



Best practices for major infrastructure programs

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In a profoundly complex infrastructure environment, effective program management delivers success.

In this white paper:

- Managing and delivering a massive infrastructure program
- Uncovering best practices that provide a foundation for a well-thought-out program to ensure on-time, on-budget, high-quality delivery – and happy stakeholders
- Establishing credibility through program management
- Building major urban programs in tight spaces

How program management became the choice approach for complex urban infrastructure projects

Transportation programs in urban environments are inherently complicated. Addressing the connected impacts of neighboring buildings and infrastructure and working with numerous restrictions and stakeholders who have high expectations are a formidable challenge. And, when a program comes with an authorization of millions, or even billions, of dollars in funding, transportation agencies have to decide how funds will be prioritized, managed and coordinated among the program's priorities.

More often than not, public agencies are constrained by limited resources and regulatory requirements that make it difficult to effectively manage massive, multi-stakeholder and fast-tracked programs. Agencies increasingly ease this complex new territory by engaging external program management firms that supply expertise derived from lessons learned in delivering programs across the country.

Arms, legs and strategy

Say an agency receives \$5 billion to undertake a vaguely defined program, such as redevelopment of a major downtown airport. Stakeholders and partners in that program likely would include the Federal Aviation Administration, transportation agencies that provide roadway and rail access to the airport, nearby municipalities, local businesses and residents, airlines that fly into and out of the facility, funding partners and many others.

A professional program manager works in partnership with the infrastructure owner to define a framework for the program, first evaluating it at a high level to identify:

- How to structure the program into rational and viable components.
- All agencies that should have input on design, construction and technology.
- Stakeholders within a designated radius, political jurisdiction, or influence.
- Scope, schedule and budget.
- Opportunities to expand the asset's value beyond the program requirements.

Taking political and geographic issues into consideration, the program manager then can make

recommendations on the best structure for the program. The public agency gets access to a strategic advisor who will help determine the program's functional elements, prioritize projects and resources and allocate funds to achieve desired outcomes.

Pulling in the right expertise at the right times in the process is among a range of key roles for the program manager. The program manager is able to coordinate stakeholder engagement and management, organization and identification of potential funding sources, public outreach and more. Other appropriate responsibilities include invoices, documentation, procurement and contract packaging and other administrative tasks.

Through this comprehensive process, the program management firm provides strategic direction that helps the agency achieve its goals from program inception through implementation and successful delivery.

Practice makes perfect

For agencies responsible for enormous infrastructure programs in addition to day-to-day operations and other agency priorities, the ability to maintain credibility - often using public dollars - hinges on being able to deliver on budget, on schedule, with high quality work and tight, sensitive stakeholder coordination.

By relying on a professional program manager with proven experience, an infrastructure owner gains access to expertise that ramps up successful delivery of large, complex capital programs in ways that improve efficiency, reduce risk and cost, save time and productively resolve any issues.

Transportation agencies can rely on an experienced program management team to:

1. **Focus on the agency's objectives**, developing strategic, tailored program goals that clearly establish and communicate desired outcomes. Owner and external stakeholder input helps to clarify how the goals will be prioritized.
2. **Mobilize fast**, drawing on experience with complex programs to activate the engineering organization and contractor community into a single, partnering culture. By conducting training, establishing reporting protocols and building relationships, the program manager assures that all members of the team deliver the expected results.

3. **Make the money work hard**, from upfront financing through delivery and operations. Using budget and cost management tools, the program manager helps keep multi-billion programs on track by effectively managing multiple financing sources, making sound decisions about contingency fund use and identifying potential scope reductions that may be needed to achieve on-budget delivery without compromising quality.
4. **Adds resources**. Concurrent projects within a program require different specialists - planners, engineers, designers, environmental consultants and others - at different times. The program manager matches resources to the program's magnitude and complexity, offering highly scalable expertise to correlate to work required at each stage. The program manager serves as an extension of staff, augmenting the team to fill expertise gaps and lending subject matter and national expert support.
5. **Drives results** by creating a master schedule that connects budgets, risk management and work activities logically. If one starts to slip, ramifications on other activities - and on-time delivery - are clear, and the program manager can make changes quickly to remain on course.
6. **Manages risk**, identifying schedule, stakeholder satisfaction, environmental, cost and thousands of other risks that can affect successful delivery. The program manager assesses the potential significance of each risk, determines how likely it is to occur and eliminates or manages the related threats, often saving time and hundreds of millions of dollars in expenses.
7. **Views stakeholder communications** as equal parts listening and talking - but listening comes first. The program manager helps his or her owner partner to communicate strategically with stakeholders, after there's a clear understanding about what stakeholders value most.
8. **Ensures quality** by employing sophisticated processes and technologies to provide real-time information. Using these management tools, the program manager can verify that design firms, contractors and other providers fully satisfy their obligations without the owner paying a nickel more than what has been fulfilled.

By hiring a professional program manager who uses these best practices, an owner:

- Mitigates risk.
- Accelerates and effectively manages the timeline.
- Accesses innovative ideas from other programs.
- Gets the most value from the available budget.

Three recent examples demonstrate how best practices positively affect a program.

Considering the whole picture

The initial phase of the Illinois Tollway's multi-billion-dollar, multi-year Congestion-Relief Program (CRP) required completion under an exceptionally aggressive schedule. Hired as program manager, HNTB developed a master plan to stage the program's projects and keep stakeholders apprised of - and satisfied with - progress. Among the decisions that contributed to on-time, on-budget delivery, HNTB evaluated other projects occurring in the region and, based on market saturation, purchased materials ahead of time to ensure their availability at the right time in the schedule.

The credibility established during the CRP helped the Tollway gain approval for the new \$12 billion Move Illinois Program.

Thinking forward

In a disaster recovery situation, unlike typical capital programs, the focus is on swiftly restoring critical infrastructure to customers. Such was the case for the New Jersey Transit Authority in the aftermath of Superstorm Sandy as it worked to bring its 10 damaged and waterlogged rail lines back into service.

Program manager HNTB accelerated delivery, responding rapidly to provide human capital expertise. HNTB also viewed the calamity as a once-in-20-years opportunity to look forward at industry standards anticipated five years down the road, specifying equipment based on where the industry is moving, rather than on current codes.

By following that direction, the NJTA armored its asset against future disasters, reduced its long-term operating expenses, expanded safety benefits for users and extended its infrastructure's useful life.

Stakeholder strategy

A container on its way from the Port of Los Angeles to New York City typically reached Chicago in two days. But freight railroad bottlenecks in Chicago then often held up the container for two more days.

The \$4.4 billion, public-private Chicago Region Environmental and Transportation Efficiency Program (CREATE) improves the region's freight and passenger rail efficiency and reliability.

A program management approach coordinates interactions between multiple funding sources and stakeholders, which include the Federal Highway Administration, Federal Railroad Administration, Illinois and Chicago Departments of Transportation, Metra, Amtrak, the nation's freight railroads, Cook County and numerous municipalities.

Program manager HNTB brings all stakeholders to the table to collaborate on each of the active rail improvement projects of the program's 70 projects, producing collaborative agreements for sequential, streamlined construction with minimal disruption to either railroad or auto traffic in affected local communities.

Pace-setting

Chicago's suburban bus service, Pace, is introducing its first technologically advanced arterial bus transit corridor, the Pulse Milwaukee Line, with passenger amenities such as WiFi, heated shelters and real-time signage. As program manager, HNTB helped define this pilot project as well as several others in Pace's seven corridor priority arterial bus rapid transit network.

HNTB developed a master program schedule, evaluated the program's environmental impacts, prepared preliminary station designs and identified the necessary roadway and pedestrian improvements needed to create a context-appropriate transit environment. HNTB also helped Pace develop an app for collecting real-time data on bus travel conditions and performance metrics for future studies. The firm is providing technical oversight during design and construction and has added to the Pace team's capacity to manage a long-term capital program.

Owner agencies are required, more than ever before, to complete mega capital programs in an environment of complexity, public accountability and abbreviated resources. Professional program management adds seasoned expertise culled from a broad perspective of lessons learned in multiple project locations to help an owner realize success.

Resources

For information and resources, please contact one of HNTB's program management experts.

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