as a city or a county) seek teaming opportunities with a utility provider that is also planning to replace its aging facility in the near future?

Municipalities and their engineering consultants should continually seek opportunities for teaming. By establishing annual meetings to discuss upcoming projects, notifying other service providers in the area of upcoming projects (prior to the design phase), performing regular reviews of capital improvement programs, and maintaining constant communication with other municipality staff members as to the areas within their jurisdiction that have received development interest, cities and towns can realize significant cost savings. In many cases, municipalities need advance notice of possible project participation so funding options can be developed, approval from their governing body can be procured, and designs can be completed without delay to the overall project

schedule. Agency cooperation to minimize conflicts and impact on other stakeholders will result in cost-effective solutions. Being open to discussions, regular communication, and flexibility to reprioritize capital improvement programs to align with other agencies are all common-sense approaches that improve the possibility for team collaboration.

Potential Cost Savings

Once a design team has been assembled for a combined infrastructure replacement project, specific cost sharing items should be identified and the cost sharing percentages allocated accordingly. Some potential cost savings items during the project lifecycle are detailed below.

Design Stage Costs

During the design stage, the following costs may be shared and cost efficiencies created by the projects being combined into a single project:

Base Mapping. Survey control, records research, monumentation documentation, and mapping will need to be created only once for all agency designs.

Design. If utilizing a design team with specific skills aligned with the project goals, the team's internal coordination and project management, enhanced coordination of participating agency designs, integrated design and revisions, and consistent standards as shown on the design drawings and specifications will result in a cost savings to all team members. Utilizing team members with specific experience and knowledge of key design elements and the municipalities involved will keep costs down and streamline the approval process.

Staff Labor. Staff labor time will be reduced with one municipality administering the project during design, bid, and construction. Only one construction contract will need to be administered by the lead agency rather than multiple construction contracts by all participating municipalities.

Permitting. Shared permitting preparation costs, combined SEPA (if necessary), and shared permit acquisition cost savings will be realized. In some cases, when the right-of-way jurisdiction is also a participant in the project, the permit review time and acquisition can be significantly shorter and the permit fee may be waived altogether.

Construction Stage

Cost savings can be attained through economies of scale of a larger project during the construction stage. It should be noted that the project bid documents should have a clause that allows the flexibility to exclude a specific schedule/s of work (e.g. water, storm, sewer) should the contractor weigh its bid to the disadvantage of one of the separate construction schedules. For example, if a bid award is based on the street work and not on the utility work, we have seen where a contractor will transfer costs from the street work to the utility or other schedule of work in order to be the low bidder. Some of the specific items where cost savings can be realized are described below:

Construction Materials. Cost savings will be achieved through shared mobilization, surface restoration (asphalt and landscaping), erosion control, etc.

Consultant Labor. If utilizing a single engineering consultant, a single point of contact for the consultant rather than multiple project managers for separate projects may result in cost savings. Also, increased efficiencies for construction administration (pay requests, change orders, design revisions, etc.) are possible, similar to the design stage as described above. Moreover, better coordination and savings for all participating municipalities with a construction inspector already at the project site (although separate inspectors may be desirable).

Project Completion

Prior to the completion of a project, there are many tasks that need to be accomplished. Listed below are some project closeout tasks that can produce shared cost savings for participating agencies:

Survey/As-Builts. The existing survey data will be readily available for as-built, which can be quickly completed due to the familiarity of the data. Also, resetting monuments or filing Department of Natural Resources monumentation paperwork can be completed immediately following construction.

Administrative Paperwork. Closing out the project with a final pay request, agency-specific construction completion form, final acceptance letter, prevailing wages release form, etc., will need to be completed by the lead agency only.

PACE Project Examples

The cost savings of combined infrastructure replacement will vary depending on the specific project and the negotiated terms between the participating agencies. Below are specific examples of PACE combined infrastructure replacement projects.

2009 joint project between Midway Sewer District and Highline Water District (HWD)

- 12,100 LF of 8-inch and 12-inch water main; 15,000 LF of sewer/side sewer
- Shared costs of survey, restoration, and construction admin (50%/50%)
- City of Kent received new roads
- Savings to HWD: \$145,000, or 6.0% of project cost

2010-2011 joint project between the City of Tukwila, Highline Water District (HWD), and Segale Properties

- 10,550 LF of 16-inch and smaller diameter water main
- 51%/49% cost sharing between HWD and the Segale Properties
- HWD negotiated T&M construction administration fee NTE 8% of water main construction cost with the City of Tukwila
- All restoration/pavement costs borne by the City of Tukwila. City is extending Southcenter Parkway from 180th St. to 200th St.
- Potential savings to HWD: \$760,000

These examples are only two of the many joint public works improvement projects PACE has assisted with.

How PACE Can Help

PACE is committed to providing survey and civil engineering services for a wide variety of projects, from streets through utilities, and has a proven track record of saving costs by integrating projects with multiple jurisdictions. For more information on how PACE can help with any of your survey and/or engineering needs, please contact Paj Hwang at 425.827.2014 or pajh@paceengrs.com.

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