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Confusion Grows Over Trump Infrastructure Plan (5/17)

The bottom line: When all elements of the President's budget proposal are combined, the American Road and Transportation Builders Association (ARTBA) believes it's possible that the Trump Administration's "Trillion-Dollar Infrastructure Initiative" will actually result in less, not more federal investment in infrastructure.

The Administration's FY 2018 budget suggests the infrastructure initiative will involve only $200 billion in direct federal funding over the next 10 years. The White House says the rest, $800 billion, will materialize through a series of policy and regulatory reforms involving expansion of tolling and encouraging private investment in public works infrastructure.

Once the FAST Act expires in October 2020, the Trump Administration proposes to constrain future federal highway and transit investment to the level of incoming revenue to the Highway Trust Fund (HTF). Absent congressional approval of a new revenue stream for the HTF by 2020—which the Trump budget document does not request—it notes that such a course of action would lead to a $95-billion cut in highway and transit program investment from current levels through FY 2027.

"What we've effectively done is try to move money out of existing, more inefficient programs, and hold that money for what we expect to be more efficient infrastructure programs later on."

OMB Director Mick Mulvaney

To compensate for this massive reduction, the document says, "The Administration believes that the federal government should incentivize more states and localities to finance their own transportation needs."

Multiple House GOP budget proposals since 2011 have advanced the idea of constraining highway and transit funding to HTF receipts. Each time, however, members of the House and Senate have rejected the idea.

Similarly, the Administration's emphasis on incentivizing private investment, devolving federal responsibilities to lower levels of government, and involving non-federal partners in investment projects are all suggestive of largely unsuccessful proposals by previous administrations to reduce federal infrastructure investment.

The bottom line is that the Trump budget cuts highway and transit investment by $100 billion over 10 years, which certainly dilutes the President's separate call for $200 billion for the "infrastructure initiative." Whether some of that comes back to the surface transportation programs remains to be seen.

There is nothing in the Administration's formal budget tables to suggest that it plans to propose any major changes in the structure or rules of the highway program. The budget shows new contract authority being split among the core highway programs as designated by the FAST Act, with most of the funds going into the National Highway Performance Program and the Surface Transportation Block Grant Program. The funds would be apportioned among the states by formula, also conforming to the FAST Act.

However, the section of the budget describing the Administration's $1-trillion infrastructure initiative hints of other plans for those funds. According to the budget, this far-reaching proposal will include a combination of policy, regulatory, and legislative proposals ranging from changes to existing programs to the creation of new programs and initiatives to reshape how the Federal government invests, permits, and collaborates on infrastructure.

The 2018 budget includes $200 billion in mandatory outlays to support this effort, which the Administration will use “to make targeted investments to incentivize state, local, private and other partners to significantly expand their infrastructure investments.”

ARTBA’s staff participated in a conference call about the infrastructure budget with OMB Director Mulvaney on March 15 during which he said: "People might say, well, goodness gracious, that doesn’t line up with what the president said about a commitment to infrastructure. That was done intentionally. What we've effectively done is try to move money out of existing, more inefficient programs, and hold that money for what we expect to be more efficient infrastructure programs later on.”

■ The Narrow Path To An Infrastructure Funding Bill (5/17)

As it has with previous infrastructure bills, the Senate has undertaken to do the legislative legwork on an infrastructure bill, observers say.

Speaking at a Transportation Construction Coalition legislative briefing, Environment and Public Works (EPW) Chairman John Barrasso (R-Wyo.) was quoted by Politico as saying he's working with "every Democrat" on the committee on a statement of general principles. "We are going to work with the White House, but we're not going to wait," he said, adding that EPW was "fully focused on an infrastructure package."

The House is tied up in knots over health care and tax reform (plus infrastructure does not seem to be a priority for Speaker Paul Ryan). “So somewhere between EPW, Senate Finance, Minority Leader Charles Schumer and, perhaps, the Senate Banking Committee, lies the narrow path to a real proposal,” says a source.

■ Key Man Cohn May Depart (5/17)

At least four groups in and outside the Trump administration have been working on infrastructure policy. Gary Cohn, director of the National Economic Council, is directing the effort, together with James Ray at the U.S. Department of Transportation, and DJ Gribbin, Special Assistant to the President for Infrastructure Policy. In addition, there is a committee of outside advisers co-chaired by real estate developer Richard LeFrak, a Trump friend.

All have strong P3 credentials, especially Cohn, who was CEO of Goldman Sachs when it advised on four large U.S. toll road DBFOM projects and the privatization of the Indiana Toll Road, a deal worth $3.85 billion.

Holding the group together long term may be a challenge. News reports in early June indicate that Cohn, a Democrat, may be seeking Janet Yellen’s chair at the Federal Reserve, which she’ll leave next February.

■ The High Cost of Waiting For The Big Pivot To P3 (5/17)

The lack of clarity on the federal funding role is one of the more important factors affecting the state and local infrastructure market. And while the proposed policy changes proposed by the Trump administration would be welcome by private investors, there is a risk that such a policy shift alone might not immediately accelerate the overall pace of infrastructure activity over the next four years.

So says Joe Aiello, Partner at Meridiam Infrastructure, who also chairs the Fiscal and Management Control Board of the Massachusetts Bay Transportation Authority in Boston.

A national consensus on the federal role in funding infrastructure was set at the start of the Interstate highway program in 1955 and remained steady until 2005, when the “Bridge to Nowhere” changed everything. The waffling since then has confused spending decisions by states as their transportation bureaucracies inevitably wait to see whether the federal grants pipeline will sustain them.

If the White House gets its way, Aiello worries about the time lag on implementation as all state and local governments adjust to the Trump program. Perhaps a way forward, he says, might be to consider a temporary gas tax increase that could spur traditional work and put industry and employees immediately to work.

■ Rhode Island Bridges—Low Hanging Fruit (5/17)

With relatively few dollars of its own and a lot of political courage, Rhode Island is solving its (very) deficient bridge problem.

There are more than 56,000 structurally deficient bridges on and off the Interstate system that are getting pounded every day by heavy trucks and need immediate repair or replacement. Facing that problem in spades, Rhode Island found a way to fix 33 deficient bridges throughout the state under a rarely-used federal rule that allows tolling of Interstate bridges if the proceeds are spent to replace or reconstruct them.

A 10-year, $25-million contract was awarded in May to a firm that will install and operate an all-electronic system to toll trucks using I-95, I-195, I-295 and state highways. Annual net revenues of $42.3 million will backstop $300 million in Garvee bonds to pay for the bridge work. Indiana has expressed interest in using the Rhode Island approach to toll its entire Interstate system.

"The Trump Administration could issue an Executive Order tomorrow directing the FHWA to expedite approval of tolling to address the nation's crumbling interstate bridges," says Peter Garino, the former Chief Operating Officer of the Rhode Island Department of Transportation. "All Electronic Tolling makes tolling a cost-effective means of addressing the nation's bridge infrastructure. There is certainly no shortage of bridges in this country that need to be replaced or reconstructed. Nor is their a shortage labor or construction firms eager to do the work. Why wait?"

■ Opinion: Megaproject Wish Lists Spin False Hopes (5/17)

At President Trump's request, the National Governors Association has submitted a list of over 300 hundred infrastructure projects to be earmarked for assistance by the White House, including some pet projects of private promoters. Based on past experience, all the jockeying may do more harm than good.

Lists generate excitement about receiving special favors from on high—be they environmental waivers or redirected TIGER grants or larger TIFIA loans or boat loads of investment tax credits. Whether these favors are real or perceived is another matter (e.g., the project is moving along and already slated to receive everything the government can throw at it under current law).

Policywise, lists distract from the effort to achieve the fundamental reforms that are necessary, in terms of environmental streamlining or putting the highway trust fund on a sound basis, or actually beginning to migrate to a vehicle miles traveled fee system.

Absent Congress approving a big chunk of deficit spending or huge private financing subsidies, the gift of White House patronage probably will be a zero-sum game—robbing Peter to pay Paul.

For a more nuanced perspective, *Public Works Financing* asked Rich Juliano, Senior Vice President for Strategic Initiatives at ARTBA, for his opinion on the utility of project lists in advancing President Trump's infrastructure agenda.

His response: "In working for more infrastructure investment on any level, advocates have often found it helpful to cite project lists as illustrative of what taxpayers and system users will get for their money. In other words, "you will get more when you pay more." So these types of wish lists have had some value in that regard.

"However, in the current context, listing larger projects—meritorious as they may be—will likely not be

Disrupters Make Buy and Hold Obsolete (12/16)

A prediction from the president of a major pension fund advisory firm focused on infrastructure in North America:

"2017 will mark the bottom of the recent cycle of global brownfield infrastructure "super deals" where investors were pricing GDP-sensitive assets at high single-digit returns and regulated assets in the 6's and 7's. However, pricing tension will remain given the limited supply of top-quality core and core-

plus assets combined with a constant entry of pension and sovereign wealth fund investors choosing to "go direct" vs. the historical LP / Infra fund approach.

The continued transformation of direct-style infra investors will make the 2016 record raise of Brookfield and GIP (BIF III and GIP III) that much more remarkable and likely to not be surpassed in the future.

Technological disruption will become an ever more present theme in infrastructure lingo and will make the "buy and hold" thesis a thing of the past as investors can no longer assume investments of 20-plus years. Lastly, Canadian privatizations of ports and airports will create a pipeline of billions of dollars for direct investors and will showcase to the U.S. the benefits (operational and financial) of true transport privatization."

enough for the Trump Administration and advocates to build the political support that we need on Capitol Hill. Not all states will benefit from the project lists.

"At ARTBA, we prefer to emphasize improving system performance, especially for the benefit of the nation's freight network. This suggests that all worthy projects across all states are important to the equation, and therefore the best solution is enhanced investment in the core federal surface transportation programs, as well as additional efforts to facilitate P3s and other means to get these projects done."

■ I-69: The Perils of P3s (5/17)

After three years of start-and-stop work by a P3 developer upgrading a segment of I-69 near Bloomington, the Indiana Finance Authority (IFA) finally seems ready to terminate the 35-year DBFOM agreement it signed in 2014 and restart work under a construction management contract, sources say.

Two of the losing bidders for the P3, Walsh Group and Lane Construction, competed for the CM contract, which IFA will award once termination details are settled. Completion of the project is now set for August 2018, almost two years late.

IFA awarded a $370-million availability pay DBFOM contract to Isolux Infrastructure in 2014. Its bid included a very low design-build price, which, at $325 million, was $75 million less than Walsh's bid.

Work is about half completed on the 22-mile Segment 5 of I-69. IFA recently said it would take nearly $237 million to finish the project, and that $72 million was available. That means $164 million is needed to "complete construction and resolve claims," it said.

The start date for the CM contract depends on resolution of demands by a group of recalcitrant bondholders, who rejected an offer by IFA of full repayment at par of the outstanding private activity bonds issued on behalf of the I-69 developer. It appears that the holdouts bought their bonds at a premium in the secondary market and don't want to give up that premium. If a settlement can be reached, IFA plans to repay creditors from proceeds of a new bond issue in September to fund completion of the project.

Among the outstanding issues is how maintenance will be handled on a road partially built by a failed DBFOM contractor. IFA's maintenance requirements called for the private operator to secure a "Green Roads" certification, making its segment of I-69 the first in the state to meet sustainability standards.

One possible solution is for the Segment 5 maintenance to be included in a DBFOM contract for Segment 6, a $1.5-billion project to extend I-69 into Indianapolis. KPMG is doing a value-for-money analysis now to help guide IFA's decision on how to procure the final piece of the Interstate. A record of decision is expected Spring of 2018.

■ Infrastructure Crisis Unmasked: Congenital Dithering (5/17)

Soon after signing a 30-year water/wastewater concession in Rialto, Calif., Table Rock Infrastructure partner Megan Matson went on a 100-city tour to explain the contract to municipalities with similar needs for investment and expertise. What she found among the midsize cities visited was a public works culture eager to study but unwilling to act.

Rialto, like many municipalities, had had consultants drawing up various plans and reports for the same plant periodically for 25 years without moving forward. "This pattern of study and punt is pervasive," says Matson. "I would attribute the country's D+ infrastructure rating more to this sort of congenital dithering than to a lack of funds."

■ SANDAG Refunding Costly TIFIA Loan (3/17)

Plans by the San Diego Association of Governments (SANDAG) to cash out its expensive TIFIA loans for the South Bay Expressway (SBX) have encountered some of the same ill winds that sank the private project 10 years ago, when it was owned by Macquarie.

Soon after it opened in 2007, the greenfield toll road saw traffic fall to half of projections due to the recession. All development stopped, foreclosures shot up, and unemployment hit 14%. Legal expenses to fight contractor claims quickly did Macquarie in.

The 10-mile highway has recovered much of its lost ground since SANDAG bought it in 2011. A reduction in SBX toll rates and a resumption of regional growth saw net revenues grow from $10 million in 2012 to $26 million in fiscal 2016.

But the ill winds are coming from the south now. The San Diego economy is closely tied to the Mexican peso. A 50% drop in the peso's value, talk of cancelling NAFTA, and continued weak oil prices are taking a toll. A dip in business activity in San Diego County—

sales tax revenues are growing at about 2%, down from 4% last year—is clouding what should be an easy refunding of SANDAG's SBX acquisition debt

SANDAG figures it needs to generate $157 million of proceeds to refund the outstanding senior lien TIFIA loan, which comes in three tranches carrying interest rates of 7-9%, 10% and 14%. The most expensive tranche is a $2.84-million TIFIA loan issued to SANDAG by the U.S. Treasury that has a value at maturity of $96.3 million in 2042.

■ Ohio State District Heat P3 Sets Efficency Gain At 25% (3/17)

Ohio State University Trustees will decide on April 6 whether to award a 50-year lease of its district energy system worth $1.015 billion to its preferred bidder, Montreal-based fund manager Axium, teamed with Engie North America, a French power generation company.

The $1.165-billion deal assumes private investments in energy efficiency will reduce electricity and natural gas use by 25% in 10 years.

At financial close this summer, the upfront fee will be invested in OSU's endowment, which is sure to get the interest of the nine other state universities in the U.S. with city-sized campuses.

OSU was paid a concession fee of $483 million for a 50-year lease of its parking system in 2014. The energy management concession fee is more than twice that and includes includes a $150-million commitment to support academics in specific areas that were requested by students, faculty and staff during the bidding process.

OSU's campus occupies 1,900 acres in the City of Columbus and serves about 57,000 students and 30,000 employees or visitors. The energy system provides chilled water, electricity and heat to 485 buildings through a network of tunnels, pipes, generating plants, and other facilities. *(continued on p. 7)*

Forty companies expressed interest and OSU issued an RFQ for its energy management contract in February 2015. It shortlisted three teams. In addition to ENGIE and Axium, they were:

- Toronto-based Brookfield Asset Management and its Enwave District Energy.

- Macquarie Corporate Holdings and Veolia Energy Operating Services.

The university will continue to buy electricity, natural gas and other energy sources directly from providers, and Ohio State will continue to determine its priorities in terms of renewable vs. traditional sources. ENGIE-AXIUM will work to enhance Ohio State's effectiveness in the procurement process.

Ohio State will pay ENGIE-Axium a fee each year that is made up of three components:

- A fixed fee that will start at $45 million a year and escalate by 1.5% per year to cover inflation

- An operating fee that will start at about $9.2 million, reflecting the university's average operating and maintenance costs for the past three years. This will be adjusted throughout the concession based on actual costs of the operation, as approved through an annual budget process with the university.

Is Asset Recycling Trump's Crown Jewel?

The White House budget presented in early May did not identify privatization of public assets as a strategy for leveraging some of the $200 billion in direct investment in infrastructure proposed by President Trump. Such deals are typically large, they're being aggressively pursued by major investors, and deal flow could develop quickly with federal support, some believe. For those reasons, "all signs point to asset recycling as being the crown jewel of their (Trump's) plan," says a source.

As proposed, some share of the $200 billion would be set aside as discretionary grants to incentivize state and local governments to sell their airports, toll roads, water plants and other revenue-producing assets to the world's largest investors. Up-front fees paid by investors would be used to upgrade acquired assets and/or recycled into modernizing state and local projects that don't have their own cash flow.

John Schmidt, a Democrat, says the greatest challenge will be getting support from Democrats. To popularize the concept, the first such deal should recycle the proceeds into rebuilding a large number of schools or some other social infrastructure project, says Schmidt, a partner at Mayer Brown in Chicago, who advised Indiana and Chicago on their toll road concessions 10 years ago. (A benefit of schools is that they don't require a NEPA review, he says, so could be built relatively quickly.)

As always, the devil is in the details:

- Finding long-term private custodians for critical public works assets is made more difficult by the advent of autonomous vehicles and other technologies that will affect future revenues. "Technological disruption will become an ever more present theme in infrastructure lingo, and will make the "buy and hold" thesis a thing of the past as investors can no longer assume investments of 20-plus years," says the U.S. director of a major Canadian infrastructure fund.
- If the goal is to attract significant amounts of private capital into the U.S., then tolling existing free roads must be allowed and supported.
- To maximize the benefit of privatization to state and local governments, existing tax-exempt debt on a public asset should not be required to be defeased by the private buyer.
- If federal dollars are used to incentivize a state or local government to privatize their water system, will the purchase price reflect the subsidy? If the winning bid is $2 billion and the subsidy is $200 million, will the final price be $1.8 billion?
- If a federal subsidy is involved in the transaction, will that federalize projects funded with the privatization proceeds?
- Will the federal government approve projects, as is done in Australia, or will deals have to percolate up slowly from state and local legislators?
- One must ask why Canada, which is frequently held out as a leader in public-private partnerships, privatized one asset in 1999, Highway 407 in Toronto, and hasn't repeated that deal since.

To get past the partisan debate, all of these questions will have to be answered, says Schmidt. "There's no gimmick here," he says "This makes sense."

The institutional investors promoting federal support for asset recycling in the U.S. have been very successful at raising money, but not so successful at investing it to modernize public works infrastructure in the U.S. That's largely because not very much has been for sale. That may change as unfunded pension obligations result in more state and local governments admitting they're broke.

In the transportation market, a cluster of brownfield transactions happened about 10 years ago—Chicago Skyway, Indiana Toll Road (ITR), and Northwest Parkway north of Denver. But the collapse in 2008 of a $12.8-billion deal to lease the Pennsylvania Turnpike killed whatever momentum there was.

In the water market, two long-term municipal utility deals were signed five years ago—Rialto, Calif. and Bayonne, NJ—but there have been no similar asset recycling transactions since then. Several municipal water privatizations have been proposed in the past 10 years but none got past the financial feasibility test pitting private debt-equity finance against public funding with 100% tax-exempt municipal bonds.

The hope is that the prospect of a federal "recycling bonus" for successful transactions may create some deal flow. "A significant cash bonus could make a real difference," says Schmidt.

■ Westchester County, NY, Airport Lease

(3/17)

Legislators in Westchester County, NY, have walked away from a 40-year lease of their airport that banker CIBC had fully negotiated with Oaktree Capital and the FAA over the past two years on a contingency fee basis. Instead, the county recently hired Frasca & Associates on a fee basis to help compete privatization of their facility through an accelerated RFP process.

The RFP was issued on April 3 and responses are due on July 14 to the Westchester County Department of Public Works and Transportation, which drafted the document.

CIBC's deal with Oaktree offered an upfront payment of $111 million and $30 million in capital improvements over the first five years, plus revenue sharing. A banker familiar with the airport says there is great interest in the deal, one of only a few in the market. He believes the upper limit of the bids will be close to $200 million. ■

- And a variable fee that will be directly tied to approved capital investments that ENGIE-Axium makes on the Ohio State campus. ENGIE-Axium will fund those projects with a 50/50 split of debt and equity.

The initial return on equity would be 9.35%. After five years, it will be set to a 10-year average for a five-state region that includes Ohio. The initial cost of debt would be 3.691%. After five years, it will be set to a corporate investment grade index.

■ SH 130 Refinancing Leaves TIFIA With $600m Equity Stake

[The SH 130 Concession Co., formed by Cintra and Zachry American Infrastructure, filed for Chapter 11 bankruptcy in March 2016. A steering committee of creditors, led by a private investment firm and USDOT, worked to develop and implement a reorganization plan for the project. In May 2017, a restructuring plan was approved by a bankruptcy court. Details of the restructuring plan have not been released, but a reliable source says USDOT now owns 34% of a new company that will operate the toll road until 2062. Other classes of creditors and project stakeholders will receive cash distributions, new debt obligations or equity shares.]

The new owners of the SH 130 Segment 5 & 6 toll concession south of Austin, Texas, are proceeding quickly to repair large sections of the two-lane, asphalt highway with the goal of completing the work in a year. At that point, USDOT's TIFIA office proposes to auction the 34% interest in the 50-year concession that it acquired when its project debt was converted to equity in the recent reorganization of the bankrupt toll road company.

The sale of TIFIA's $600-million equity stake will be among the largest asset auctions in the transportation market. The complexity of the transaction probably will require a change in TIFIA's approach for procuring deal advisors, which now is based on a flat fee paid to firms selected from among a pool of prequalified experts. Unrelated to TIFIA, UBS was paid $28 million to advise on the sale of the Indiana Toll Road in 2015. That's well above TIFIA's pay range now, which falls runs from $150,000 to $250,000 per transaction.

In the corporate world, assets can be liquidated to pay creditors. That is not the case with toll concessions where the primary asset of the private partner is the right to collect toll revenue for a specified period of time. The only way lenders can recover their investment is to ensure that the toll facility continues to be operated and maintained at the standards specified in the P3 agreement.

So pavement repairs come first. Longitudinal cracks due to drought-induced soil shrinkage started appearing in the shoulders of SH 130 well before the 41-mile toll road was completed in November 2012. The problem has spread and now affects about 5% of the travel lanes in localized areas.

An RFP was issued in late July for a contract estimated at $90 million to repair the affected pavements which will require excavating and replacing the highly expansive soils to a depth of about 5 feet. The cause of the cracks has been in dispute for years between the design-build team of Ferrovial Agroman/Zachry and their insurers, among others. Limited repairs on some warranteed sections was undertaken a few years ago but without much success.

The road was opened late in 2012. Slow repairs since then resulted in a stream of default notices issued by Texas DOT to SH 130 Concession Co.

Its financing in 2008 included $685 million in loans from Spanish banks and $430 million from TIFIA, plus $197 million in equity. "Their high debt load hampered everything they wanted to do," says Andy Bailey, CEO of the new ownership group, which is led by distressed loan investor, Strategic Value Investors (SVI) and its affiliates. SVI owns over half of the reorganized SH 130 Concession Co.

The financial reorganization took Cintra's operating company out of bankruptcy, and extinguished its $1.4 billion in debt. The deleveraged concession company also negotiated a new, $260-million, three-year debt facility from Goldman Sachs for working capital, capex and other needs.

With those funds, Bailey says his goal is to complete all pavement repair work over the next 12 months. The loan proceeds also will be used to fill the major maintenance reserve fund and perform studies of the regional traffic network in order to determine expansion needs, he says.

Terms of the transfer to the new investors were negotiated by Benjamin H. Asher, director of TxDOT's Project Finance, Debt and Strategic Contracts Division, in-house legal staff, and Nossaman LLP, which drafted the original concession terms.

Bailey retired as Deputy Commissioner of Virginia DOT in 2002 and worked since then on projects in Iraq, Afghanistan and Sudan, most recently with Louis Berger Services. Berger performed the SH 130 traffic studies for the new owners and has been hired by them to manage the all-electronic toll road.

Traffic on the southern leg of SH 130 has increased 16% year-over-year to 8,500 average daily trips, which amounts to diversion of about 10% of the I-35 traffic, according to Cintra.

Berger's studies project annual increases in traffic of about 6% a year, 5% for trucks and 7-8% for cars. Those numbers are driven by growing congestion levels on I-35. Diversions to SH 130 are projected to increase with marketing help from Texas DOT, says Bailey.

Bailey expects the concession to be profitable this year, before bankruptcy costs, with steady gains after that. "This could be a beautiful roadway" once repairs and other improvements are completed, he says.

EPA Claims WIFIA Will Leverage $1Bn In Private Investment

On July 19, the Environmental Protection Agency (EPA) published details of 12 water/wastewater projects worth $5.1 billion that it selected to qualify for low-interest federal loans in the first round of its WIFIA program.

Four of the 12 projects chosen to submit loan applications are from California utilities and account for $2.5 billion in project costs—half the total. A single $436-million loan, about 20% of the available lending capacity, is being sought to support $890 million in State Revolving Fund lending in Indiana.

The Trump Administration's expectation is that the Water Infrastructure Finance and Innovation Act (WIFIA) program will generate a spurt of private investment in the municipal water market. In fact, EPA states in its rollout document that $1 billion of the $5.1 billion in capital spending induced by the FY 2017 round of WIFIA loans will come from private investors.

When asked to explain that improbable number, a spokeswoman in EPA's Office of Public Affairs said the estimate is derived from the sources of funds submitted in the letters of interest for each of the 12 selected projects.

A WIFIA advisor explains that EPA counts the municipal debt component of the capital plans in these 12 projects as private financing. EPA's spokeswoman points out that there is one private project in the first round—an investor-owned water utility in Maine was invited to apply for a $24.5-million loan to build a $50-million water treatment plant that included equity finance.

None of the other projects have a private investment component, says the advisor. "Unfortunately bringing in private equity to the financing structure of these particular projects would likely increase borrowing costs and potentially complicate things. Why would sponsors, or the EPA for that matter, take that risk in the first round of WIFIA?"

In fact, the WIFIA legislation, which passed three years ago, complicates the use of private capital. Equity distributions on a WIFIA project are prohibited until the first installment on the federal loan is paid, which could be as long as five years after project completion. One investor active in the water market cringes at that provision: "WIFIA looks like a basket of trouble."

Few municipal utilities have entertained using P3 delivery of capital projects in recent years. Most recently, Santa Clara, CA, studied and rejected a private option in favor of conventional delivery with public finance. Wichita, KS, is expected to announce its decision on a P3 delivery option in a few weeks.

None of the P3 water project developers contacted by Public Works Financing could make sense of EPA's $1-billion estimate. "It might be true that 1 or 2 of these projects do in fact develop capital structures that are multi-layered and contain private capital next to public capital," says P3 developer Peter Luchetti.

"If this is indeed the case," he says, "then the question should be on what terms, contractual structure, and governance arrangements? Is the risk transfer real or is it window dressing aimed at placating a political agenda. My suspicion is that this [round of WIFIA] is going to turn out to be more or less a wild goose chase around false news."

Luchetti, is Managing Partner of Table Rock Capital (TRC), and Vice-Chair of the California Infrastructure Bank. TRC worked with Veolia Water and Union Labor Life Insurance Co's (ULLICO) Infrastructure Fund to finance a $172-million concession to upgrade utilities in Rialto, CA. That and KKR's Bayonne project were financed five years ago. No new DBFOM P3s have been awarded for water projects in the U.S. since then.

Administering WIFIA

The speed with which EPA culled the letters of interest list from 43 to 12 candidate projects—four months—suggests a nimble review process. EPA has had years to prepare for this rollout, led by Raffael Stein and Jim Gebhardt. It is being run by TIFIA's former chief risk/underwriting person. And WIFIA is closely modeled on USDOT's TIFIA loan program.

"TIFIA has invested over the years in crafting transaction documents, including template term sheets, template loan agreements, application forms and letter of interest forms. These documents should be relatively easy to adapt to WIFIA," says Jacob S. Falk, who oversaw the TIFIA credit program for the Obama Administration and is now a senior counsel at Norton Rose Fulbright.

High hopes for fast approvals of WIFIA loans should be tempered by the difficulty TIFIA has had in trying to simplify and speed its underwriting process. The Orange County Transportation Authority in California recently commended its staff and lobbyists for the agency's success in obtaining a $629-million TIFIA loan for its I-405 managed lanes widening project.

TIFIA's underwriting process for the loan took 18 months, however (partly due to the change in administrations.) It probably would have taken longer had I-405 been a P3, which typically are lower credits than government-owned projects. Also, Orange County's need to hire lobbyists to obtain a loan implies a political dynamic to the loan application and approval process that may deter some highly rated municipal borrowers under WIFIA.

Further, a WIFIA loan for a $50-million municipal water plant project will carry the same federal environmental, procurement and labor protection requirements as a $500-billion TIFIA loan for a project run by a state transportation office.

Few municipalities have experience complying with NEPA, Davis-Bacon, Buy America, and most other cross-cutting federal provisions. Investor-owned water companies are eligible for WIFIA loans, but they too have little experience with federal procurement requirements. The apparent success of WIFIA's first-round solicitation suggests that they're willing to learn.

Time will tell, says a TIFIA expert. "All those high-grade municipal water loan applicants already have capital market access (without the federal requirements) and don't have to go through a competitive, uncertain loan approval process" to get a slightly better rate from Treasury," he says.

Leverage Hinges On OMB

To maximize leverage in the first round of WIFIA loans, only projects with high credit ratings were chosen by EPA. That is intended to minimze the capital charge set by OMB to vover default risk for each loan. EPA has $20 million to spend, and believes that amount can be leveraged to support $2.3 billion in loans for up to 49% of a project's estimated cost. Operating on different credit assumptions, the Obama administration estimated that $20 million would support $1.5 billion in loans.

When promoting its leveraging ability for the WIFIA program, EPA estimates the average credit charge for its first-round projects will be 1%. By comparison the average TIFIA credit charge is in the 5-7% range for loans typically rated A to BBB. Riskier P3 deals often are rated BBB-, which has produced a credit charge from OMB of 10%.

A 1% average charge implies the ability to underwrite about $2 billion of loans. An average charge of 2% would reduce that lending capacity from $2 billion to $1 billion. Using TIFIA's low-range metric of 5% for state transportation agency borrowers, EPA's $20 million could support about $400 million in loan.

U.S. P3 Market Report

Concern Grows Over Weak U.S. Deal Flow

At recent meetings in Washington, D.C. construction industry CEO's and the heads of three major P3 developers spoke alarmingly about the slow pace of deal flow and the dim prospects for repopulating the new business pipeline during the next few years. Ironically, the slow market is partly due to the rise and fall of expectations of a Trump bounce for P3s.

The Construction Industry Roundtable (CIRT) held a panel session on P3s for its CEO members a few months ago called "P3s—The Good, Bad and the Ugly." Panel organizer Daniel Walsh, co-chair of Walsh Construction, in announcing that two panelists had dropped out, noted, "We really debated whether this was a good topic" for construction executives.

William M. Marino, managing partner of Star America Infrastructure Partners, bemoaned the slow progress in the U.S. P3 market despite four years of promotion by the Association for the Improvement of American Infrastructure (AIAI), which he helped found. "It's really everywhere but here," he said.

"I consider the U.S. [P3 market] to be in the adolescent stage of development," said Chris Gower, CEO, Buildings Group, at PCL Constructors, a Canadian P3 developer-builder active in the U.S.

In July, Steve DeWitt, Senior Vice President of Business Development at ACS Infrastructure Development, Inc., reminded the attendees at ARTBA's P3 conference that only one P3 deal had closed in the first seven months of 2017—ACS's Angel's Flight project in Los Angeles, a small, but important project to rehabilitate and operate an iconic funicular there.

Only one other P3 design-build-finance and O&M (DBFOM) is expected to reach financial close this year, Cintra's I-66 managed lanes project in northern Virginia. Repeated 30-day extensions to the closing schedule are expected to end this month with TIFIA/PAB/equity financing arranged for the 100% revenue-risk project by mid-August.

Colorado DOT got financial proposals recently and expects to name its preferred bidder for the I-70 Central DBFOM project on Aug. 28.

Virginia Gov. Terry McAuliffe cut the ribbon for Transurban's I-395 DBFOM concession on Aug. 9. The $460-million managed lanes project extends Transurban's I-95 concession by 8 miles. The terms of the concession were negotiated by VDOT a few years ago as part of Transurban's existing I-95 contract. Despite that and the project's high credit rating, Transurban was not able to obtain a TIFIA loan in time for its July 25 financial close.

VDOT's Hampton Roads Bridge-Tunnel (HRBT) project got a Record of Decision from FHWA in June and expects to issue an RFQ in a few months for what could be a P3. About 75% of the funding for the $3.3-billion project is in hand from regional sales taxes, and toll revenues will easily cover the rest, making it a good P3 candidate. Election-year politics could stir up anti-toll sentiment, but the project looks solid at this point. HRBT looks to be the last major P3 project candidate on VDOT's list.

Alabama DOT will hold an industry forum on Aug. 28 to reveal its plans for a revenue-risk concession for $1.5-billion toll bridge carrying I-10 over the Mobile River. An RFQ is set for this fall and an RFP for next spring. The project is considered to be speculative due to limited public funds to support the toll financing.

Ferrovial is hoping to reach commercial close soon for its $1.8-billion Great Hall terminal P3 at Denver International Airport, but last-minute airline opposition has become a political issue. The City Council has repeatedly postponed its vote on the contract, which is now set for Aug. 14.

Fluor Corp. has stepped in to replace Ferrovial/Walsh as the preferred design-build partner to investors in the Texas Central Rail Holdings, who are promoting a 240-mile Japanese bullet train between Houston and Dallas. Fluor will support the preliminary engineering, including a cost estimate, in exchange for being the preferred builder.

In Maryland, Fluor's Purple Line P3 got a go-ahead decision in court recently, but still is in jeopardy of being cancelled unless federal funding is secured for $900 million of the $5.6-billion project cost.

Airports are a bright spot, starting with LAX, where two DBFOM procurements worth $2.7 billion are underway for a people mover and rental car facility. Westchester County, NY, and St. Louis are considering long-term leases. Atlanta, Phoenix and San Diego are considering P3 projects. Kansas City is considering a design-build-finance contract for a new terminal.

On the other side of the coin:

To deny their Democratic governor a win, the Republican legislature in Louisiana refused to increase the gas tax last month, which killed plans for P3 development of the I-10 corridor though Baton Rouge.

For the lack of an industry voice, California's P3 enabling legislation died a few months ago, leaving the largest potential alternative delivery market in the U.S. with no way forward at the state level. LA Metro, which lobbied hard for the bill, still plans to move ahead, probably announcing procurement plans for 1-2 P3 projects in the near future. Plans to resurrect the statewide legislative effort are being hatched, so all hope is not lost.

Trump budget cuts and GOP political preferences have put two major blue state megaprojects in jeopardy. A near doubling of the capital cost estimate (to $13 billion) for the Gateway rail tunnel under the Hudson River between Manhattan and New Jersey has jolted that bistate project's financing plan, which depends on 50% federal funding.

A P3 is being considered for the tunnel portion of the Gateway project, and Francis Sacr of Societe Generale has been hired as interim CFO to investigate private interest. Responses to an RFI are due Sept. 15, but little progress has been made in identifying public funding sources, and the bi-state project sponsor still lacks a permanent executive director.

In California Gov. Jerry Brown's high-speed rail project is under new attack in Congress where GOP lawmakers once again have vowed to cut off all federal funding. The third stage of the initial operating segment is planned as a P3.

Developer Concerns

Ten years ago, when it signed its first U.S. toll road concession, there were limited amounts of capital and only a few companies competing for a few projects, says Belén Marcos, President of Cintra U.S. Cintra's capital and experience allowed it to thrive in the early days of the P3 market. All 10 of its North American toll concessions were financed with revenue risk debt. Now the U.S. market is characterized by too many P3 bidders competing for too few projects. Marcos believes asset recycling is the best hope for repopulating the deal pipeline.

"Not having a credible pipeline is difficult for us," she says. "It complicates resource planning and makes it harder to compete for corporate resources and the attention of investors." A slow market also hurts recruitment of new talent, especially people with the multidisciplinary skills needed for P3 projects.

Jennifer Aument, Group General Manager of Transurban North America, says, "There's a growing imbalance between the funds available and the transactions closed. To right that imbalance, "asset recycling would be transformational," she says, though "there has been no meaningful U.S. brownfield transaction in 10 years."

The Trump effect on infrastructure, so far, is greater anxiety, higher risk and, therefore, higher prices for capital. "I see things becoming less stable now," says Pat Stricklin, a long-time construction executive who recently retired from AECOM. "People are dropping back and reevaluating the P3 market," he says.

"All of us are waiting to see what will happen at the federal level—there's a lot of uncertainty," says Nuria Haltiwanger, CEO of ACS Infrastructure Development. Even if Congress approves Trump's $1-trillion spending plan, she asks, how would that translate into projects?

Similarly, Brian Grote of Mercator Advisors, warns: "What is the capability within the Trump administration to advance a major pivot in infrastructure delivery and then to administer it?"

Or, for that matter, what is the ability of the construction industry to take on a major investment surge. The Associated Builders and Contractors trade group claims the industry can't find the 500,000 additional workers it needs to build existing projects.

Similarly, three of the largest P3 developers in the U.S. say finding qualified project management staff is their main problem, even in the current down market.

P3 Lite: The DBF Train Has Left the Station

The pushback on full DFBOM concessions will lead to more DBF projects, says Matt Walsh, co-chairman of Walsh Construction. "Like design-build, this train has left the station," he says "and it's going to pick up speed."

Tom Mulvihill agrees. As Managing Director and Head of Infrastructure & Public–Private Partnerships at KeyBanc Capital Markets, he sees "a pipeline of several dozen transportation projects over the next few years, many of which may be delivered as DBFs."

"We'll see more and more of this" because public sponsors increasingly are pulling back from developer funding of the long-term O&M component of a P3, he says. "DBF's rely on short term gap financing which is an appealing way to accelerate projects now through leveraging future funding streams."

By eliminating the long-term O&M component, DBFs take all of the equity out of P3 deals. That's appealing to some design-build contractors hoping to streamline procurements and reduce bid pursuit costs.

Six teams prequalified to bid for Florida DOT's I-395 DBF project in April 2016 and a preferred bidder, at $802 million, was announced a year later. A bid protest has hung up an award, but for reasons not related to use of the DBF model.

The Role Of Performance-Based Infrastructure (11/14)

by William G. Reinhardt, editor

As money and power are increasingly concentrated in Washington, the line of supplicants stretches all the way to the U.S. Mint. That has created a "barbarians at the gate" mentality among the congressional conservatives and budget experts who guard the Treasury. Infrastructure advocates of all stripes claim great benefits from more federal grants, budget leveraging and tax help. But so do many others for their programs.

We're in the fifth year of the current business cycle. The 3.9% increase in GNP last quarter hopefully is a sign of stronger growth to come. But ability to pay does not translate into willingness to pay higher gas taxes needed to rebuild our Interstates. User fees for municipal water and sanitation services are too low to support capital needs. Public buildings chronically suffer from deferred maintenance, hugely inflating future operating costs.

"We've hit the ceiling in our ability to extract wealth and spend the money wisely," says Chris Ward, former executive director of the Port Authority of NY and NJ, and now with Dragados USA.

Getting more bang for the buck is an obvious answer to capital scarcity, though it's one not often cited in the larger discussion about infrastructure spending. Performance-based infrastructure, in the form of public-private partnerships (PPP), is one approach being used by public works agencies to reduce or eliminate schedule and budget overruns on large projects.

Washington's Role

PPPs are long-term contracts that align incentives to ensure the greatest whole-life value to taxpayers. As such, Washington wants to encourage their use. The Federal Highway Administration has been a strong backer. The White House just received recommendations from the Treasury Dept. on ways the Obama Administration can support PPPs. An executive order is said to be on the President's desk that would direct the White House Office of Management and Budget to change the way it scores the budget impact of PPPs in order to support private development of new federal buildings.

But expecting the White House and Congress to lead the way on PPPs isn't realistic. The federal infrastructure agencies responsible for spending are necessarily cautious about "innovative finance." For them, mistakes can kill.

Besides, federal gifts come tightly wrapped with red tape and good intentions that inflate costs, and nearly all big projects get some federal help. The full price of compliance with environmental and worker protections, prevailing wage rules, and set-asides for minority, women and small businesses, etc. is paid by taxpayers, not contractors. These social spending add-ons are are not going to go away.

U.S. construction companies are carrying a much heavier regulatory burden under the Obama administration than ever before. EPA is an untethered driver of regulations. Owners are as likely to find themselves in court as under construction. Enforcement actions under the various federal set-aside programs have grown exponentially since the start of the Obama administration. Dept. of Labor audits were up by 25 times during the first term.

The social costs and benefits of this wet blanket are unknowable. Here's what the Government Accountability Office (GAO) wrote in a report on the National Environmental Policy Act (NEPA) this April: "Little information exists on the costs and benefits of completing NEPA analyses. Agencies do not routinely track the cost of completing NEPA analyses, and there is no government-wide mechanism to do so."

The Politics of MegaProjects

Powerful advocates for smaller government charge that federal infrastructure programs are so skewed toward insiders and political ends that any increase in public investment from taxes should be opposed as wasteful. They have a large and growing audience of believers because they are partly correct.

Consider this from the director of a major U.S. infrastructure investment fund: "Every big transportation project in America is political now. It has very little to do with delivering infrastructure projects when there's big money involved." As a result, he says, too little actually gets built because too few decisions are made on the merits of a project.

New York's governor Andrew Cuomo held a vanity press conference last month in which he proposed to conduct a three-month design competition and pay the winner $500,000 to overhaul New York City's airports. On the same stage, Vice President Joe Biden called Cuomo Lincolnesque for having such a big idea. In truth, there's no money in New York or Washington to pay for Cuomo's grand vision.

In the real world, Cuomo's vision confounded the Port Authority's plans for announcing the winner of a three-year-long competition to replace the Central Terminal at LaGuardia Airport using a DBFOM approach. There are indications that the Port Authority wasn't ready anyway. But that carefully planned project is now on hold until the political control issues get sorted out.

We are at a crossroads. No amount of "needs" surveys will spur voters or politicians to support a national commitment to meet future demands for transportation, water, public buildings and other critical infrastructure services. That will come at the state and local level when the public and private planners, designers, builders and operators of needed facilities convince a skeptical public that they are getting the services they pay for at a fair price and without political favoritism.

Public Works Optimism Bias

Most critically, the "fair price" piece is not happening. Macquarie's value-for-money (VfM) report done for I-70 East in Denver cites research on optimism bias that shows that only 47% of U.S. transportation projects delivered by the public sector are on budget and only 55% are completed on time.

A GAO study in 1997 found the average overrun on publicly procured transportation projects at that time was 41%.

An appendix to the Value for Money study done by Arup and Parsons Brinckerhoff in 2010 for the Presidio Parkway P3 in San Francisco analyzed Caltrans cost estimates for 114 projects in 2009. Among the findings:

- Budget vs. actual costs were generally accurate 80% of the time for projects up to $100 million.
- Projects from $100 million to $300 million had an 80% chance of overrunning estimates by 15%.
- There was an 80% chance that projects estimated by Caltrans to cost $300 million or more would overrun by 55%.

The five projects in Arup's data set excluded outliers like the replacement of the eastern span of the San Francisco-Oakland Bay Bridge, which was completed last year at a cost of $6.4 billion. The design-build estimate by Caltrans engineeers at the start of construction in 2002 was $1.4 billion, and called for the project to be completed over a five-year period. That's a 400% overrun and a seven-year delayed opening on a project intended to correct seismic deficiencies that were dramatically exposed in 1989 when a section of bridge deck collapsed during the Loma Prieto earthquake.

The Social Costs of Poor Performance

The social costs of big mistakes on big infrastructure can be profound.

The East Side Access tunneling project in New York City is spiraling out of control. The Federal Transit Admnistration's most recent estimate is for completion in 2023 at a cost of $10.8 billion. That's 14 years later than first planned and $4.5 billion over the original estimate. "The issue of budgeting and scheduling has been constantly eluding us," said Metropolitan Transportation Authority Chairman Tom Prendergast.

The overruns on this one project would be enough to fully fund New York City Mayor Bill DiBlasio's entire early education program—putting 60,000 four-year-olds in pre-K classrooms—for eight years.

The huge cost overruns on the Big Dig cemented a political rift between the commuters north and south of Boston, who pay no tolls, and users of the MassPike west of Boston, who do. Turnpike customers are saddled with long-term debt to cover Big Dig overruns while most of the mobility and safety benefits go to the higher-income free-riders closer to Boston.

New Jersey Gov. Chris Christie used the high probability of large overruns on the ARC tunnel to Manhattan as his reason for killing the long-planned NJ Transit rail project and using the money else-

NY State Scaffold Law Adds Up To $400m To Tappan Zee Bridge Insurance Cost

State and local governments play a major role in the timing and cost of construction, particularly of very large projects where money and political power converge.

A 131-year old law supported by unions and trial lawyers in New York State, the Scaffold Law, costs taxpayers $785 million annually, according to an industry group seeking amendments this year. The law places absolute liability for all fall-related injuries on owners and contractors, meaning third-party lawsuits by workers are rarely contested. No other state does this.

Opponents of the law make a strong case:

- Because a settlement is virtually guaranteed, the number of Scaffold Law lawsuits has increased by 500% since 1990, despite a decreasing rate of injuries.
- Insuring construction projects in New York costs as much as 10 times higher than other states.
- Insuring against Scaffold Law claims will add between $200 million and $400 million to the cost of the Tappan Zee Bridge replacement project, the industry group estimates. At the high end, that represents 13% of the $3.1-billion design-build cost of New York State Gov. Andrew Cuomo's signature infrastructure project.

In defense of the law, unions and tort lawyers say that since workers don't have control over safety issues on the jobsite, the responsibility for safety should rest squarely on the owner and general contractor. Owners and builders say workers should share responsibility for their own safety.

The law has not been amended since 1885. ■

where. All agree that new rail tunnels are desperately needed in the region. Service shutdowns to repair hurricane damage to Amtrak's Hudson River tunnels will choke capacity between Boston and Washington, D.C., by about 25%. A broad economic shock is possible—about 65% of the U.S. GNP is generated in the northeast corridor. Yet Christie's fear of overruns sent everyone back to the drawing board.

Finally, there is great social value in not deferring maintenance, as many public infrastructure agencies do. A study by the Cornell Local Roads Program estimated that every $1 of deferred maintenance on roads and bridges costs an additional $5 in necessary future repairs.

In DBFOM contracts, public agencies effectively prepay for regular maintenance and repairs so that privately operated roads, bridges and buildings are in good condition after 30 years or so when they are handed back to governments.

Overwhelming Complexity

There are many factors that contribute to the high probability of construction overruns on large projects. At the top of the list is the very large number of project interfaces between contractors. "At each intersection of all these elements you have decision points on the critical path and some will be missed, causing a domino effect" on cost and schedule, says José Luis Moscovich, former executive director of the San Francisco County Transportation Authority.

To manage the process, "you need experienced public managers who have done it before," he says. "But they don't exist." Salaries for public transportation agency employees in California are 60% of the private sector, he says. "It's the system, not the people. We're bleeding talent and generating projects that can't be done" using traditional DBB delivery.

In a PPP, responsibility for all the components of project delivery—design, build, finance and operation and maintenance (DBFOM)—is held by a single financially strong developer with skin in the game. There is only one throat to choke when things go wrong.

The Proper Role of PPPs

The PPP model is part of the answer to the megaproject cost and schedule problem. By incentivizing private equity to organize and manage large, complex projects (and with sophisticated lenders as the major stakeholder), PPP developers meet deadlines and budgets, or they lose money and someone gets fired.

Once the project financing commitments are signed, there are no construction contract disputes that affect schedule, no excuses for poor performance, no scope creep, and no state senators demanding leniency for a campaign contributor who also bends rebar.Governments demand far higher performance and innovation from their private PPP partners and far stronger financial guarantees than they do from contractors on conventional public works projects. In addition to the normal surety bonds for public works, design-builders in a PPP must also provide a parent-company warranty equal to 40% of the construction cost, and a letter of credit equal to 10% of construction costs to cover any liquidated damages for late completion. Penalties for under-performance get paid, not litigated.

There is growing evidence in Canada and the U.S. that PPP projects are being built for considerably less than public projects. In the most recent example, Pennsylvania's DOT figures it saved $300 million by bundling 558 bridge replacement projects into a single DBFM contract and asking the most capable contractors in the country to compete for the work. Which they did, and very aggressively—the top two bids were $10 million apart on an $890-million DB contract.

Brian Kendro, who ran the "Rapid Bridges" procurement for PennDOT, explains the tight bids this way: "I think it shows the US PPP market is continuing to mature both on the public side and the private side. Public agencies are presenting a well-defined scope and more than enough information to bidders to accurately price projects which helps to minimize the amount of contingency cost baked into their price proposals and improve value-for-money. On the private side it shows just how intense the competition is and will continue to be. You simply can't afford to leave any stone unturned in terms of innovation because it will likely be the difference between winning and losing."

On average, Macquarie found that PPP projects in the U.S. are approximately 15% less expensive than traditional public sector procurements, even for more complicated projects like the Denver FasTracks Eagle P3. For this project, the winning bid was $300 million below the estimate and a year shorter than the DBB schedule.

To summarize, DBFOM delivery of big infrastructure combines the public benefits of accelerated delivery of service improvements, on-time completion, a growing record on first-cost savings, and public budget certainty on both capital and long-term maintenance costs. Public agencies are transferring some risks of ownership, and for the first time are getting valuable information from private bidders on price, schedule, quality, accountability and other aspects of megaproject management. Competition for projects has never been greater, and the availability and price of investment capital benefits well-structured projects.

And yet, though PPPs may be the best tool in the toolbox for restoring faith in big infrastructure, PPPs probably won't take a major share of the public works delivery market in the U.S. Distrust of private profit motives, public agency inertia, and deal complexity are some of the reasons. ■

PPPs and Charter Schools

In many ways, PPPs and charter schools have a lot in common. Neither are going to replace a powerful public bureaucracy whose outcomes are heavily disguised. By building a record of measurable success, however, both alternative delivery models are raising the bar on what is an acceptable outcome and how to get there.

The Challenge of Charter Schools (11/14)

by John F. Cozzi,
Board Chairman
KIPP New Jersey

Charter schools are publicly funded, privately managed enterprises designed to deliver a public good. They are independently managed, but subject to a higher level of transparency and accountability than comparable municipally managed schools. That's important because there is not just price discovery, but outcomes discovery (i.e., charters really can get superior outcomes with the same or less funding, especially in inner city settings, which no one thought was possible). Details about academic quality, progress and accountability are also revealed in the charter school system.

Charter schools compete in an arena where the outcomes of their public competitors are not transparent and do not trigger changes. For example, the outcomes at a school system in a wealthy town typically benefits from the nature of the children sent there. One expects the children in Greenwich, CT to do well in large part because of the environment they live in.

We never ask public schools, "I'm giving you a child with this much potential, are you returning a child who achieved more or less than that potential?" Perhaps they are, but measurement data generally is not collected or transparent.

One educational model worth looking at is the "relinquishment" theory, presently only being implemented in New Orleans, but now being debuted in Camden, NJ. The idea here is that the government is not particularly good at running schools, so it should relinquish management and instead just regulate/track/specify. In New Orleans, almost all of the schools are managed by independent groups (charters) but accountable to a central Board of Education.

If they do not perform they are closed. Success relies not just on good independent operators but on the government being effective in evaluating and acting on performance. Maybe this concept will help frame some of the arguments for infrastructure PPPs. ■

The Consequences Of Deferred Maintenance (11/14)

"Rough Roads Ahead" released by Oregon DOT (ODOT) this month looked at how the state's economy will perform if its roads and bridges are maintained in good condition versus how it will perform if highways are allowed to continue to deteriorate.

One-time infusions of state money and predictable federal grants have been enough to improve and maintain the system over the past 10 years. That's changing now. Maintenance budgets, already funded at just 80% of needs, will consume all highway dollars by 2025. High debt and other factors are chewing up modernization dollars.

ODOT's dilemma is matched in many other states. What's different is that ODOT has hired a sophisticated modeler to estimate the statewide economic impacts of failing to maintain its transportation assets. The numbers are startling:

- Forecast road and bridge deterioration will reduce Oregon GDP by $94 billion through 2035.
- Overall job creation in Oregon will be reduced by 100,000 jobs by 2035.
- Road and bridge deterioration in Oregon could be halted by increasing investment by $8 billion through 2035.
- Return on investment would be 12-1.
- Failure to act will increased vehicle operating costs by an estimated $380 a year for a medium sedan due to lower fuel efficiency, more worn out tires, and paying for more repairs like alignments.
- Deteriorating conditions will force ODOT to load-limit bridges, forcing lengthy truck detours that increase transportation costs for Oregon businesses, making them less competitive—and increasing costs for consumers as well.

A major Cascadia Subduction Zone earthquake would cause most bridges in western Oregon to collapse or be rendered unusable, making recovery and response difficult. An economic analysis found that strengthening key highways could reduce the state's economic loss by $84 billion after an earthquake. ■

John Porcari: Getting The Facts Straight on Environmental Permitting Delays

(5/17)

John Porcari has spent years trying to sort out the reasons for the long delays in gaining approvals for public works infrastructure projects in the U.S. As became clear in his testimony on May 3 before the Senate Committee on Environment and Public Works, he's learned a few things:

- "The single most important action Congress can undertake to accelerate project delivery is to provide steady, long-term, and predictable funding. With greater certainty in project funding, project sponsors can more effectively plan their projects and will be incentivized to complete the planning and approvals process as quickly as possible and get to construction, enabling greater coordination among stakeholders to develop and design a project that avoids, minimizes or mitigates negative environmental impacts."

- "Recognizing that the most complex and controversial infrastructure projects require direct engagement by senior leadership, and benefit greatly from passionate advocacy, Congress could consider identifying the critical infrastructure priorities for the nation, for example working with the States to identify the top three projects in each state. Congress could then ensure that these projects receive the statutory and fiscal resources needed to produce timely and efficient delivery."

- "The overwhelming evidence shows that the causes of delay for these major projects are more often tied to local/state and project-specific factors, agency priorities, project funding levels, local opposition to a project, project complexity, or late changes in project scope."

- Only four percent of Federally assisted highway projects require the preparation of an Environmental Impact Statement, the most detailed review document. Over 90% proceed under a Categorical Exclusion (CE), the simplest, most straight-forward review under NEPA.

- Claims by states that "resource constraints" are inhibiting their efforts to streamline reviews don't square with the facts. FHWA and FTA have the authority to fund dedicated staff at reviewing or permitting agencies that receive federal funds. So far, none have asked for the money.

- "Making significant changes to environmental protections without fully implementing the process improvements included in our most recent surface transportation authorizations, the Moving Ahead for Progress in the 21st Century (MAP-21) and the Fixing America's Surface Transportation Act (FAST Act) may be counter-productive. Eighteen separate provisions in the Highway title of the Fast Act alone are designed to increase innovation and improve efficiency, effectiveness, and accountability in the planning, environmental review, design, and engineering. Thus, enacting additional provisions for streamlining, before allowing full implementation of the FAST Act, could result in greater uncertainty and longer delays as project proponents await agency implementation of the changes and would likely lead to wasted time and effort for agencies. In fact, the USDOT Inspector General (IG)

found that the USDOT has completed work on more than half of the 42 streamlining provisions directed by Congress under MAP-21, but now has delayed implementing a significant number of MAP-21's reforms because they must be revised to comply with additional streamlining provisions mandated in the FAST Act." ■

John D. Porcari *is President of the US Advisory Services at WSP | Parsons Brinckerhoff. He was previously Secretary of Transportation for Maryland and Deputy Secretary at the U.S. Department of Transportation.*

Federal Partnering and Performance Incentives to Spur Efficiency in the Water Sector (6/17)

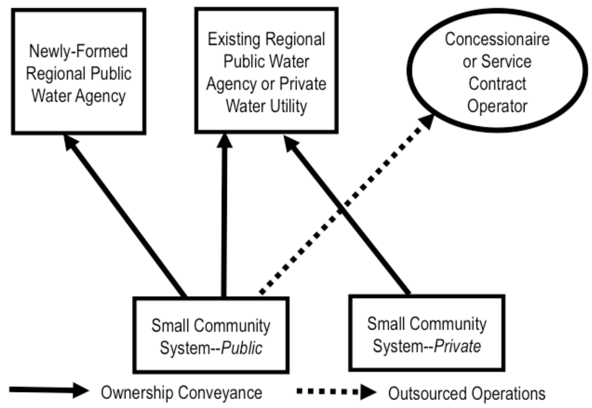
*The **Performance Infrastructure Review Committee** (PIRC) is an informal group of policy and finance specialists focusing on new financing tools that would promote more efficient infrastructure investments. The Committee recognizes that there are fundamental issues relating to revenue streams, governance, and institutional design being evaluated by groups such as the National Academy of Public Administration and the Bipartisan Policy Center. The April issue of Public Works Financing contained several articles describing some of PIRC's recommendations for financing tools at the federal, state and local levels. This month's article, written by David Seltzer of Mercator Advisors and Judson Greif of Greenfield Government Strategies, expands on PIRC's grant incentive mechanism to encourage enhanced efficiency in the nation's community water sector."It is hoped that PIRC's analysis will be of assistance to the Administration and Congress as they formulate new policies to stimulate infrastructure investment.*

America's drinking water and wastewater sector is incredibly fragmented. There are 51,000 community water systems and 16,000 community wastewater treatment systems nationwide. The vast majority are small systems serving fewer than 10,000 people. Their small scale results in a number of challenges, including difficulty in accessing capital for the nearly $100 billion of system renovations EPA estimates will be needed over the next two decades, operational and procurement inefficiencies, and problems in meeting federal and state water quality standards.

Partnering in some fashion with a larger entity could overcome many of these problems. However, there are various governmental impediments hindering such efforts. At the local level, there may be inertia or even aversion to changing the status quo. In many states, Public Utility Commission (PUC) regulatory policies prohibit including developer-donated and grant-funded assets as part of the rate base for cost recovery. At the federal level, the tax code restricts tax-exempt private activity bond financing due to state volume caps and costly rehabilitation spending requirements.

The PIRC recommends a series of federal policies designed to encourage greater voluntary partnering within the water sector to help overcome these challenges. These restructurings could take a variety of forms. In some cases, a small municipally- or privately-owned system may wish to align with an existing regional public water agency. In other cases, the best solution may be to out-source operations to a larger operator, or even sell the system to a private or governmental utility. The range of potential partnerships and combinations is illustrated below.

Potential Partnering Techniques for Small Drinking Water & Wastewater Systems



Federal Policy Incentives

The federal government could use a suite of policy tools—regulatory reforms, grants, credit assistance and tax code incentives—to incentivize community water and sewer systems to improve performance through partnerships, long-term lease concessions, or other arrangements (see A-E below). PIRC's performance-based proposal is agnostic on the issue of public vs. private system operation and ownership.

A. Provide Federal Partnering Incentive Grants

A new federal grant program is proposed, administered by EPA and distributed through each State Revolving Fund (SRF) for drinking water and wastewater restructurings. The program contemplates federal grants equal to 20 percent of the acquisition price or water system asset value, subject to a nationwide cap on total assistance of $1 billion per year over 10 years, or $10 billion in total.

The incentive grants would be applied as follows:

- *System Remediation:* 75% of the grant proceeds would be designated for improvements to the system assets being conveyed or outsourced, as well as that system's pro-rata share of any common use assets (e.g., filtration and treatment plants). The SRF would require the acquirer or new manager to develop and periodically update a Utility Asset Management Plan for repairing, maintaining and renewing the infrastructure of the acquired system. In order to ensure the system's ongoing performance, the grant conditions would stipulate that the operator set rates each year at the "true cost of service," which means a level sufficient to fund both operations and routine maintenance as well as any required capital renewal.

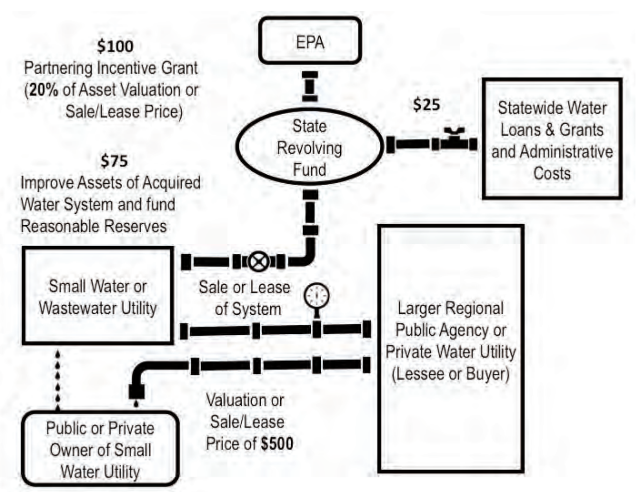
- *SRF Projects:* The SRF would be permitted to use 25 percent of the grant for projects anywhere within the state for grants or loans for other water infrastructure projects, as well as outreach, training and technical assistance to community water systems considering restructuring. The SRF could also reimburse itself for the administrative costs of the program.

There would be no federal restriction on how the public or private entity that sold or long-term leased its system could use the net proceeds. The chart below illustrates the proposed flow of funds:

B. Waive EPA Fines and Liability of Serious Violators Upon Merger

EPA could adopt regulations allowing smaller systems that are seriously out of compliance with EPA water quality standards to avoid enforcement action by agreeing to an outsourcing contract or merger with a larger system that has the demonstrated ability to make the necessary investments to meet EPA standards.

Allocation of Incentive Grant for Hypothetical $500 Water System Acquisition



C. Allow Private Operators Access to SRF

Congress should expand eligibility for Clean Water SRF loans to private companies serving the general public, similar to the Drinking Water SRF Program.

D. Liberalize PAB Rules for Water and Sewer

Federal tax law should allow public-use privately-managed facilities to access the tax-exempt bond market unencumbered by the PAB volume cap. In addition, PABs should be made exempt from Alternative Minimum Tax (AMT); the rehabilitation spending requirement for used property acquisition should be made consistent with the test for buildings (e.g., 15% rather than 100% of PABs); and any outstanding tax-exempt debt should be allowed to remain outstanding after a change in ownership without losing its tax-exempt status.

E. Make Federal Credit available for Water Consolidations

Low-cost Federal loans should be made available to help finance small system acquisitions through expanding the size and scope of the WIFIA credit program.

Conclusion

Establishing federal policy incentives for partnering, regionalizing or consolidating the widely fragmented water industry should provide multiple benefits to the various stakeholders. For drinking water and wastewater system customers, it should lead to economies of scale in operating expenses, cushioning user rates. For the municipal water system owners, it should result in net proceeds to their General Fund while generating grants for improvements to the community's system. SRFs would receive grants to fund both outreach and additional projects statewide. And for the public at large, it should help conserve water resources, improve public health and enhance the environment. ■

WHY AND HOW TO TOLL THE INTERSTATES (5/17)

by Robert W. Poole Jr., Reason Foundation

Last month's issue carried a piece by my long-time friend and colleague Alan Pisarski arguing against tolling U.S. Interstates. He and I seldom disagree on transportation policy, but we do in this case. All five points he made are challenges to the idea of replacing the first-generation Interstates with much better second-generation ones. Here are my answers.

Alan does not offer an alternative to the dismal status quo. Not only is our most important highway resource wearing out and undersized for the 21st century; we also face the necessity of shifting from paying for highways per gallon of fuel used to paying for them per mile driven. A carefully-crafted, politically-feasible Interstate replacement plan can serve both goals. If we can succeed in replacing the 20th-century Interstates with electronically tolled 21st-century corridors, over the next few decades, up to 25% of all VMT will have transitioned off the fuel tax to mileage-based user fees.

So how do we deal with Alan's concerns? The "cash cowification of tolls" is real—but it is primarily practiced by about a dozen large legacy toll agencies. Any feasible toll-financed Interstate replacement program must restore what Alan calls the "virtuous triangle" among road owners, road customers, and bond-holders. Long-term P3 concessions offer an important way to do this. But additional protections should be offered by the federal government requiring that any state that wants an exception from the federal ban on Interstate tolling must guarantee, by state law, that these new tolls be used only for the capital and operating costs of the replacement facilities.

Next Alan raises the perennial concern about traffic diversion. That is a real phenomenon, since some people will prefer a "free" road of lesser quality to a priced road of superior quality. But this is a phenomenon that can be quantified. When traffic & revenue consultants estimate diversion, they understand that there is a direct relationship between the level of tolls and the extent of diversion. Many toll rates in the Northeast are well in excess of what is needed to cover the capital and operating costs of those tollways. A way to summarize this point is that revenue diversion leads to traffic diversion. Customer-friendly tolling that is a pure user fee will minimize (but not eliminate) diversion.

There is also a difference between short-term diversion—when tolling is a new feature of a corridor, or when there has just been a large toll-rate increase—and long-term diversion, once people have gotten used to the tolled corridor and can appreciate the value it provides compared with lower-quality alternative routes. I note in passing that to the best of my knowledge, the major tolled Interstates (e.g., Ohio Turnpike, Indiana Toll Road, Illinois Tollway, New York Thruway) do not have serious long-term traffic diversion problems.

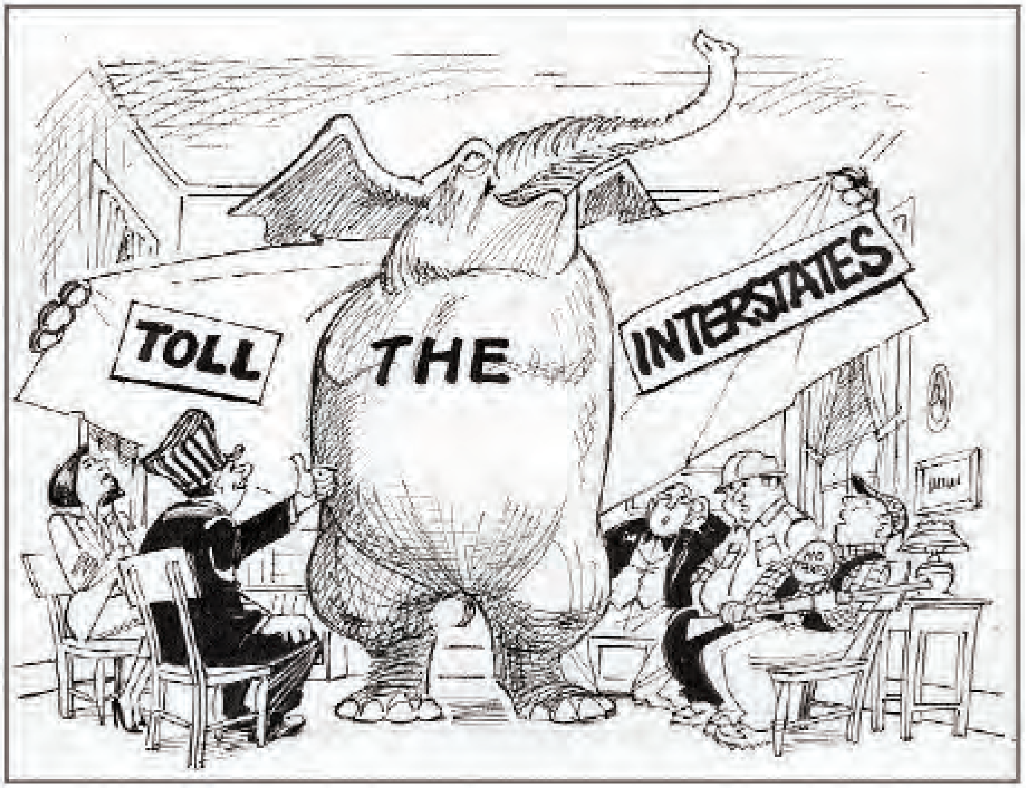
Another way to reduce diversion comes from remembering that one of the purposes of toll-financed Interstate replacement is to jump-start the transition to mileage-based road usage charging (RUC). In all the current RUC pilot projects, the per-mile charge is instead of the fuel tax. And so it should be on these 21st-century Interstates. All-electronic tolling makes it simple to include in each vehicle's toll calculation a second calculation—the fuel-tax rebate due the vehicle owner for the tolled miles driven on the facility. A state agency such as the Dept. of Motor Vehicles could be in charge of disbursing the fuel-tax rebates, perhaps initially netting them against the coming year's annual vehicle registration fee. And once the state's non-tolled roadways are converted to RUC, users of the tolled Interstates would have their tolled miles each month subtracted from their total miles driven for purposes of their MBUF payment.

Alan also worries that the anti-highways lobby will prevent needed widening of Interstate corridors once they get congested, and will push for ever-higher toll rates to force a growing share of would-be highway users into alternative modes. That is a problem regardless of whether our 21st-century Interstates are tolled. But this question will likely be answered differently in different parts of the country. Even in liberal-left California, express toll lanes are being added to congested freeways in fast-growing counties such as Orange, Riverside, and San Bernardino, and even to a lesser extent in the San Francisco Bay Area. I also note the multi-billion-dollar expansion program of the Illinois Tollway system, responding responsibly to the growth of Chicagoland suburbs and exurbs.

Alan's final concerns are about the federal role. If the states replace aging Interstates with toll-financed new ones, what is left for the federal role in transportation? For one thing, a lesson from the reinventing government movement is the difference between "steering" (setting policy) and "rowing" (carrying out policy). There is still a useful (but far smaller) federal role in a state-led Interstate replacement program: primarily of renewed standardization for the system, continued research co-financed with state DOTs, etc. And possibly providing financial assistance to those largely rural, mountainous states where toll-financed Interstate may never be feasible (e.g., Alaska, Montana, Vermont).

But he's right to question the future usefulness of the federal gas tax. To the extent that states take the lead in replacing their 20th-century Interstates and in shifting from their own fuel taxes to RUCs, the declining value of the federal fuel tax may lead to its slow death. During the long transition period, however, it can remain a useful tool to encourage states to get moving on toll-financed Interstate replacement. Those of us who favor toll-financed P3s for second-generation Interstates should insist that Congress continue to allocate federal fuel-tax revenues among the states in the same proportions as today. That way, states that choose the toll-financed course will be able to use their federal highway funding for all their other roads and bridges, while states that don't will have to use their federal dollar for Interstates as well as their other roadways. That will be a strong incentive for states to choose the per-mile tolling option.

Is this a pipedream? I don't think so. In December 2015 the national board of America's largest highway user group, AAA, endorsed the Value-Added Tolling principles proposed by Reason Foundation (and applied in the above discussion); they also endorsed the need to transition from per-gallon to per-mile. The truckers aren't there yet, but they have yet to come up with a feasible way to pay for the $1 trillion Interstate replacement need that faces us today. In the face of a major need, eventually "something" beats "nothing." ■



The elephant is in the room.

TIFIA Reality Check (1/17)

by Bryan Grote, Principal, Mercator Advisors

The new administration has set an ambitious goal of increasing investment in public infrastructure by $500 billion to $1 trillion over the next decade. Administration officials and some congressional leaders have emphasized a desire to achieve this by promoting "private investment" rather than relying on public funding.

"For every $1 of federal dollars, there's $40 of private-sector spending. We want to leverage as much private-sector dollars as possible to maximize the fixing of our infrastructure." – Speaker Paul Ryan on "Charlie Rose" (01-18-17)

Significant public subsidies are required for many P3 projects and private equity accounts for a relatively small portion (only 13%, on average) of total investment. The ratio of private investment per dollar of federal subsidy is just 2:1.

As we consider this approach, it's worth taking a look back at lessons learned from prior efforts to accomplish similar goals. What constitutes private investment? How effective have been the federal efforts to promote private investment thus far?

The TIFIA credit assistance program is the federal government's most ambitious effort to promote private and other non-federal investment in transportation infrastructure and has inspired other similar programs. The TIFIA template was used to modify FRA's RRIF program and to create EPA's WIFIA program.

Most of the proposals for a "National Infrastructure Bank" call for federal loans and guarantees with terms similar to TIFIA, including investment grade ratings and loan limits of 33-49 percent of project costs. Even TIFIA's 40:1 leverage ratio (each $1 of subsidy funding supporting $40 of total investment) seems to have been picked up by Speaker Ryan in his recent remarks.

It remains to be seen how well the program structure, designed for surface transportation, will serve the sponsors of a broader range of infrastructure projects.

What constitutes private investment?

The 40:1 leverage ratio attributed to TIFIA and assigned to larger "infrastructure bank" initiatives describes the total investment associated with federal credit, not the amount of private investment. A strict definition of private investment means equity capital. It is worth noting, however, that this excludes other forms of investment capital derived from non-governmental sources (such as bank debt) or repaid with non-tax revenues (such as toll revenue bonds).

If TIFIA is being taken as a model for future initiatives, it's worth examining the program's performance in promoting private investment. Since 1999, $93 billion of total investment (over 60 projects) has been supported with $25 billion in TIFIA loans, which have covered an average of 27% of total project costs. The federal budgetary scored cost has been approximately $2 billion in credit subsidy funding.

Most TIFIA loans have been made to projects that are governmentally procured and financed. Just over a third of the TIFIA portfolio consists of P3s – 23 projects with a total cost of $33 billion.

The table shows that significant public subsidies are required for many P3 projects and private equity accounts for a relatively small portion (only 13%) of total investment. In fact, the ratio of private investment per dollar of federal subsidy is just 2:1. [This capital leverage ratio does not take into account the ongoing private investment for maintenance and major renewal of the infrastructure during the terms of the concession agreements.] Equity investment varies by P3 type; the revenue risk concessions have 20% equity, on average, while the availability payment concessions have just 5%.

Capital Sources for 23 TIFIA P3 Projects ($bn)

Grants	$9.7	29%
TIFIA Loans	$9.4	28%
Other Debt	$9.2	28%
Equity	$4.3	13%
Other	$0.4	1%
Total Capital	$33.1	100%

The 18-year experience of the TIFIA program is not generalizable to all infrastructure sectors at investment levels that are hoped to be orders of magnitude greater. However, the TIFIA program's results do suggest that even for viable P3 projects with supporting revenue streams there will still be a need for public subsidy "gap funding." Given that debt accounts for a much larger share of project investment than equity, federal debt-financing incentives will be more effective than equity-oriented incentives in lowering the cost of capital for P3s, making their cost more comparable to government financing. In addition, debt-financing incentives tend to cost less in terms of budget scoring.

Private equity is a key component of the risk-sharing needed to realize the whole-life project benefits of a P3. But the public sector's funding role cannot be overlooked. The experience of the TIFIA program confirms this successful partnership. ■

$5bn Private Equity Invested In 25 Transportation DBFOM Deals

(Source: FHWA, *Public Works Financing Major Projects Database* 11/16)

	Public Finance ($mill.)		Private Project Finance ($mill.)					
	State/Local* Equity	TIFIA	Priv. Activity Bonds	Bank Debt	**Financial Equity**	**%**	Total Capital	Financial Close Date
91 Express Lanes, CA (TR)	0	0	0	100	30	23	130	7/93
Dulles Greenway, VA (TR)	0	0	0	298	80	21	378	9/93
So. Bay Express, CA (TR)	0	140	0	340	130	21	611	5/03
I-495 Express, VA (TR)	495	589	589	0	630 (1)	27	2,303	12/07
SH 130 seg. 5+6, TX (TR)	-142 (2)	430	0	686	210	16	1,326	3/08
I-595, FL (AP)	0	603	0	781	208	13	1,592	3/09
Port of Miami Tunnel, FL (AP)	100	341	0	342	80	9	863	10/09
No. Tarrant Express TX (TR)	594	650	398	0	426	21	2,068	12/09
LBJ Expressway, TX (TR)	490	850	606	0	682	26	2,628	6/10
Denver Eagle rail, CO (AP)	1,312	280	396	0	54	3	2,042	8/10
Downtown/Midtown Tunnel, VA (TR)	582 (3)	422	675	0	272	14	1,951	4/12
Presidio Parkway ph. 2, CA (AP)	0	60+90	0	167	45	12	362	6/12
I-95 HOT Lanes, VA (TR)	83	300	253	0	280	31	916	7/12
East End Bridge, IN (AP)	526	162	508	0	78	6	1,274	3/13
No. Tarrant Exp. 3A/B, TX (TR)	379	531	274	0	442	27	1,626	9/13
Goethals Bridge, NY (AP)	125	474	453	0	107	9	1,159	11/13
US 36 ph. 2, CO (TR)	75	60	21	0	41	21	197	2/14
I-69 Managed Lanes, IN (AP)	80	0	244	0	41	11	365	7/14
I-4 Ultimate, FL (AP)	1,035	950	0	484	103	4	2,572	9/14
Pennsylvania Rapid Bridges (AP)	225	0	721	0	59	6	1,005	1/15
Portsmouth Bypass, OH (AP)	178	209	227	0	49	7	663	4/15
I-77 Managed Lanes, NC (TR)	95	189	100	0	248	39	632	5/15
SH 288, TX (TR)	17	357	299	0	375	36	1,048	5/16
Purple Line transit, MD (AP)	1,599	875	313	0	139	5	2,925	6/16
LaGuardia Central Term., NY (AP)	1,200	0	2,400	0	200	5	3,800	6/16
Total	**9,048**	**8,562**	**8,477**	**3,198**	**5,009**	avg. **15%**	**34,436**	
Of the total 25 projects:								
13 are toll revenue risk concessions	2,668	4,518	3,215	1,424	**3,846**	avg. **24%**	15,814	
12 are availability payment P3s	6,380	4,044	5,262	1,774	**1,163**	avg. **6%**	18,622	

(TR) Toll revenue financing (demand risk)
(AP) Availability payment financing (sovereign risk)

* excludes public sunk predevelopment costs.

(1) deal restructured in 2014; original equity invested was $348m in 2007.

(2) minus $142m is upfront payment to state by Cintra, not counted in total invested capital.

(3) additional public funding invested after financial close to reduce tolls.

Keeping the Promise: Saving Managed Lanes from Their Own Success (5/17)

by Ed Regan, CDM Smith

Express toll lanes (ETL), and other types of priced managed lanes, have become popular in our larger urban regions, engendering support from the traveling public and elected officials alike. This continues to be the biggest growth area in the toll industry market, and is becoming an important segment in the P3 concession community as well.

From a policy perspective, there are a lot of reasons to build tolled express lanes. But the best one may lie in the increasingly accepted axiom that "we can't continue to build our way out of congestion." If this is true, then it makes sense to create and preserve a portion of new capacity that will always be free-flowing; managed through pricing, that will always be available to drivers "when they really need it." That's exactly what managed lanes do, and it may be the best policy justification of why new capacity should be priced; rather than simply "added".

To assure the long-term sustainability of the managed lanes concept, it may ultimately be advantageous for operators to invest in strategies specifically aimed at reducing demand for their product, as crazy as that sounds.

The cornerstone feature of managed express lanes is the promise that the lanes will always be free flowing, or nearly so. That "promise" is kept by raising toll rates in peak periods to keep managing demand. It's a simple equation; as overall traffic demand grows, congestion in the general purpose lanes increases, and hence the times savings "value" of using the express lanes also increases. As such, more folks want to use the lanes, which may begin to slow them down. So ETL operators continually increase toll rates to keep on "keeping the promise" of uncongested travel.

From a revenue and financial risk perspective, this makes managed lanes very strong. The best way to keep the promise is to raise rates which, of course, also raises revenue. It's why express lanes seem to be attractive projects for P3 delivery. Over the long term, rates will need to get quite high, which promises a good long-term return on equity.

We are beginning to see an emerging new challenge with successful express lane projects as they mature. There may be a collision on the horizon. At what point might toll rates that are needed to ensure free flow travel run up against political or populist resistance? It could ultimately stand in the way of "keeping the promise," and effectively shorten the useful life of these innovative and successful urban mobility solutions.

Some ETL facilities have maximum rate caps, such as express lanes in Florida or the I-405 managed lanes in Washington state. In those cases, politically sensitive policy changes may be needed to raise the cap to allow the lanes to run freely. But even those projects without hard maximum toll policies will face future risks as toll rates climb to levels high enough to make newspaper headlines. We are already beginning to see that. In reality, it is part of the natural maturation process of tolled managed lanes.

Take, for example, the original Phase 1 portion of the 95 Express Lanes in Miami. When first opened, the Phase 1 section, about 8 miles in length, had a dramatic positive impact on travel speeds, both in the express lanes and in the adjacent general purpose (GP) lanes. The new, dual express lanes replaced a single HOV lane and improved speed in those lanes from about 22 mph to almost 60 mph, almost overnight. More importantly, average speeds in the adjacent free lanes improved from 19 mph to 41 mph; a tremendous success story.

By mid-2016, average speeds in the GP lanes had degraded to less than 30 mph; still better than before the express lanes but clearly showing the effect of moderately growing overall traffic in the corridor. More importantly, according to FDOT reports, average north˚bound PM peak period tolls have increased from \$2.09 in August, 2012 to \$7.87 in March of 2016. It's the nature of the beast; as congestion increases in the outside lanes, operators need to increase tolls to "keep the promise" of free flow operation.

Today, northbound I-95 tolls on the 8-mile segment routinely hit the \$10.50 maximum rate during at least part of the afternoon rush hour. As a result, average peak speeds in the ETLs have dropped to close to 45 MPH, the minimum acceptable speed, also set by state policy. Thus far there has been no change in either the maximum rate or minimum speed policy.

Miami is not alone in this phenomenon. There has been no shortage of news about tolls hitting the $10.00 maximum on the I-405 express lanes near Seattle. In a recent article posted by KIRO Radio the executive director of the Washington State Transportation Commission said that raising the maximum toll would be a "last resort action." Recently, toll rates hit levels in excess of $25.00 for longer trips on the I-95 Express lanes in northern Virginia, and the Capital Beltway tolls briefly hit $30.00 before a snowstorm in March.

This coming collision of express lane mathematics and sensitive political policy concerns could ultimately lead to the failure of today's most successful managed lanes in one of two ways:

(1) Demand management tolls may get so high that the elected officials will demand that "the lanes should be open to everyone free of charge"; or

(2) Constraints will be put on toll increases which cause the express lanes to fail operationally.

So much for "creating and preserving a portion of capacity which will always be free flow."

There is at least one long-term solution to prevent all this; one that will seem at first to be counter-intuitive. Find a way to get at least some of the people out of their cars. Manage the future increases in congestion by limiting the amount of growth in cars (not trips) to moderate the magnitude of future needed rate increases.

To assure the long-term sustainability of the managed lanes concept, it may ultimately be advantageous for operators to invest in strategies specifically aimed at reducing demand for their product, as crazy as that sounds.

One logical idea will be to capitalize on the natural synergy between express lanes and express buses on congested urban freeways. Strategic investments in park-n-ride lots /garages and aggressive, high frequency express buses, which use the same free-flow express lanes, may be able to incentivize some drivers to leave their cars at the entry ramp and ride the bus to their job.

This would not be cheap; express buses usually require operating cost subsidies and remote parking facilities cost money as well. But the most successful managed lanes…. those potentially exposed to the policy collision discussed above, typically will be generating significant annual revenue. Maybe some of that should be re-invested to ensure the ETL promise can be kept for decades to come.

Ironically, this same pricing conundrum was anticipated over 27 years ago in the nation's first HOT project, the SR 91 project that was part of California's landmark AB680 P3 legislation. The franchise agreement included a "people thru-put" incentive, one meant to encourage buses and multi-occupant vehicles. ■

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Editor/Publisher
William Reinhardt
Peterborough, NH (908) 577-8411
pwfinance@aol.com

PWF International Editor
Dominic Curcio/Madrid (34) 91 413-7316
dcpwf@magisnet.com

PWF Canada
Dan Westell/Toronto (416) 538-2382
nowes@sympatico.ca

General Manager
Elizabeth B. Reinhardt/Peterborough, NH
(908) 577-8409
libbybr@hotmail.com

Artist
Kevin Sacco/New York City

PWFinance.net

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World's Largest Transportation Developers

2016 SURVEY OF PUBLIC-PRIVATE PARTNERSHIPS WORLDWIDE

Ranked by Number of Transportation Concessions Currently Operating or Under Construction

Company	Operating or Under Const.	Sold or Expired Since 1985	Pursuits	# Operating or Under Construction In: U.S.	Canada	Home Country	All Other
* ACS Group/Hochtief (Spain)	61	51	43	4	8	18	31
* Vinci (France)	46	6	14	1	3	16	26
Abertis (Spain)	42	17	1	0	0	14	28
* Ferrovial/Cintra (Spain)	40	25	23	5	3	11	21
Macquarie (Australia)	40	25	6	3	1	1	35
* Sacyr (Spain)	31	20	8	0	0	15	16
Meridiam (France)	28	0	4	7	3	3	1
Globalvia (Spain)	27	9	2	1	0	16	10
John Laing (UK)	26	7	5	3	0	14	9
* Bouygues (France)	25	5	6	1	1	8	15
* Egis (France)	24	2	16	0	1	5	18
NWS Holdings (China)	23	4	na	0	0	23	0
* OHL (Spain)	23	17	10	0	0	8	15
* Odebrecht (Brazil)	21	2	2	0	0	13	8
Atlantia (Italy)	19	4	1	0	0	7	12
* Transurban (Australia)	17	2	2	2	0	15	0
* SNC-Lavalin (Canada)	17	0	2	0	10	-	7
* Acciona (Spain)	15	13	7	0	3	8	4
* Balfour Beatty (UK)	14	3	2	0	0	14	0
* Strabag (Austria)	14	1	3	0	0	0	14
InfraRed (UK)	14	na	1	2	3	4	5
* Empresas ICA (Mexico)	12	13	na	0	0	12	0
Plenary (Australia)	12	0	3	3	5	4	0
DIF (Holland)	12	na	na	0	0	2	10
* Skanska (Sweden)	10	2	4	3	0	0	7
* Eiffage (France)	10	1	na	0	0	7	3
BBGI (Luxembourg)	10	0	1	1	5	0	4
Road King (China)	9	9	na	0	0	9	0
Roadis (formerly Isolux) (Holland)	9	1	6	1	0	0	8
* Ideal (Mexico)	9	0	0	0	0	9	0
* Salini Impregilo (Italy)	7	13	3	0	0	3	4
* Fluor (US)	7	4	3	2	1	-	4
Brisa (Portugal)	6	13	na	1	0	5	0
Itinere (Spain)	6	0	0	0	0	6	0

* Design-build contractor developers

Developers are ranked by the number of road, rail, port and airport concessions (DBFM/O), over $50m investment value, that they have developed worldwide, alone or in JV, and are currently operating or have under construction. Also listed are the number of concessions that each developer has sold out of or that have expired, and the number of DBFM/O bid opportunities being pursued. In aggregate, the rankings are intended to show project development success by the number of financial closings a company has completed alone or in consortia with others during the past 30 years. Team members in a consortia each are credited by PWF with closing their project's financing so there is some double/triple counting in the totals. The information is from PWF's Major Projects Database as of October 1, 2016 and dates back to 1985. Please send corrections/updates to Libbybr@hotmail.com

Source: ***Public Works Financing*** **newsletter, October 2016**

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Len Rattigan, Alternative Delivery Director
(703) 742-5740; Rattigan@pbworld.com;
Sallye Perrin, Strategic Pursuits Manager
(410) 246-0523, PerrinSE@pbworld.com;
Karen Hedlund, Director of Public-Private Partnerships (212) 465-5059, HedlundKJ@pbworld.com; or
John Porcari, President, Advisory Services, U.S., (202) 661-5302, PorcariJ@pbworld.com

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Contact: **María Muñoz** mmunozm@sacyr.com
+34 91545 5000

With over $10 Billion in PPP projects, **Raba Kistner Infrastructure** (RKI) has established its reputation as a leader in quality management programs. We are a national company that provides professional consulting and engineering services in the areas of Construction Quality Management, Program Management (PM+)TM, Independent Engineer and Owner's Verification and Testing, and Construction Quality Control/Quality Acceptance Programs, Right of Way (ROW) Management and Acquisition, and Subsurface Utility Engineering to government and industry clients. Our expertise in quality programs goes beyond satisfying the fundamentals. We ensure that quality programs address the unforeseen challenges that arise in Design and Construction QC/QA programs. Our award winning data management and document control program, ELVIS, provides real time management information to assist in making time-critical decisions.

Contact: **Gary Raba**, D Eng, P.E.
graba@rkci.com or by calling 866-722-2547.

Plenary Group is North America's leading specialized developer of long-term Public-Private Partnerships (PPP) projects, with more than $11 billion in public infrastructure assets currently under management and offices in Vancouver, Toronto, Ottawa, Los Angeles, Denver and Seattle, as well as site offices that manage the construction and operation of our concessions. Our business model relies on strong partnerships with clients, local contractors, sub-contractors and trades to ensure the efficient and timely completion of projects, with a view towards the long-term.
Contact **Mike Marasco**, CEO Plenary Concessions
mike.marasco@plenarygroup.com, (425) 223-5741 or
Olivia MacAngus, Vice President, Corporate Development Canada
olivia.macangus@plenarygroup.com, (416) 902-9695.
More information can be found at www.plenarygroup.com.

Mayer Brown has one of the leading public-private partnership practices in the United States. A perennial Chambers Band 1-ranked practice for PPP Projects, what distinguishes us from other law firms is our experience advising clients on transactions that have successfully closed from every side of a project. We have represented public agencies, sponsors and lenders alike on PPP transactions around the country and across all asset types, including roads, bridges, ports, parking, mass transit and social infrastructure.

Contact:
George K. Miller (212) 506-2590
gmiller@mayerbrown.com
David Narefsky (312) 701-7303
dnarefsky@mayerbrown.com
John R. Schmidt (312) 701-8597
jschmidt@mayerbrown.com
Joseph Seliga (312) 701-8818
jseliga@mayerbrown.com

MACQUARIE

Macquarie Capital is a leading financial advisor, developer and investor in Public Private Partnerships in the US, Canada and globally. We have supported both private sector and government clients to successfully deliver large and complex projects including transport, social and telecommunications infrastructure. Notable North American successes include Denver Fastracks, Elizabeth River Crossings, Goethals Bridge Replacement and Kentucky Fiber.

Macquarie combines global expertise and local presence with one of the largest and most experienced teams dedicated to PPP's in the US and Canada. We provide partners and clients with a full range of services from project development, project finance advisory, debt and equity capital markets, M&A and restructuring.

We combine financial capacity, technical expertise, deep industry and public sector relationships and a creative approach to deliver innovative solutions to complex transactions.

Contact: **Jim Wierstra,** Head of North American PPPs, at jim.wierstra@macquarie.com or +1 (212) 231-6322

Transurban

Transurban is an infrastructure investor and long-term operator of urban toll road networks in the U.S. and Australia – providing effective transportation solutions to support the growth and wellbeing of cities. Transurban, working closely with a range of governments, has delivered many successful projects under partnership models, including 13 roads in Australia and two roads in the Washington D.C. area. Transurban's assets incorporate world-class technology and safety features including automatic incident detection, electronic speed and lane-control signage, and specialist tunnel safety systems. In the U.S., Transurban operates the 495 and 95 Express Lanes under an innovative dynamic-pricing structure to provide free-flowing travel in one of the nation's most congested areas.

Contact: Christine Manley (571) 620-7917
cmanley@transurban.com

NOSSAMAN LLP

Nossaman LLP represents clients in all aspects of U.S. infrastructure, specializing in PPPs and other forms of innovative project delivery, finance, operations and maintenance. Our Infrastructure Practice Group, named a Law360 "Practice Group of the Year" for Project Finance and Transportation in 2016, has advised clients in numerous high profile and award-winning projects, including:

- **MTA's $2.2B Purple Line Light Rail:** Maryland's first PPP project under legislation Nossaman helped develop
- **FDOT's $2.3B I-4 Ultimate Project:** PPP Awards Best Transport Project; IJGlobal North American Transport Deal of the Year; Project Finance International Americas Transportation Deal of the Year; Trade Finance Deal of the Year
- **UC's $1B Merced 2020 Campus Expansion Project:** The first university expansion in the U.S. to use the PPP availability payment mode
- **MDOT's $125M Street Lighting PPP Project:** Michigan's first transportation PPP and the nation's first freeway lighting PPP
- **IFA's $1.18B East End Crossing:** International Road Federation Global Road Achievement Award for Project Finance and Economics; PPP Bulletin International Best Global Road Project and Best Global Infrastructure Project

Contact:
Corey Boock, cboock@nossaman.com
Yukiko Kojima, ykojima@nossaman.com
Simon Santiago, ssantiago@nossaman.com or
Patrick Harder, pharder@nossaman.com

On the web: www.nossaman.com and www.InfraInsightBlog.com.

Meridiam is a leading developer, equity investor and asset manager of primary Public Private Partnership (PPP) infrastructure projects with deep expertise in North America and Europe. With US$3.8bn of assets under management across three long-term infrastructure funds, and a focus on transport, social infrastructure and environmental PPP assets, Meridiam strives to establish a long-term contractual relationship between the public and private sectors. Meridiam currently manages 32 projects worldwide, including 9 projects across North America, among which are the Port of Miami Tunnel in Florida, the Long Beach Courthouse in California, and the Waterloo Light Rail Transit in Ontario.

Contact: **Joe Aiello** j.aiello@meridiam.com
Thilo Tecklenburg t.tecklenburg@meridiam.com

Meridiam North America – 605 Third Avenue, 28th Floor NY, NY 10158 – Tel (212) 798-8686 or Meridiam Canada – 357 Bay Street Suite 501 Toronto, Ontario, Canada, M5H 2T7 – Tel (647) 345-3529
www.meridiam.com

With more than 40 years of experience, IRIDIUM Concesiones (formerly Dragados Concesiones) is the ACS Group company that promotes, develops and operates public private partnership projects worldwide. With over 100 projects developed in 21 countries, including 3,953 miles of highways, 1,029 miles of railroads, 16 airports, 18 ports and several social infrastructure PPP projects, IRIDIUM Concesiones is the world leader in this field. We are proud to have global presence with local commitment. ACS Group companies apply their unsurpassed technical skills to the planning, design, construction, operation and maintenance of infrastructures, using the latest technologies in any area and providing the highest level of excellence throughout. A solid financial capability combined with an innovative approach allows IRIDIUM Concesiones to structure the necessary financial resources for any project.
Contact: **Salvador Myro**, smyroc@iridium-acs.com at +(34) 91 703 85 48 or visit www.iridiumconcesiones.com or www.grupoacs.com for further details.

Herzog is recognized as a leader and expert contract provider with innovative management skills that enable us to deliver complex transportation projects. Our award-winning experience is extensive and includes the construction of commuter rail, light rail transit, streetcar, freight systems, and highways, along with intermodal and maintenance facilities. Our high level of professionalism and respect for clients is a component of every job; we cultivate cooperative relationships with project owners, stakeholders, subcontractors, and the communities in which we work. The strong partnerships we develop with our clients have allowed us to successfully complete many complex, challenging projects across North America.

For more information, please contact our main office at (816) 233-9001 or:
Joe Kneib, Senior Vice President Market Development—jkneib@herzog.com
Scott Norman, Vice President Estimating—snorman@herzog.com
Brad Lager, President—blager@herzog.com
Ryan Van Meter, Director Risk Management—rvanmeter@herzog.com

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Established in 1884, Kiewit is one of the largest construction organizations in North America leveraging a network of more than 50 offices to develop a respected multifaceted business presence across North America. With a staff of management, technical, financial, commercial and legal experts dedicated to successfully delivering PPP projects, our success is based on the trust that we have built with government officials, stakeholders and the financial community. As a recognized leader in design-build and PPP project development, Kiewit combines extraordinary financial credibility and extensive resources with a creative, solution-oriented approach to ensure a predictable outcome of success for our clients.

Kiewit Development
Sam Chai (416) 572-2519 Sam.Chai@Kiewit.com
James Geer (402) 943-1405 James.Geer@Kiewit.com

Kiewit Infrastructure
Joe Wingerter (402) 943-1329
Joe.Wingerter@Kiewit.com

PUBLIC-PRIVATE SERVICES DIRECTORY

For more than a century, HDR has partnered with clients to shape communities and push the boundaries of what's possible. Our expertise spans 10,000 employees, in more than 225 locations around the world—and counting. Our engineering, architecture, environmental and construction services bring an impressive breadth of knowledge to every project. Our optimistic approach to finding innovative solutions defined our past and drives our future.

As consultants, we can help you keep pace with today's rapidly changing marketplace. We help you make decisions based on rigorous analysis of the economic climate, a thorough understanding of your organizational needs and priorities, and 100 years of experience in delivering infrastructure. From strategy and finance to design and delivery, we help you develop innovative, reliable and cost-effective solutions to your infrastructure challenges.

Learn more at hdrinc.com or contact us:

Sharon Greene, Finance Director
(714) 368-5651, Sharon.Greene@hdrinc.com
Mike Schneider, Strategy & Development Director, Transportation
(714) 368-5686, Mike.Schneider@hdrinc.com
Bill Damon, Strategic Consulting Director, Power
(734) 332-6400, Bill.Damon@hdrinc.com
Shawn Koorn, Utility Rates Lead
(425) 450-6366, Shawn.Koorn@hdrinc.com

Ernst & Young, LLP is a leader in assurance, tax, transaction and advisory services. We believe in the value of infrastructure to our communities and are proud to serve clients as they work to:

- Rebuild and modernize existing infrastructure
- Invest wisely in new infrastructure to address new and changing needs, enable growth and achieve a higher quality of life for communities
- Bring innovation, foresight and sound economic stewardship to their major projects, programs and investments, and/or
- Identify and attract the funding and financing required to invest in infrastructure.

We provide finance, business planning, policy, procurement, modeling, valuation and tax advice for large-scale infrastructure projects, programs, investments and public-private partnerships. We serve state and local government clients through our affiliate, Ernst & Young Infrastructure Advisors, LLC, a registered municipal advisor. We help clients to achieve their goals.

Please contact: **Mike Parker,** Senior Managing Director, Ernst & Young Infrastructure Advisors, LLC
+1 215 448 3391, mike.parker@ey.com; or
Glenn Johnson, US Infrastructure Tax Leader, glen.johnson@ey.com.

AIAI is a non-profit organization formed in the District of Columbia to help shape the direction of the national Public Private Partnership marketplace. AIAI serves as a national proponent to facilitate education and legislation through targeted advocacy. AIAI's Board is comprised of leaders of the construction and development industry. Their extensive national and international experience and industry knowledge provides AIAI with a clear direction for developing and advocating policy and legislative solutions, allowing more equitable and effective partnerships across diverse market sectors from transportation and energy to educational, health and public service institutions.
Contact **Lisa Buglione** (516) 277-2950
lbuglione@aiai-infra.org

Formed in 1922, **Granite Construction Incorporated** is today one of the largest heavy civil contractors in the United States. It is positioned in all the major U.S. markets with offices located throughout the country serving over private and public clients. Over the past 88 years, Granite has earned a nationwide reputation as the preeminent builder of quality projects in a timely manner. Always progressive, Granite has developed into one of the top Design-Build contractors in the U.S. and has recently enacted an Environmental Affairs Policy to take a leading role in the construction industry in protecting the environment and our natural resources. Through our corporate Sustainability Plan, we actively engage in industry, and direct efforts at the local, state, and federal levels to advocate for adequate and sustainable public infrastructure funding to maintain and improve America's transportation system. Granite is nationally recognized for its expertise in the majority of construction sectors including tunnels, highways and roadways, dams, bridges, railroads marine, airports, heavy and light mass transit, and have become renowned design-build and mega project constructors. Granite leads the market in the design-build turn-key delivery of complex fast paced transportation projects.

Contact **Kent Marshall** (831) 728-7549, or 585 West Beach St. Watsonville, CA 95077-5085 www.graniteconstruction.com

Ferrovial Agroman is a leader in the global construction market. In addition to Spain, the company has significant activity in eight other countries: Poland, USA, Greece, United Kingdom, Chile, Puerto Rico, Ireland and Portugal. Wholly owned by the same parent company as CINTRA, the world's largest transportation developer by invested capital, Ferrovial Agroman has 80 years of construction experience in DBB, DB, and PPP projects in all types of infrastructure assets. These decades of experience result in 2,500 miles highway concessions; 9,475 miles new roads; 16,995 miles rehab of roads; 304 miles tunnels; 2,523 miles canals; 3,884 miles water pipelines; 2,392 miles gas and oil pipelines; 29 hydroelectric power stations; 147 dams; 220 water treatment plants; 21 miles wharfs and ports; 40 airports; 20 stadiums; and 2,920 miles of railways, including 449 miles of High Speed Rail.

Contact **Daniel Filer**, VP of Business Development for North America at +1-512-637-8587.

Hawkins Delafield & Wood provides legal advisory services to governmental owners on PPP and alternative delivery infrastructure projects. The firm also represents PPP project investment bankers and lenders. Our infrastructure team is widely recognized for its quality and depth. Over a 20-year span, Hawkins has negotiated and closed more than 200 design-build, design-build-operate, design-build-finance-operate, construction-manager-at-risk, concession, asset management, operating services and franchise agreements for public sector clients in 25 states. We practice in the water, transportation, social infrastructure, and renewable energy sectors. Landmark projects include:

- *Carlsbad Seawater Desalination Project* (San Diego County Water Authority), a Project Finance International water infrastructure PPP deal of the year.
- *New Long Beach Court Building* (State of California), a Bond Buyer social infrastructure PPP deal of the year.
- *Vista Ridge Regional Water Supply PPP Project* (San Antonio Water System)
- *LaGuardia Central Terminal Building Project*

Contact:
Eric Petersen at (212) 820-9401
epetersen@hawkins.com
Ron Grosser (212) 820-9423
rgrosser@hawkins.com
Joe Sullivan (212) 820-9513
jsullivan@hawkins.com
Rick Sapir at (973) 642-1188
esapir@hawkins.com

Elias Group LLP provides legal and consulting services to government and industry. We are a boutique law firm internationally recognized for our expertise in project finance, public/private partnerships, industrial outsourcing, joint ventures and strategic alliances, and M&A of regulated and non-regulated entities. The firm's unique accomplishments include the first 20-year concession agreement executed in the U.S. for the rehabilitation and operation of a municipal wastewater treatment facility. Our skills and practical experience are evident in the multitude of transactions successfully completed.

Contact **Dan Elias** or **Michael Siegel** at 411 Theodore Fremd Avenue, Rye, NY 10580; tel: (914) 925-0000
fax: (914) 925-9344; or visit our web site: www.eliasgroup.com

GLOBALVIA

Globalvia started its activity in January 2007, as a result of two Spanish companies' interests in the infrastructure sector, FCC and Bankia. From 2011 till 2013, Globalvia began a fund raising process aimed to develop its concessions portfolio and the searching of future inversions. This capital came from three pension funds: OPTrust (Canada), PGGM (Netherlands) and USS (United Kingdom), which have finally invested 750 million euro through a convertible bond.

In August 2015, concurring with the sales process, the funds exercised their preferential acquisition right over the company's shares. The full process then ended in March 2016 when OPTrust, PGGM and USS officially became in the new shareholders of 100% of the company.

Globalvia, a worldwide infrastructure concession leader, currently manages 28 PPP projects among highways, railways, hospitals and ports. The company is present in 8 countries: Spain, USA, Ireland, Portugal, Andorra, Chile, Costa Rica and Mexico, where it manages more than 1,500 Km of highways and more than 90 Km of railways, with a single objective: the efficient operation of its assets.

Contact:

Globalvia Spain > +34 91 456 58 50 info@globalvia.com

Globalvia USA > **Michael Lapolla** +1 (908) 208-2100 mlapolla@globalvia.com

KPMG

KPMG's Global Infrastructure professionals in the US and Canada provide specialist Advisory, Tax, Audit, Accounting and Compliance related assistance throughout the life cycle of infrastructure projects and programs. Our teams have extensive local and global experience advising government organizations, infrastructure contractors, operators and investors. We help clients ask the right questions and find strategies tailored to meet the specific objectives set for their businesses. KPMG can help set a solid foundation at the outset and combine the various aspects of infrastructure projects or programs – from strategy, to execution, to end-of-life or hand-back.

Contact **Andy Garbutt,** Practice leader for KPMG's US team, at +1 (512) 501-5329 or e-mail: infrastructure@kpmg.com or www.kpmg.com/infrastructure.com

BAKER & McKENZIE

Baker & McKenzie has a long history of involvement in the development of infrastructure projects and PPP projects in North America. We have represented bid leaders, consortium partners and lenders in a number of high profile projects, placing us among the few law firms with true expertise in the area. Our experience covers the many complex tasks involved in the development of such major infrastructure and PPP projects, including:

- project and transaction structuring
- consortium structuring
- tax planning
- project financing
- negotiation of key project documents
- public offerings

Our broad experience enables us to act efficiently for our clients through the use of relevant and effective precedents that have been executed in past transactions.

We offer our clients:

- an understanding of the key drivers that influence public agencies in evaluating bids;
- a proven project management capability and ability to bring together legal arrangements in complex infrastructure projects in tight timeframes; and
- an in-depth knowledge of applicable, federal, state, provincial, local and/or municipal laws with an unparalleled international perspective.

Key contacts:

José A. Morán at (312) 861-2829, jose.moran@bakermckenzie.com;

Michael S. Smith at (312) 861-8930, michael.s.smith@bakermckenzie.com;

James P. O'Brien at (312) 861-7588, james.p.o'brien@bakermckenzie.com

Engineering and Environmental Solutions

TYPSA-AZTEC s an international consulting engineering firm with over 50 years of experience successfully executing major infrastructure projects. Our 2600 professionals work in multidisciplinary teams to improve and sustain enhanced living conditions around the world. Our major services include: Transportation, Rail and Transit, Environmental, Energy and Field Services. We are internationally recognized with top industry rankings and awards. In all we do, we seek balanced solutions for our clients, the public and the environment.

For more information, please contact
Rafael Valero (480) 648-2979
rvalero@aztec.us or
Robert L. Lemke, Jr. (602) 402-8683
rlemke@aztec.us

www.typsa.com   www.aztec.us

Egis has an unrivalled experience in most types of infrastructure PPP and concessions: motorways, bridges, tunnels, urban infrastructures and airports. We are experienced with all types of remuneration (real toll, shadow toll or availability schemes). Egis Projects relies on the specialized skills of its shareholders: Groupe Egis, a leader in infrastructure engineering, and Caisse des Dépôts. Egis Projects acts as promoter, developer and investor in concession/PPP projects, as turnkey equipment integrator, as operator and manager of airports and, via its wholly owned subsidiary Egis Road Operation, as operator of roads and motorways. Egis Projects has also extended its activities to electronic toll collection, toll network interoperability, and safety enforcement as well as associated services for road users under the Easytrip brand. Egis Projects has financially closed 25 infrastructure projects for a total value of 12 bn €. Egis Road Operation is operating 39 motorways totalling 2,400 km in 18 different countries.

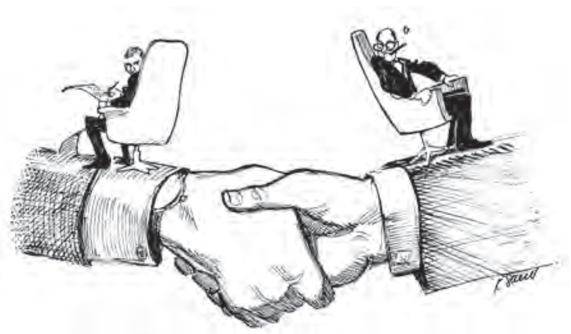
Contact: **Pascal Lemonnier,** pascal.lemonnier@egis.fr
or tel: +33 1 39 41 51 60

www.egis.fr

Abertis is the world leader in the toll roads sector with 29 concessions and over 8,300 kilometers under management. The Group, with a presence in 12 countries and over 14,300 employees, is geared towards value creation through infrastructure investments that contribute to economic and social development in these areas. Since its inception in 2003, Abertis has invested over 15,000 million euro in the countries in which it operates.

After a successful internationalization process in the last 5 years, more than 70% of Abertis' revenues are generated outside Spain. France is nowadays its biggest market by revenues and Ebitda, followed by Spain and Brazil. Abertis is listed on the Spanish Stock Exchange and is a constituent of the IBEX 35. It is present also in the main international indexes such as FTS Eurofirst 300 and Standard & Poor's Europe 350.

Contact: **Communications Direction** (+34) 932305039



CDM Smith provides lasting and integrated solutions in water, environment, transportation, energy and facilities to public and private clients worldwide. As a full-service consulting, engineering, construction, and operations firm, we deliver exceptional client service, quality results and enduring value across the entire project life cycle.

CDM Smith is internationally recognized for utility, toll road and public-private partnership expertise, serving public and private sector clients on hundreds of infrastructure projects worldwide. For more than 60 years, CDM Smith has worked to place $85 billion of revenue-based financings and provide unparalleled credibility in today's financial markets.

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Assured Guaranty, the leading provider of bond insurance, has helped public-private partnerships reduce the cost of financing essential public infrastructure and achieve smooth transaction execution for decades, even during extremely difficult market conditions. With financial strength rated AA by S&P, AA+ by KBRA, and A2 by Moody's, all with stable outlooks, Assured Guaranty Municipal Corp. helps broaden the investor base and improve the cost efficiency of infrastructure financings by unconditionally guaranteeing timely payment of principal and interest. Investors are attracted to the insured bonds' increased market liquidity, as well as Assured Guaranty's credit selection, underwriting, negotiated terms, construction period coverage and ongoing surveillance.

Contact: **Lorne Potash** at lpotash@assuredguaranty.com
(212) 261-5579

For additional information, visit AssuredGuaranty.com.

Cintra is the leading private-sector transportation infrastructure company in the world, with experience spanning nearly 50 years of innovative highway development on four continents. Today, its portfolio includes more than 1,200 miles of managed highways globally, representing a total global investment in roadway improvements of over $23.5 billion. Cintra's parent company, Ferrovial is recognized as one of the world's largest private operators of transportation infrastructure and a leading services provider. It generates net revenues of $10.7 billion a year, has operations in more than 15 countries and assets totaling approximately $27.6 billion. Ferrovial's business model is focused on end-to-end infrastructure management, design, construction, financing, operation and maintenance. With this aim, the company is active in complementary sectors, such as airport and toll road construction and operation, as well as services.

Contact: **Ricardo Bosch**, Director North America Business Development, rbosch@cintra.us, or
Carlos Ugarte, Corporate Development and Business Direction +34 91 418 5606.
More information: www.cintra.us

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C&M Associates is a U. S. toll and managed lanes traffic & revenue specialist firm independently serving public and private sector clients since 2004. Our services for state DOTs include project screening and feasibility, planning level traffic and revenue forecasts, traffic projections for environmental studies, operational analysis, risk analysis and investment grade traffic and revenue studies to support bond issuance for availability payment and 63-20 structures.
Private client services include advisory on behalf of equity: Investment grade traffic and revenue studies to support traffic risk concession bids, financing support services before lenders, investors and TIFIA, risk analysis of projected forecasts and operational analysis. Advisory on behalf of lenders: Peer review of equity traffic and revenue forecasts, development of lender case forecasts and risk analysis.

Contact **Carlos M. Contreras** at (972) 522-9373
cmcontreras@candm-associates.com

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Abertis
Corporate Communications
Direction (+34) 932305039

Cintra, S.A.
Ricardo Bosch rbosch@cintra.us
Carlos Ugarte cugarte@cintra.es
+34 91 418 5606

EGIS Projects
Pascal Lemonnier, +33 1 39 41 51 60
pascal.lemonnier@egis.fr www.egis.fr

Ferrovial Agroman
Daniel Filer (512) 637-8587

Globalvia
Globalvia Spain +34 91 456 58 50
info@globalvia.com
Michael Lapolla, +1 (908) 208-2100
mlapolla@globalvia.com

Granite Construction Inc.
Kent Marshall (831) 728-7549

Herzog
(816) 233-9001
Joe Kneib jkneib@herzog.com
Scott Norman, snorman@herzog.com
Brad Lager, blager@herzog.com
Ryan Van Meter, rvanmeter@herzog.com

Iridium Concesiones
Salvador Myro (34) 91 703 85 48
smyroc@iridium-acs.com

Kiewit
Kiewit Development
Sam Chai (416) 572-2519
Sam.Chai@Kiewit.com
James Geer (402) 943-1405
James.Geer@Kiewit.com
Kiewit Infrastructure
Joe Wingerter (402) 943-1329
Joe.Wingerter@Kiewit.com

Meridiam Infrastructure
Joe Aiello j.aiello@meridiam.com
Thilo Tecklenburg t.tecklenburg@meridiam.com

WSP | Parsons Brinckerhoff
Len Rattigan (703) 742-5740
rattigan@pbworld.com
Sallye Perrin (410) 246-0523
perrinse@pbworld.com
Karen J. Hedlund (212) 465-5059
HedlundKJ@pbworld.com
John Porcari (202) 661-5302
porcarij@pbworld.com

Plenary Group
Mike Marasco in the U.S. (425) 223-5741
marv.hounjet@plenarygroup.com
Olivia MacAngus in Canada
(416) 902-9695
olivia.macangus@plenarygroup.com

Sacyr
María Muñoz +34 91545 5000
mmunozm@sacyr.com

Suez Water Inc.
Mary Campbell 201-767-9300
mary.campbell@suez-na.com

Transurban
Christine Manley (571) 620-7917
cmanley@transurban.com

PPP Financing

Assured Guaranty
Lorne Potash (212) 261-5579
lpotash@assuredguaranty.com

Macquarie Capital
Jim Wierstra at +1 (212) 231-6322
jim.wierstra@macquarie.com

PPP Financial/ Procurement/Technical

AECOM
Samara Barend (212) 973-3089
samara.barend@aecom.com

CDM Smith
Ed Regan (803) 251-2072
Kamran Khan (630) 874-7902
Joe Ridge (603) 222-8320

C&M Associates
Carlos Contreras (972) 522-9373
cmcontreras@candm-associates.com

Ernst & Young
Mike Parker +1 (215) 448-3391
mike.parker@ey.com
Glenn Johnson
Glenn.Johnson@ey.com

KPMG
Andy Garbutt +1 (512) 501-5329

O.R. Colan Associates
Steve Toth stoth@orcolan.com

Raba Kistner
Gary Raba (866) 722-2547
graba@rkci.com

TYPSA-AZTEC
Rafael Valero: (480) 648-2979
rvalero@aztec.us
Robert L. Lemke, Jr., PE (602) 402-8683
rlemke@aztec.us

Legal/Procurement Advisors

Baker & McKenzie
José A. Morán (312) 861-2829
jose.moran@bakermckenzie.com
Michael S. Smith (312) 861-8930
michael.s.smith@bakermckenzie.com
James P. O'Brien (312) 861-7588
james.p.o'brien@bakermckenzie.com

Elias Group
Dan Elias or Michael Siegel (914) 925-0000
fax (914) 925-9344 or
www.eliasgroup.com

Hawkins Delafield & Wood
Eric Petersen in NY (212) 820-9401
Ron Grosser in NY (212) 820-9423
Rick Sapir in Newark (973) 642-1188
Joe Sullivan (212) 820-9513

Mayer Brown
George K. Miller (212) 506-2590
gmiller@mayerbrown.com
David Narefsky (312) 701-7303
dnarefsky@mayerbrown.com
John R. Schmidt (312) 701-8597
jschmidt@mayerbrown.com
Joseph Seliga (312) 701-8818
jseliga@mayerbrown.com

Nossaman LLP
Corey Boock, cboock@nossaman.com
Yukiko Kojima, ykojima@nossaman.com
Simon Santiago, ssantigo@nossaman.com
Patrick Harder, pharder@nossaman.com
www.infrainsightblog.com

Industry Associations

AIAI
Lisa Buglione (516) 277-2950
lbuglione@aiai-infra.org

ARTBA
Richard Juliano (202) 289-4434
rjuliano@artba.org