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Bundled Bridge Replacement, Pennsylvania, United States

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On this page: A case study on Bundled Bridge Replacement, Pennsylvania, United States. Find more at the [Municipal Public-Private Partnership Framework - Project Summaries](#) section for brief summaries of around 100 projects from around the world, examples of successes and challenges, as well as innovative ideas on solutions, or visit the [Guidelines on Innovative Revenues for Infrastructure](#) section.

Project Summary:

Background

The State of Pennsylvania needed to replace a series of small bridges spread throughout the state. The Pennsylvania Department of Transportation (PennDOT) selected bridges based on the need for the replacement and a set of deliverability considerations, including minimizing disruption to the public; minimizing changes to existing alignment; maintaining existing profiles; limiting impact to utilities,

waterways, and other users; and minimizing environmental impacts. Through this process, more than 2,000 bridges were screened, and 558 were selected. PennDOT then aggregated the repair and maintenance of these bridges into a single PPP project under its old bridges' rehabilitation program. While the average investment cost for each individual bridge was estimated to be as low as USD 2 million, the aggregate project was large enough to attract serious investors and significant competition, which may not have been the case with multiple, smaller projects.

Project Structure

The winning bidder of PennDOT's public tender for the aggregated bridges project was Plenary Walsh Keystone Partners (PWKP), a consortium that includes companies specializing in large infrastructure projects and local construction companies. The resulting PPP agreement has a duration of 28 years, with 42 months of construction and 25 years of contracted maintenance, and an estimated value of USD 1.1 billion. Other key stakeholders in the project include the local governments where the bridges are located.

The project is financed through a combination of tax-exempt Private Activity Bonds (PABs)¹ issued by PennDOT worth USD 793 million and private equity contributions totaling USD 58 million.

The financing is to be repaid through milestone payments linked to the achievement of prescribed levels of work, totaling around USD 224 million, and periodic availability payments that include both a fixed element (90 percent) and a CPI-indexed element (10 percent) of around USD 35 million. The performance-based availability payments were set to begin upon substantial completion of the bridges to incentivize early completion of construction. A portion of the milestone and availability payments due will be used by PennDOT to pay the PAB purchasers. Accordingly, payment of the PABs is linked to the achievement of required asset performance levels.

Lessons Learned

By bundling, the project achieved economies of scale for due diligence, project preparation, and the tendering process, and hence saved money. This project will address a sizeable portion of the 4,000 structurally deficient bridges in the state. Logistically, this would take an estimated ten to fifteen years for PennDOT to complete on its own. Instead, the private partners are assuming the construction risk and can better mobilize a large-scale construction effort than the resourceconstrained PennDOT. Moreover, the efficiency inherent in bundling numerous projects together will save taxpayers an estimated 30 percent of what it would otherwise have cost to replace the bridges.

Although the project is considered a success in terms of clearing PennDOT's backlog of bridge repairs, its progress towards completion has proven slower than expected, with the completion date moved from 2017 to 2019. Challenges such as higher than anticipated costs, difficulties obtaining right-of-way access, and issues related to utility coordination have been cited as causes of the delay.²

Footnote 1: PABs are tax-exempt debt instruments allocated by the U.S. Department of Transportation (DoT) to qualifying authorities, for projects that leverage private investment. The aggregate amount of tax-exempt bonds that can be allocated by DoT is capped at USD 15 billion. The aim of the PAB facility is to attract greater private sector investment in transportation infrastructure by reducing the cost of capital for eligible projects by providing tax-exempt debt instruments.

Footnote 2: Source(s): https://github-webtools.s3.amazonaws.com/local-umbraco/media/1455/gih_showcaseprojects_penn-bridges_art_web.pdf accessed 25 January 2019.

https://www.thegpsc.org/sites/gpsc/files/26_feb_small_scale_municipal.pdf accessed 25 January 2019.

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The [Guidelines on Innovative Revenues for Infrastructure \(IRI\)](#) is intended to be a living document and will be reviewed at regular intervals. They have not been prepared with any specific transaction in mind and are meant to serve only as general guidance. It is therefore critical that the Guidelines be reviewed and adapted for specific transactions.

To find more, visit the [Innovative Revenues for Infrastructure](#) section and the [Content Outline](#), or [Download the Full Report](#). For [feedback](#) on the content of this section of the website or suggestions for links or materials that could be included, please contact the Public-Private Partnership Resource Center at ppp@worldbank.org.