SOLVE
INFRASTRUCTURE SOLUTIONS

HNTB

PUBLIC-PRIVATE PARTNERSHIPS

A growing option in infrastructure's delivery toolbox

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P3s as an option in the toolbox

Lessons learned and best practices from across the transportation industry

According to an Office of Management and Budget fact sheet, "... public-private partnerships ... can help advance the nation's most important, regionally significant projects." Transportation agencies realize that and are implementing P3s at a measured pace. They understand the most important lesson of P3 application: P3s do not apply to every project. Each project or transaction is different, and every funding or financing solution is equally unique. Projects may include complex, interrelated issues of design, construction, operation, maintenance, funding, financing and opportunities for innovation for which a P3 with appropriate risk transfer may be the right solution.

P3 projects, using a design-build-finance-operate-maintain structure, may use toll concessions or availability payment models. These models combine traditional funding sources, debt and private equity. They offer agencies the ability to:

- Manage projects effectively while limiting impact to existing agency resources
- Designate a single point of responsibility
- Incorporate design and construction innovations
- Expedite design and construction delivery
- Transfer life-cycle and, in the case of toll concessions, revenue risks
- Establish performance measures that will incentivize quality

Despite those benefits, P3s in U.S. transportation haven't gone mainstream. Compared with traditional sources, private equity is more expensive and does not receive the same public-debt tax advantages, even though P3s typically finance much of the project through tax-exempt bonds and federal loans with attractive interest rates, such as TIFIA. Under a P3, although the agency may structure the transaction to facilitate the use of TIFIAs and private activity bonds, the actual financing decisions and responsibilities remain with the private concessionaire, not the owner.

In addition to financing, public and political acceptance, project readiness and project scope play important roles in determining if P3s are the best delivery method to use. For those reasons and others, projects with P3 potential should be evaluated on a case-by-case basis to ensure viability before initiating procurement.

DEVELOPMENTS AND LESSONS LEARNED

Several developments over the past decade indicate the U.S. may see more transportation agencies add P3s to their cadre of project delivery options when traditional delivery is not sufficient to address the complex challenges presented by some projects.

1. Public perception is changing

Americans have a more favorable opinion of private involvement. According to a September 2017 HNTB America THINKS survey, more than seven in 10 Americans support public-private partnerships for transportation infrastructure. That number jumps to 84 percent if any surplus revenues generated by a project

are guaranteed by law to exclusively fund transportation infrastructure needs. Generally, under a P3, there may be some revenue-sharing with the state agency. It is common for the state to use any surplus revenues from the sharing arrangement to invest in transportation projects.

The America THINKS survey also found nearly three in four Americans support public-private partnerships to maintain existing assets and build new transportation infrastructure. Fifty-two percent of Americans believe a combination of government and the private sector should be responsible for funding the maintenance and building of transportation infrastructure. And, 51 percent believe private-sector investment in infrastructure should be repaid through a combination of tolls and taxes. However, the deals must be structured properly, so the public gets the best return on its investment and is protected, should the private owner or project run into financial difficulties.

HNTB experts believe the U.S. will continue to see P3s as a viable option as traditional funding sources come under pressure.

2. DOTs are savvier about when to apply P3s

U.S. departments of transportation benefit from a decade-long P3 learning curve. They now have a body of U.S.-specific experience from which to draw, and state engineers are more confident the model works. DOTs are much savvier about when to apply P3s and the different procurement options available, such as optional scope bids, fixed-price with variable scope and others.

3. P3s can resolve governance uncertainties for major projects

A lack of decision-making clarity, the deferral of key operational decisions and uncertainties regarding project governance often hinder effective delivery of the most complex projects. Proposers in a competitive P3 require a complete knowledge of operational constraints. This requires the agency to document the performance standards, risk-allocation mechanisms, operational responsibilities, rewards and penalties in a transparent manner during the procurement process. A P3 also requires the agency to analyze each project for a long-term, life-cycle perspective, ensuring the total cost of ownership is considered and that a single party is responsible for operational success.

4. More states are authorizing P3s

Thirty-seven states now have enabling legislation, with Arkansas, Nebraska, Mississippi and Tennessee being the latest to enter the arena. State acceptance and recent DOT activity may indicate another wave of highway P3s is on its way.

According to the Federal Highway Administration's website in late 2017, there have been more than 16 design-build-finance-operate-maintain toll concessions, 12 design-build-finance-operate-maintain availability payment concessions and five long-term lease concessions.

5. Worst-case scenarios surrounding concessionaire models haven't materialized

Some experts predict DOTs will execute more lease and toll concessionaire P3 contracts in the future because many of the issues surrounding the model, such as noncompete clauses and public concern about private developers receiving all the financial benefits from toll revenues while states receive nothing, have been addressed or are unfounded.

There also was concern of the concessionaire going bankrupt and leaving state taxpayers holding the "bag." To the contrary, in the P3s where concessionaires have had to seek financial help, the state was held harmless, and state taxpayers were protected.

6. P3s are demonstrating their value and versatility with other modes

HNTB is seeing U.S. airports or their governing authorities turn to P3s as an alternative way to fund, finance and provide long-term operation of $100 billion in airport infrastructure.

Large aviation P3 projects in the U.S. include LaGuardia Airport's Central Terminal project, Delta's LGA Terminals C & D P3 project, Denver International Airport's Great Hall project and Los Angeles International Airport's Automated People Mover P3 project. JetBlue Airlines is in the process of soliciting a P3 team for the expansion of JFK Terminal 5.

Not limited to large, complex terminal buildings, P3s can deliver a piece or part of the airport facility, as evidenced by JFK International Airport's IAT T4 and AirTrain Light Rail System, Denver International Airport's Great Hall and LAX's Automated People Mover P3 project. The LAX people mover program will be delivered via a design-build-finance-operate-maintain contract and features a people-mover rail system that will shuttle passengers to and from the airport, LA Metro transit, long-term parking and a consolidated rental car facility.

P3s are making inroads in transit and rail, too, as Denver Regional Transportation District has shown. Denver RTD is the most recent transit agency in the nation to successfully pursue and complete a comprehensive P3 that includes a mix of federal loans and grants and private investments. The RTD's Eagle project was successfully advanced through the Federal Transit Administration's (Penta-P) P3 pilot program. Because the Eagle commuter rail was a new rail service type and a stand-alone system, it cleared the way for a P3 procurement.

The delivery model may have a role in helping other rail and transit owners consolidate and deliver multibillion-dollar capital programs, while realizing capital, operating and maintenance savings. Denver RTD realized hundreds of millions of dollars in savings without compromising its operational requirements.

Further, HNTB experts believe a stand-alone system like high-speed rail offers a unique opportunity for the U.S. to expand the use of P3 to a full concession delivery model. High-speed rail projects are good P3 candidates because of their complexity, longevity, expense and propensity to cross multiple boundaries outside of the owner agency's jurisdiction. HNTB experts say the U.S. likely will see high-speed rail delivered via design-build-finance-operate-maintain P3s, barring any legal or environmental limitations on procurement.

P3 APPLICABILITY

P3s are not a funding mechanism. They are a delivery method with some opportunities as a financing mechanism and, therefore, are not applicable to every project. While the entire universe of infrastructure needs cannot be resolved with P3s, using an approach that combines private financing supported by robust revenue streams can maximize infrastructure improvements when appropriate. ■

FUNDING VS. FINANCING

FUNDING is money used at the time of expenditure, typically a grant that does not have to be repaid. FINANCING is money that must be borrowed and paid back through a debt mechanism.

ACCORDING TO THE FHWA'S WEBSITE, TWO OF THE MOST COMMON P3 DELIVERY METHODS ARE:

1. Toll Concessions. Concessionaires receive compensation by obtaining the right to collect the tolls on a facility.

2. Availability payments. Concessionaires receive a periodic payment from the public partner based on the facility's availability at the specified performance level.

P3 delivery best practices from across the nation

INITIAL STEPS

- Appoint and support a project champion
- Determine a delivery approach early in the project's life cycle
- Incorporate a broad group of stakeholders and map out the project's goals, funding needs and construction parameters
- Bring in experts to educate stakeholders about the advantages and disadvantages of P3s
- Properly evaluate life-cycle costs
- Understand local tax and licensing laws that can impact financials and approach to work
- Compare the financial impact of a P3 project against the traditional public delivery alternative to help determine whether a specific project is appropriate for P3
- Understand there will be institutional resistance to change

PROCUREMENT

- Don't rush into procurement
- Insist on a transparent procurement process
- Seek industry feedback before and after the start of the P3 procurement to engage the private sector early, creating a more competitive environment and achieving lower bids
- Use a combined funding and finance plan (e.g., private-sector finance, local investment and federal funding)
- Provide sufficient, functional design information during procurement

SCHEDULING

- Establish a reasonable procurement schedule to accommodate Alternative Technical Concepts, one-on-one meetings with proposers and sufficient time for proposers to develop their technical and financial proposals
- Allow time for regulatory approvals, right-of-way acquisition and major utility relocations
- Consider lead times for major equipment and materials, especially when equipment is manufactured outside of the country

GETTING MORE VALUE FROM THE P3 DEVELOPER

- Develop specific, achievable, affordable performance specifications vs. method-based specifications
- Understand P3 investors and lenders have different needs and concerns than procurements without private financing at risk
- Establish and maintain open communication with the private-sector developer
- Balance risk allocation with the private developer
- Employ independent oversight and audits
- Improve the customer/user experience with construction sequencing

Preparing for the future of infrastructure funding

While it may be difficult to predict what the future holds, the time to prepare for it is now

With federal dollars shrinking, transportation infrastructure crumbling and the popularity of innovative programs under FAST Act and MAP-21, the next transportation reauthorization bill or supplemental national infrastructure program could encourage public-private partnerships, tolling or a greater contribution of local funds by tying the promise of funding to those initiatives.

PREVIOUS PROGRAMS SET A PRECEDENT

Innovative grants and loan programs under MAP-21 and FAST Act may foreshadow how transportation will be funded in the future. The popularity of FASTLANE, TIGER, TIFIA and PABs, designed to fill market gaps and leverage private investment, could embolden Congress to extend those programs and pass even more progressive surface and air transportation legislation.

The July 5, 2017, Federal Register Notice, which outlined the new criteria for the $1.5 billion Infrastructure for Rebuilding America (INFRA) discretionary grant program, demonstrates the current administration's goals for evaluating projects of national and regional economic importance and for leveraging additional non-federal funding, including P3s.

ADVANCE WORK HELPS OWNERS COMPETE

Although federal infrastructure funding is uncertain, it is in owners' best interests to begin competitively positioning themselves for new federal programs.

While few owners have the time or resources to invest in speculation, advance work holds benefits, regardless of legislative outcomes.

The following steps can give owners a clearer picture of their capabilities to deliver large, transformational programs and position them competitively when new legislation is authorized.

1. Identify local funding sources
Federal funds likely will need to be matched with a greater contribution of local sources or tolling revenues.

"While we wait to see exactly what a transportation funding bill may hold, now is a good time for owners to begin identifying their ability to use existing revenues as matching funds, as well as to evaluate the possibility of creating a new local tax or user-fee program," said Brad Guilmino, HNTB national director of financial services.

mobilize and what, if any, preliminary tasks you can accomplish now," Guilmino said. "Having predevelopment work underway is a selling point on any federal grant application."

3. Identify which projects could incorporate a tolling component
In anticipation of a transportation bill that provides incentives for tolling, owners can begin identifying which projects might incorporate a user fee.

Preliminary guidance released on the president's infrastructure plan proposed that grant applications be ranked and scored higher if the project brought new and dedicated revenues, funded operations and maintenance and requested the least amount of federal funding. Tolling checks these boxes.

"The more boxes you check off, the more your program will look like what the federal government wants and the better position you will be in to compete for grants." Brad Guilmino, National Director of Financial Services, HNTB

Twenty-six states and the District of Columbia have raised motor fuel taxes in the past four years. Voters have approved sales taxes and special tax districts to fund transportation projects. And, neighboring municipalities have pooled their resources to deliver projects.

2. Get key projects shovel-ready
Consider budgeting for or beginning preliminary design and environmental reviews on transformational projects.

"Understand what resources your key projects would require, how quickly you could

"A toll feasibility study can help owners understand a project's revenue potential and its ability to deliver toll financing proceeds that could be applied to construction costs," Guilmino said.

The other big question under the tolling umbrella is the future of interstate tolling: Will Congress expand states' authority to toll interstates to finance improvements? The U.S. Department of Transportation announced the availability of all three slots in the Interstate System Reconstruction and Rehabilitation Pilot Program on Oct. 20, 2017. The pilot program would allow reconstruction and rehabilitation on select interstate corridors that could not otherwise be adequately maintained or functionally improved without the collection of tolls.

"To be in a better position to compete for one of those slots, departments of transportation can educate themselves and their staffs about the benefits and challenges of tolling and the legislation needed to enact user fees in their states," Guilmino said.

4. Understand how P3s could be leveraged in your state
The safest way for owners to determine where a P3 might pay dividends is to think of it as a delivery method, not a funding source. Even if P3s do not provide any scoring benefit from federal programs, they still could offer benefits for a given project.

"Identify the projects that are the largest and riskiest – or those where your organization lacks adequate in-house resources and expertise – and consider how private-sector involvement might help get those projects in the ground sooner," Guilmino said.

Next, educate executive leadership about the legislative process, policy decisions and risks associated with private-sector involvement.

5. Determine a P3 organizational structure
Which would best serve your organization: a centralized P3 office with dedicated staff or an ad hoc approach?

Many states have chosen to create a centralized program, so each time they initiate a new P3 project, they aren't re-educating staff.

6. Size up in-house capabilities and outsourcing needs

- Initiate policy discussions on additional funding options, tolling opportunities and P3 delivery
- Have contracts and procurement mechanisms in place
- Tee up environmental experts to perform federal approvals
- Have an innovative delivery/toll adviser contract or program management capabilities to help guide major projects or programs
- Identify a team of P3 advisers

"The more boxes you check off, the more your program will look like what the federal government wants and the better position you will be in to compete for grants," Guilmino said. ■

Creative uses of P3s emerge

Three DOTs tap private sector to improve freeway lighting, guide big-rig drivers to safe parking and mitigate wetland impacts

When the phrase public-private partnership is used in the transportation industry, we immediately associate it with large, complex transformational endeavors like the new I-4 Ultimate project in Florida, the Goethals Bridge in New York/New Jersey and Transform 66 in Northern Virginia.

But is there a place for P3s in other areas where project scopes and budgets are smaller? Adam Sheets, HNTB associate vice president, believes there is, if owners focus on P3 as a delivery mechanism instead of a funding solution.

"When owners view P3s in that context, they begin to see the potential for broader, more creative applications," Sheets said.

Following are three examples of DOTs selecting P3s to deliver projects that either require know-how just outside their expertise or demand more in-house resources than currently available.

MICHIGAN'S FREEWAY LIGHTING PROJECT

In 2015, the Michigan Department of Transportation finalized an agreement for the first P3 freeway lighting system in the United States. According to the 15-year, design-build-finance-operate-maintain contract, the private partner will:

- Audit and prepare an inventory of the existing lighting system to establish a baseline condition and identify defects
- Replace or rehabilitate approximately 15,000 lights along the freeways — including tunnels and under-bridge lighting — with newer, more efficient and longer-lasting LED lights
- Operate and maintain the freeway lighting system during two years of design and construction
- Ensure further significant defects or outages do not occur during construction
- Operate and maintain the improved lighting system for 15 years
- Develop a maintenance management information system to document and monitor inventory, incidents, non-compliance events, defect repairs, maintenance activities and inspections performed

HNTB provided construction oversight on behalf of MDOT.

"In coordination with MDOT, we provided contract administration support for the project during the design and construction phase," said Mike Wawszkiewicz, HNTB's P3 adviser to the project.

During the two-year construction phase, MDOT agreed to make two payments to its private partner if agreed-upon milestones were met. After construction and for the remaining 13 years of the contract, MDOT will make quarterly service payments to its private partner in exchange for services. All payments made to the private partner are subject to deductions if MDOT-stipulated service levels and reporting requirements are not met. A component of each payment is tied to actual energy consumption being less than MDOT's theoretical energy use. MDOT remains responsible for utility payments.

At the end of the 15-year agreement, the private partner must hand back the lighting system to MDOT in a condition that meets prescribed condition requirements.

"The annual cost to Michigan taxpayers is anticipated to be lower than the cost MDOT would incur to upgrade the system and meet required performance levels using traditional contracting structures," Wawszkiewicz said.

The P3 ensures Detroit will have an improved freeway lighting system that operates efficiently, improving overall public safety at a reduced cost.

OHIO'S TRUCK PARKING INFORMATION MANAGEMENT SYSTEM

A public-private partnership will play a key role in delivering a portion of America's first regional truck parking information management system. The system will provide commercial vehicle operators with real-time information about more than 150 truck parking sites across an eight-state region, making it easier for truckers to locate safe, convenient parking during peak rest hours.

Funded through a $25 million federal TIGER grant and state funds, the Mid-America

Association of State Transportation Officials' program will install ITS infrastructure to enhance capabilities and emerging vehicle detection and data collection technologies on high-volume freight corridors in Kansas, Indiana, Iowa, Kentucky, Michigan, Minnesota, Ohio and Wisconsin.

HNTB is the trusted adviser to the Kansas Department of Transportation, the lead state for the MAASTO TPIMS project, and has provided engineering and procurement support to many of the participating states.

"Each state is delivering its portion through different project delivery methods," Sheets said. "For example, the Ohio Department of Transportation will deliver its portion of the system under a P3 model. The design-build-operate-maintain contract allows the project to be implemented without creating additional administrative burdens on ODOT."

ODOT's payment structure to the contractor is broken into two phases. The developers paid for construction as work was completed. Additionally, the developers paid a monthly "adjusted operations and management payment," which was subject to deduction for failure to meet performance requirements.

ODOT's private partner will design, install, operate and maintain equipment at 20 rest areas and 21 private truck stops along I-70 and I-75 for three years following substantial completion. Failure to meet performance standards during the operations and maintenance period will result in payment deductions.

Dynamic message signage along freeway shoulders will display real-time data, indicating the number of open truck parking spaces at downstream rest areas. ODOT also will make the data available on smartphones and

traveler information websites to help drivers proactively plan their routes and make safer, smarter parking decisions.

By September 30, 2018, MAASTO plans to launch the regional TPIMS for a safer, more efficient and competitive freight system in the Midwest.

PENNSYLVANIA'S WETLAND MITIGATION BANKING PROJECT

"Owners who have successfully delivered really big infrastructure P3s are following those up by exploring how P3s might help them deliver other initiatives – and not necessarily in the context of billion-dollar infrastructure projects," Sheets said.

He points to the Pennsylvania Department of Transportation's potential use of a P3 to establish a wetland mitigation bank, a first for a DOT. Just as a bank would loan cash to customers, a wetland mitigation bank sells credits to entities looking to offset ecological losses or "debits" from other projects.

Under PennDOT's plan, a private developer would perform environmental upgrades to a PennDOT-owned site. The design-build-finance-operate-maintain contract would allow PennDOT to efficiently meet federal environmental requirements for transportation projects by using the on-demand credits to offset environmental impacts from transportation improvement projects. The private developer also would be able to sell excess credits not used by PennDOT to other third parties that may need to mitigate impacts. It is worth noting that impacts must be in the same watershed as the wetland bank providing the credits.

"It's a relatively small project that began as an unsolicited P3 proposal," said Wawszkiewicz, part of the HNTB team serving as PennDOT's P3 adviser. "We reviewed the unsolicited proposal and provided feedback that it might be a P3 candidate. PennDOT liked the idea and wanted to move it forward as a pilot project. We think the project could grow by bundling a few more properties together and making it a slightly larger P3 in the future that can benefit more regions of Pennsylvania."

As of July 2017, several developers had indicated interest. The department estimates it could have a preferred proposer selected in 2018 with portions of the site ready to provide wetland credits two to three years after that.

Once the bank is established, PennDOT anticipates using up to half of the credits for its own projects in the King of Prussia- and Allentown-based districts. The private developer periodically would release the excess credits, generating revenue from private-sector developers needing to offset environmental impacts and possibly providing revenue-sharing opportunities for PennDOT.

"PennDOT could benefit from private-sector involvement in several ways," Wawszkiewicz said. "Creating a wetland banking site can take more than 10 years, too long for conventional project delivery. In addition, the construction, operation, marketing and maintenance of the banking site is not a core PennDOT service, nor does the department have the resources to support those functions. Under a P3, the associated risks and liabilities can be transferred to an experienced private developer."

In the past, PennDOT often was required to develop its own permittee-responsible mitigation projects, which were costly. And, because each project required its own design, construction and long-term maintenance, there were no economies of scale. Further, regulations have become stricter and there are significant project delivery and schedule risks associated with one-off mitigation projects.

"By allowing a private partner to develop real estate into banking sites, PennDOT can provide the Commonwealth with more efficient and economical mitigation solutions," Wawszkiewicz said. ■

Bermuda uses P3 to rebuild L.F. Wade International Airport

Island nation's use of private-sector financing holds lessons for all

THE SITUATION

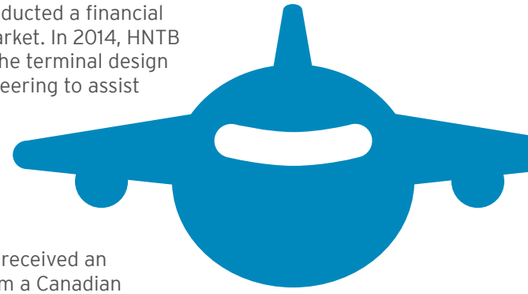
In recent years, Bermuda has had two major public projects on its docket: expanding the country's only acute care hospital and constructing a new terminal building at L.F. Wade International Airport. Deeply in debt, the government was forced to prioritize its infrastructure projects and chose to save lives over moving people. Plans to build a new terminal went dormant, but the risks of living with a dilapidated airport remained.

Passengers at L.F. Wade often dodge buckets placed under leaky ceilings due to the 60-year-old terminal building. They face the elements when boarding planes as the airport terminal has no covered jetways. And, all passengers – able-bodied, disabled and the elderly – must board and deplane aircraft using old-fashioned roll-up stairs. Similarly, inside the terminal building, escalators don't work and outdated HVAC systems can't keep passengers cool during Bermuda's sweltering summers.

The Government of Bermuda explored multiple options for delivering a modernized airport, but none proved viable for the budget-challenged country. Delivering a new terminal building by traditional means wasn't practical from a financial standpoint for the government. On the other hand, completely renovating the existing terminal would cost nearly $280 million, severely impacting the country's credit profile, downgrading its bond rating and making it even more expensive to pay down the debt. And, after spending hundreds of millions of dollars on a Band-Aid renovation, the country still would not have a new terminal.

Without a financing solution, Bermuda advanced its vision for a new terminal as far as it could with available resources.

Between 2005 and 2010, HNTB forecasted aviation activity, created an airport master plan, provided cost estimates and a conceptual terminal design and conducted a financial study of the aviation market. In 2014, HNTB continued to fine-tune the terminal design and provide value engineering to assist the government in rightsizing the project to fit its limited financial situation.



THE SOLUTION

Then, in 2015, Bermuda received an unsolicited proposal from a Canadian contractor, assisted by the Canadian government, to build a new terminal. Although unexpected, the proposal wasn't a complete surprise. Bermuda had indicated its interest in an "off-the-balance-sheet" option but had not issued a formal request for information or qualifications because it knew private-sector interest in the small-hub airport would be minimal.

"To have any interest at all – and then to have the project supported by the Canadian government – made it an attractive deal," said Thomas Rossbach, HNTB principal in charge.

For Canada, the airport project was a business development opportunity. Once a part of the British Commonwealth, Canada maintained strong economic, cultural and social ties with Bermuda. And, many large Canadian insurance companies are headquartered there. For Bermuda, the proposal meant the country could deliver a new airport without additional financial burden.

HNTB collaborated with the government's legislative, legal and bond counsel as well as

international financial advisers to create the project agreement for the P3 deal. Under the agreement, Bermuda's first public-private partnership, the Canadian Commercial Corporation, a Crown corporation of the Canadian government, guarantees on-time, on-budget delivery to agreed-on specifications and serves as facilitator between the two countries.

The concessionaire, Aecon, a large Canadian contractor, will operate and maintain the existing airport and will finance, design, construct, operate and maintain a $300 million, seven-gate terminal building for 30 years.

In addition, the concessionaire will improve the apron pavement and lighting, modify taxiway interconnections and interfaces, install and operate a new aircraft hydrant refueling system, decommission most of the existing terminal and renovate the remainder of the old terminal for airport operations and office space.

In exchange for its investment, the concessionaire will collect revenues generated from landing fees, higher airline rents and terminal concessions during the life of the agreement. Revenue will likely be limited until the construction debt is fully repaid with interest. After that, there will be a 50/50 profit-sharing agreement between the Government of Bermuda and the private concessionaire.

Bermuda will retain ownership of the entire airport facility, and the quasigovernmental Bermuda Airport Authority (part of the Government of Bermuda) will regulate the concessionaire to ensure it operates according to the terms of the agreement and in the country's best interest.

THE RESULTS

"The citizens of Bermuda will get a beautiful, state-of-the-art, world-class terminal building without paying taxes for it," Rossbach said. "Bermuda won't need to increase the national debt or guarantee the financing costs. It will avoid negatively impacting its creditworthiness, and construction and cost overrun risks will shift to the private-sector partner. The unique P3 model will create significant temporary and long-term employment for Bermudians and, most importantly, the country will maintain control of its airport."

Further, the P3 arrangement ensures social equity – only those who use the facility will pay for it. The cost per enplaned passenger, included in the ticket price, will increase, but not dramatically.

The airport redevelopment involves the U.S. Federal Aviation Administration (which coordinates the airspace), the U.S. Transportation Security Administration and U.S. Customs and Border Protection, as the terminal building includes a Customs and Border Protection preclearance facility as part of the project.

"Once the Government of Bermuda received the solicitation, they did the right thing in hiring a team of aviation, financial, bond, technical, legal and environmental consultants to help anticipate and mitigate risks to the government over the 30-year agreement," Rossbach said.

After both parties reached tentative agreement, the government asked HNTB to help it perform due diligence. The firm performed all technical due diligence of the overall project agreement and the design proposal from Aecon. Then, HNTB served as technical adviser, developing the aviation, design and construction technical standards and reviewing all technical specifications, design drawings, program of requirements and quality standards.

The firm developed operation standards, analyzed the recapitalization of the project over the 30-year term, conducted a thorough design review and created an independent cost estimate, which came within 3.5 percent of the concessionaire's guaranteed cost.

"Performing an independent cost estimate gave the government the 'value for money' confidence to go before elected officials, lenders and financial consultants and confirm the costs were reasonable," Rossbach said.

HNTB assured the project agreement had proper terms, including design, construction and operational standards that protected the government for the life of the agreement. HNTB also assisted in the hand-back standards, so the facilities' conditions would be in acceptable working order when the government retains full ownership and operational control at the end of the term.

Construction of the new terminal began March 15, 2017, and is expected to be complete in 40 months. ■

How Detroit got the QLINE streetcar

An enterprising P4 delivers much-needed alternative transit service to the Motor City

THE SITUATION

When tens of thousands of football fans converged on Detroit for Super Bowl XL, it became clear the Motor City needed more reliable transit alternatives to provide connections to key downtown destinations. The need for options hadn't gone unnoticed by the City of Detroit. It had secured a planning grant for an eight-mile commuter rail line, but its bonding capabilities ultimately fell short, and the project was scrapped.

Fortunately, another solution was in the works.

THE SOLUTION

In 2008, philanthropic, community and business leaders came together with local government, the state of Michigan and the U.S. Department of Transportation to explore the possibility of delivering an alternative mode of transportation capacity. They created a historic P4 – a public-private-philanthropic partnership that, nine years later, set a precedent in the U.S. transportation industry by delivering a 6.6-mile streetcar loop along Detroit's famed Woodward Avenue.

A lean organization of fewer than 10 people, M-1 RAIL selected HNTB as owner's representative in 2013, after the firm had completed a business plan in 2011 and preliminary engineering in 2012. As owner's representative, HNTB led day-to-day project management, scheduling, budgeting, risk management, procurement and design review and oversaw reconstruction of nearly three miles of Woodward Avenue.

"HNTB worked with M-1 RAIL every step of the way to ensure we met our timelines and built an exceptional streetcar line," said Paul Childs, M-1 RAIL's chief operating officer.

THE APPROACH

M-1 RAIL's primary public partner for the project was the City of Detroit.

"A private entity can't walk into city hall on day one of a project, announce its intentions and expect instant collaboration. It doesn't happen that way. Relationships necessary for successful partnerships are built over time," Childs said.

> **"M-1 RAIL's goal was not to tell its public partners what it was going to do, but to ask for their input and respect it."** Paul Childs, Chief Operating Officer, M-1 Rail

M-1 RAIL approached its public partners with questions such as: What would you think if we were to propose a project like this? How can we make it work?

"M-1 RAIL's goal was not to tell its public partners what it was going to do, but to ask for their input and respect it," Childs said.

Even with that level of diplomacy and transparency going into the partnership, there still were challenges. In the initial stages, when the appropriate contractual agreements needed to be put in place before the actual project could begin, variances in pace were a point of frustration for both sides.

"I could walk into a meeting fully authorized to make whatever decisions were necessary to move contractual agreements forward," Childs said. "M-1 RAIL public partners, on the other hand, might need to seek the necessary input and approval from multiple departments – legal, licensing, procurement and so forth – before they could decide or sign an agreement."

The solution was to have weekly face-to-face meetings with the city's chief operations officer, who knew how to navigate the system and had the authority to expedite the processing of contracts through various city departments.

In other cases, when M-1 RAIL needed abnormally fast approval from a public-sector partner, it went straight to that organization's leader to ask for his or her help in accelerating the process. Having an "escalation route" in place was invaluable.

"Most government entities have a political side and an operational side. The operational side is the group who drives the project. The political side is the group who sets the priorities for the operational side. The private partner must understand this and be able to work with both sides," Childs said.

Long after the contracting hurdle was cleared, another major obstacle lay ahead. With $100 million of private capital already committed, M-1 RAIL nearly lost the five years of planning it had invested in the streetcar project when the Federal Transit Administration, skeptical of the unprecedented partnership's ability to clearly delineate accountability, favored replacing the streetcar line with a more affordable and less risky bus rapid transit system.

Believing in the mobility and economic benefits the streetcar line would bring, M-1 RAIL asked then-U.S. Department of Transportation Secretary Ray LaHood for 90 days to demonstrate the feasibility of its streetcar plan and, in addition, promised to meet 90 FTA requirements.

Four months later, M-1 RAIL not only made good on its word, but Secretary LaHood awarded the streetcar project a $25 million

TIGER grant. Ultimately, M-1 RAIL raised $140 million to create the system, creating a model for future regional collaboration.

Construction on the streetcar line began July 2014, and M-1 RAIL went on to demonstrate its deep commitment to the mode's longevity by securing another $40 million in operating reserves.

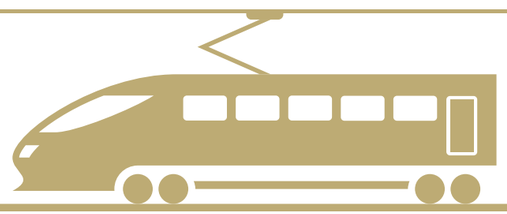
THE RESULTS

With the opening of the QLINE streetcar in May 2017, Detroit took its first step toward a modern, world-class regional transit system. The QLINE features a fleet of six modern streetcars powered by lithium-ion batteries along 60 percent of a fixed-track route it shares with vehicular traffic.

As M-1 RAIL's technical expert, HNTB supported the client's goal of maximizing off-wire technology to accommodate the city's Thanksgiving Day Parade of aerial floats, minimize visual clutter in downtown as well as allow the streetcar to slip under a low-clearance overpass that carries two freight rail lines.

In addition, the QLINE offers safe and reliable service, state-of-the-art security, transit police, ample lighting and heating at stations and a mobile payment app. Each station platform has ticket vending machines, and there is free Wi-Fi on streetcars and at streetcar stops.

Construction of the QLINE has spurred $7 billion in development since 2013, which includes projects completed, under construction or planned within a few blocks of the QLINE route. ■



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