The Performance Infrastructure Review Committee (PIRC) is a bipartisan committee of individuals with expertise in federal policy, infrastructure development, and project finance. Over the past six months, PIRC has reviewed numerous concepts pertaining to how infrastructure is financed. The objective has been to develop a shortlist of those options that seem to have the greatest promise in terms of political practicality, budget affordability, and investment.

PIRC has favored financing proposals that build upon prior experience. In evaluating different policy options, PIRC used the “three-legged stool” theory of design: Each financing tool must meet the differing needs of the Borrower (offering lower cost or other advantages), the Investor (providing a competitive risk-adjusted rate of return), and the Federal policy maker (having a manageable, scored budgetary cost and adhering to fundamental public policies). If any one of the stool’s three legs is “wobbly” the approach will not be effective.

Thus far, PIRC has identified five new infrastructure investment policy tools that it believes could be of particular value in the current debate over how to boost spending:

• Authorizing a Critical Asset Procurement Reform (CAPR) Program for Federal Assets—using a Design-Build-Finance approach for certain major types of direct Federal investments such as Corps of Engineers water resource projects, VA hospitals, GSA buildings, and Federally-owned transportation assets (see page 5);

• Authorizing Infrastructure Credit Bonds for Public Infrastructure—implementing an enhanced $100-billion zero-interest tax credit bond program for state/local and P3 projects that would be suitable for pension fund investment (see page 11);

• Providing Performance Incentive Innovation Grants—making grants available for pre-development planning and up to 20% of capital costs of both P3 and governmental projects that incorporate lifecycle costing mechanisms to ensure sustained asset performance (see page 15);

PIRC’s proposed financing tools could help produce 7.5 million jobs and $575 billion in capital investment over 10 years with a budget cost of only $55 billion.

Note to Congress: Infrastructure finance practitioners show how to create $575 billion in new capex over 10 years with a budget impact of only $55 billion.

Asset Recycling: Transportation policy leader Robert W. Poole Jr. lays out a plan for drawing huge amounts of institutional investment into upgrading critical assets.

Don’t Toll the Interstates: Renowned travel behavior expert Alan E. Pisarski offers five good reasons not to toll the Interstate highway system.

Road Usage Charging Won’t Work: The reality is that people hate it, says Jeff Buxbaum, consultant lead for the Washington State Transportation Commission’s road usage charge investigations from 2012-2015.
For Dan Flanagan’s life-long work to promote private investment in public works infrastructure, *Public Works Financing* this month has elected to name PIRC’s infrastructure credit bond the “Flanagan Bond”.

Given his dauntless optimism, PIRC’s co-chairman Daniel V. Flanagan Jr. is the right person to help carry this zero-interest bond idea and the rest of PIRC’s proposals in the halls of Congress, we believe. If he succeeds, the P3 market in the U.S. will flourish and performance-based infrastructure will gain real traction.

Some of the concepts put forth by PIRC in this month’s special report had their genesis in an earlier report authored by Flanagan in 1993 when he was chairman of the Commission to Promote Investment in America’s Infrastructure.

Among the commission’s recommendations: offering new lending and credit enhancement programs; promoting project finance; establishing a National Infrastructure Corporation with the ability to fund project development; and creating a new type of infrastructure security under the tax code that would be suitable for retirement fund investment. The TIFIA credit assistance program was proposed by Flanagan’s commission and gained passage in the TEA-21 highway reauthorization in 1998.

From Flanagan’s work and other efforts to create a national infrastructure policy, PIRC members have thus far identified five infrastructure investment policy tools. These initiatives are diversified in terms of both the delivery approach (federal, state/local and public-private partnerships) and the types of policy tools (regulatory reforms, tax incentives, credit assistance and grant incentives).

Flanagan believes the time has come for a coordinated federal approach to financing infrastructure. “This special issue of *Public Works Financing*, which was founded nearly 30 years ago by my old friend and fellow stalwart Bill Reinhardt, comes at a key moment when the opportunities for enacting new federal incentives for infrastructure investment look highly promising.”

**PIRC Members**

Joining Flanagan as co-chair of the Performance Infrastructure Review Committee is Dan Carol, the founding chair of the West Coast Infrastructure Exchange. He has recently taken a post as Senior Advisor on Infrastructure and Energy to California Governor Jerry Brown. Carol teaches infrastructure finance in Georgetown’s Planning and Real Estate program, and is a Non-Resident Senior Fellow at Georgetown’s Beeck Center for Social Innovation.

Other members include:

**Elaine Buckberg**, a principal at The Brattle Group, holds a Ph.D. in Economics from MIT and an undergraduate degree from Yale University. Before joining Brattle, Dr. Buckberg served as deputy assistant secretary for policy coordination at the U.S. Treasury Department’s Office of Economic Policy, where she helped create the Build America Investment Initiative on infrastructure, including authoring two white papers on public-private partnerships.

**Judson Greif**, of Greenfield Governmental Strategies, is a Deputy Director at the US Water Alliance, where he is responsible for managing a number of projects including policy development and stakeholder engagement around comprehensive water management and water infrastructure investment in the United States.
Bryan Grote, of Mercator Advisors LLC, works with governments to implement transportation policies and finance programs. Previously, he coordinated legislative proposals, financial policies, and new programs for the USDOT, including the design and implementation of the TIFIA credit assistance program where he was the first director. He was a member of the National Surface Transportation Infrastructure Financing Commission, which recommended a transition to a VMT fee system in its 2009 report to Congress.

Bill Hanson, of Great Lakes Dredge & Dock Co., joined the Company in 1988 as an Area Engineer in its Staten Island Division Office. He began his career with the U.S. Army Corps of Engineers in Galveston, Texas and Los Angeles. He is currently the President of the Western Dredging Association and is a board member of several industry trade associations.

Bill Newman, Senior Advisor at HC Project Advisors LLC, helped to gain passage of the Staggers Rail Act while serving as counsel to the House Energy and Commerce Committee. He subsequently ran the Washington office for Conrail before its privatization in 1987. His current work involves financing alternatives for large water infrastructure projects.

John Ryan, a Principal of InRecap LLC, is a project and structured finance specialist focused on infrastructure debt alternatives. He is a Visiting Fellow at the Global Projects Center of Stanford University.

David Seltzer, of Mercator Advisors, has over 35 years of experience in public and project finance as a private banker, as co-founder of Mercator Advisors, and as in-house financial advisor to the Federal Highway Administrator. His work included development and implementation of “innovative financing” initiatives, including TEA-21 finance provisions (1996-1999). He played a central role in conceptualizing and implementing USDOT’s TIFIA credit program.
<table>
<thead>
<tr>
<th>Proposal</th>
<th>Potential Program Volume</th>
<th>Est. Budget Cost</th>
<th>Net Investment Effect</th>
<th>Description of Budget Cost and Investment Effect Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Asset Procurement Reform (CAPR) Program for Federal Assets</td>
<td>$ 60</td>
<td>$ 0</td>
<td>$ 40 (net)</td>
<td>The estimated net investment effect of $40 billion is lower than the $60 billion authorized program size for 2 reasons: Part of the reduction reflects accumulated interest expense during construction that is taken out with permanent financing; the balance is attributable to the fact that participating Federal agencies will have to reduce pay-as-you-go capital outlays for other projects in later years to accommodate annual debt service payments. No incremental budget score is assigned because the cost (annual debt service and any annual performance payments) is assumed to be funded from within current annual spending levels of the participating agencies.</td>
</tr>
<tr>
<td>Infrastructure Credit Bonds (ICBs)</td>
<td>100</td>
<td>20</td>
<td>100</td>
<td>This program would authorize $10 billion per year of qualified tax credit bonds over 10 years for $100 billion of projects that are assumed to be entirely debt-financed. Annual nonrefundable tax credits pay for 100 percent of interest cost. The estimated budget cost represents tax credits (tax expenditures) granted over the first 10 years (budget window).</td>
</tr>
<tr>
<td>Performance Incentive Innovation (PII) Grants</td>
<td>20</td>
<td>20</td>
<td>90</td>
<td>This program would offer grants for PII projects covering up to 20% of project costs in order to reduce the cost of capital for both governmental and P3 projects advanced in accordance with established life cycle performance standards. $2 billion of grant funding would be made available each year for 10 years, with 5-10% set aside to help fund PII project pre-development costs. No investment effect is attributed to the planning grants.</td>
</tr>
<tr>
<td>Standardized Private Activity Bonds (QPIBs)</td>
<td>100 (no formal volume cap)</td>
<td>5</td>
<td>70 (net)</td>
<td>There would be no federal volume cap on the program, but the $100 billion program size estimate conforms to assumptions used by the Joint Committee on Taxation in its analysis of QPIBs. The net investment activity is somewhat lower than the gross program volume because a portion of the induced PAB volume is either reflected in the debt portion of the PII Grants investment estimate above or is assumed to be a substitution for debt of projects that would have been financed by other means in any event.</td>
</tr>
<tr>
<td>Strengthened Platform for Federal Credit</td>
<td>100</td>
<td>10</td>
<td>275 (net)</td>
<td>It is assumed that a new infrastructure funding authority would receive $10 billion of start-up capital to support the credit subsidy costs of $100 billion of new federal infrastructure lending over 10 years. [This would be over and above current federal credit program activity for public infrastructure (RUS, TIFIA, RRIF, WIFIA, etc.) of $10-15 billion per year.] Assuming a maximum federal share of 33% (similar to TIFIA) produces total new capital investment of about $300 billion. However, it is assumed that about $25 billion of the activity would be associated with federal credit extended to projects also receiving PII Grants, reducing the net investment to $275 billion.</td>
</tr>
<tr>
<td>Total</td>
<td>$ 380</td>
<td>$ 55</td>
<td>$ 575</td>
<td>Better than 10:1 blended ratio of Net Investment Effect to Budgetary Cost. Using the CEA metric of 13,000 job-years generated per billion spent on transportation investment as being generally applicable to infrastructure, these measures could help generate 7.5 million jobs over 10 years.</td>
</tr>
</tbody>
</table>
Like the weather, everyone seems to complain about the impediments to federal asset acquisition but no one ever seems able to do anything about it.

Current federal budgetary rules effectively require that the purchase and financing of major, long-lived physical assets of the government be expensed upfront, in the same way as operating costs like salaries and wages. This contrasts with corporate, nonprofit, and state/local practice where long-term capital investments are accounted for separately, in a capital budget. The result? Federal agencies are forced to make inefficient investment decisions: Deferring much-needed capital renewal; making piecemeal acquisitions; favoring lowest initial cost over best value through life-cycle costing.

The longstanding federal spending rules are enforced through OMB Circular A-11, which in most cases dictates that the entire capital cost of a long-lived asset be “scored” upfront (charged as current spending in the federal discretionary budget).

Rather than attempting to completely replace A-11, the Critical Asset Procurement Reform (CAPR) Program would modify budget rules to allow a limited number of critical Federal capital investment programs to spread the capital costs over their useful lives – provided there was significant risk transfer to the private sector.

To be eligible under CAPR, the selected programs would need to:

(i) Pertain to capital-intensive, long-lived direct federal capital investments

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### Critical Asset Procurement Reform: A Federal P3 Capital Asset Financing Proposal

by Bryan Grote and John Ryan

---

#### 1. Federal Asset Procurement Innovation

<table>
<thead>
<tr>
<th>Summary:</th>
<th>Authorize certain types of critically-needed federal assets to be procured as Design-Build-Finance P3s to accelerate acquisition and shift risks: the Critical Asset Procurement Reform (“CAPR”) Program (Examples: Army Corps Water Resource Projects; VA Hospitals; GSA Buildings; Federal Lands Highways; FAA NextGen Air Traffic Control.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Rationale:</td>
<td>Federal budget constraints (including lack of capital budgeting) delay procurement of key capital-intensive assets – resulting in short-term, less efficient federal asset acquisitions and deferring public benefits.</td>
</tr>
<tr>
<td>Program Design:</td>
<td>Pilot program would authorize a P3 approach to support up to $60B of financing for designated large federal assets and systemic capital improvements. Private partner would design, build, and finance the construction phase. Possibility of outsourcing ongoing asset maintenance for certain types of projects, with compensation tied to asset performance. Private construction loans would be retired by the procuring federal agency at project acceptance, using the proceeds of a Treasury loan to the federal agency. Annual debt service cost under CAPR—rather than the asset value—would be scored in the federal budget, along with any annual payments for asset maintenance and renewal predicated upon performance. Operations could be either federal or out-sourced.</td>
</tr>
<tr>
<td>Advantages:</td>
<td>Significantly shifts project development risk and potentially long-term performance risk to private sector. Provides “capital budgeting” treatment for designated, critically-needed, large-scale federal assets and systems of projects that cannot be readily funded from participating agencies’ annual budgets. Minimizes incremental financing cost of P3 project delivery by confining private finance to the construction period. Retains longstanding OMB Operating Lease rules for “routine” federal asset acquisitions.</td>
</tr>
<tr>
<td>Budget Impact:</td>
<td>CAPR payments would be funded within agencies’ normal annual appropriations, so the program is deficit-neutral from an operating budget perspective. Would use special borrowing authority to fund takeout from Treasury of interim financing – the loan would not be scored as discretionary spending under current caps (similar to FCRA financing account transactions).</td>
</tr>
</tbody>
</table>
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(ii) Address critical national priorities;

(iii) Entail substantial private participation and risk transfer; and

(iv) Be expressly designated by Congress as CAPR-eligible.

This approach would be limited to major direct construction, acquisition, or renovation of designated federal assets, such as Army Corps of Engineers water resources projects, Veterans Administration hospitals, major buildings like the new FBI and Homeland Security headquarters, and even FAA NextGen air traffic control equipment and facilities. Together, these important programs today amount to about $12 billion per year—representing less than 8 percent of total federal “major public physical investment” outlays of $153 billion.

**Program Structure**

The CAPR program would enable a federal agency to outsource to a private vendor the construction risk (cost overruns and delays) of building, acquiring, or renovating a federal asset. Depending upon the nature of the improvement, the agreement also could cover the long-term performance risk (maintenance and functionality) of the asset.

The CAPR program follows a Design-Build-Finance (DBF) approach, where the private sector is responsible for designing, constructing, and interim-financing the acquisition of the asset. In cases where the value of the asset is highly dependent on timely maintenance and capital renewal (such as technology), a Design-Build-Finance-Maintain (DBFM) approach could be used.

Under the CAPR program, the agency would be authorized to enter into a DBF or DBFM project agreement with a vendor. The vendor would be selected under a “best value” competitive procurement model, with a guaranteed maximum price and guaranteed completion date.
The vendor would be required to arrange private construction financing until the asset was completed, delivered, and accepted by the agency. At that point, the agency would pay the vendor a pre-determined sum to repay the guaranteed price for the asset (plus scheduled interest) by drawing on the proceeds of a long-term U.S. Treasury loan. Using a combination of interim and permanent financing should:

i) Transfer the project’s construction risk and acceptance risk to the private partner by having it bear increased financing costs if delays or overruns occur; and

ii) Minimize the incremental cost of long-term financing compared to conventional Treasury funding.

The final maturity of the Treasury loan would be the lesser of 30 years or the useful life of the asset being financed. An annual repayment schedule would be established on a level debt service basis at a rate based on U.S. Treasury obligations at the time of the loan commitment. The agency would agree to make debt service payments from the capital portion of its regular annual appropriation from Congress. For those projects where periodic technology updates or major capital renewals are required to ensure long-term functionality, the agency would make annual performance payments to the vendor, conditioned upon the performance of the asset (availability payments).

To determine if the P3 approach is cost-effective, the agency would be required to prepare a Value for Money (VfM) analysis comparing the net present value of the cost to the agency of procuring the asset through the CAPR program vs. traditional federal pay-as-you-go procurement, taking into account the benefits of risk transfer. In addition, the VfM analysis would incorporate the benefit to society of accelerated completion compared to the deferred delivery schedule under conventional federal acquisition—“Value for Funding.”

**Budget Treatment**

The CAPR projects would be permitted to utilize modified budgetary accounting rules because of the value of construction risk transfer and the benefits of accelerated delivery, cost savings and, where applicable, ongoing performance guarantees. Congress would need to authorize access to special borrowing authority for a participating agency in order for it to enter into a P3 agreement for an approved project and draw upon a loan from Treasury to take out the construction financing upon asset acceptance. Neither the borrowing authority (obligated upon execution of the project agreement) nor the resulting outlays (occurring when the Treasury loan is drawn) would be subject to the budget’s current discretionary spending caps.

Each year the agency would use a portion of its regular appropriations to fund the annual loan repayments to the Treasury, and, if applicable, any operating-performance payments to the vendor. These amounts would be scored (budget authority and outlays) each year over the term of the Treasury loan, on a pay-as-you-use basis. A simplified flow chart of how the transaction would be structured appears below.

**Conclusion**

The CAPR program effectively would allow capital budgeting to be applied to a select category of high-priority federal capital investments. The P3 approach transfers substantial risk to the private sector, yet avoids much of the higher cost of private financing by retiring the construction loan with a long-term permanent loan from the Treasury following delivery and acceptance of the project. This approach should equitably share a long-term asset’s costs between current and future beneficiaries, unlike current expensing of federal capital investments.
Major infrastructure investments—especially projects and programs of regional and national significance—can generate major “spillover” benefits to the general public—some, like locks and dams, literally so. This article explains why tax credit bonds should be in the mix of federal infrastructure policy initiatives. Previous generations of tax credit bonds, such as Build America Bonds, were highly successful in broadening the market for infrastructure debt but their authority has expired. We propose creating a new generation of qualified tax credit bonds. A separate article in this issue of Public Works Financing outlines a specific proposal to create “Infrastructure Credit Bonds” (page 12).

While some proposals have focused on the role that equity capital can play in advancing infrastructure projects, it is worth noting that P3 projects have represented just a small fraction of total investment in public infrastructure. For example, CBO reports that in 2014, federal, state and local capital outlays for public infrastructure totaled $181 billion. That same year, according to Public Works Financing, P3 project outlays totaled just $4.2 billion—about 2 percent of the market.

Within the P3 sector, financial equity represents, on average, about 15 percent of the capital sources for P3 projects. Debt capital, on the other hand, represents 60 percent of sources on P3 deals—and for governmental projects debt may fund 90 percent or more of the “capital stack.” So clearly, the cost of borrowing has a major impact on project feasibility and financial capacity.

Historically, infrastructure project sponsors have raised debt capital from the following sources:

• Tax-exempt financing (both “governmental” and “private activity” bonds);
• Federal credit assistance (such as TIFIA, RRIF and WIFIA, with loans generally made at the U.S. Treasury rate);
• Bank and other taxable rate debt (especially suitable for P3 project financings);
• State-capitalized loan funds (such as Water Revolving Loan Funds and State Infrastructure Banks)

In more recent years, federal legislation has authorized other forms of tax-advantaged debt:

• Partially-subsidized taxable rate bonds (Build America Bonds) designed to replicate the tax-exempt borrowing rate by offsetting a portion of the interest cost (recently proposed to be 28%) through a refundable (cash) tax credit for the issuer (“direct-pay” tax credit bonds); and
• Fully-subsidized taxable rate bonds designed to have most or all of the annual interest return provided through an annual (nonrefundable) tax credit for the investor, which can apply the credit against other tax liability (“investor pay” tax credit bonds).

These programs have been either time-limited (Build America Bonds issuable only in 2009 and 2010) or volume-capped (five separate classes of “qualified tax-credit bonds” totaling about $35 billion for specific purposes such as school construction, energy conservation and clean renewable energy projects.)

Of all the existing and proposed debt instruments, the qualified tax credit bonds offer the greatest present
Public Works Financing/April 2017

value benefit to the project sponsor per dollar of “scored” federal budgetary cost.

This is not to suggest that other debt instruments aren’t helpful. PABs level the playing field between P3 projects and governmental projects, but their purpose is simply to match the municipal bond market rates available to governmental sponsors. Similarly, “direct pay” tax credit bond programs like Build America Bonds can broaden the market by attracting taxable fixed-income investors, but are designed to replicate (but not beat) tax-exempt rates. Federal credit can provide greater structuring flexibility in terms of deferrals and prepayments, but may only reduce the effective borrowing cost by ½% or so for investment grade issuers—a savings to be sure, but not enough to dramatically increase a project’s debt capacity. And SRF and SIB loans, while potentially offering very low rates, are severely size-constrained by limits on state capitalization grants.

In contrast, qualified tax credit bonds can more than double an issuer’s debt capacity. Stated differently, a given local revenue stream pledged for debt service can support twice the amount of tax credit bond principal as tax-exempt financing or federal credit.

From a federal policy viewpoint, tax credit bonds offer additional advantages. Unlike federal grant spending or credit assistance, tax code measures do not require growing the size of the federal government to administer them. Tax incentives also have the advantage over grants of harnessing the market discipline of private capital (bond investors) to ensure that the project’s repayment plan is feasible. Unlike federal credit, a tax credit bond does not require the federal government to take any credit exposure on the borrower or the project.

Tax credits attached to bonds can be simpler and more efficient to market than equity-based investment tax credits, provided liquidity concerns are meaningfully addressed (as discussed in the follow-on article on “Investment Credit Bonds”). And tax credits attached to bonds are “budget-efficient,” since they stretch out the fiscal impact over a longer period of time more commensurate with the economic lives of the assets being financed. The scored cost of the program (effectively the first 10 years of tax expenditures under budget rules) relative to the financial benefit to the project sponsor offers the highest “return on fiscal investment.”

For these reasons, a tax credit bond proposal should be a key component of any new federal policy initiative.
# 2. Infrastructure Credit Bonds

**Summary:**
New volume-capped state/local Qualified Tax Credit Bond program for transportation and water projects
(Similar to Wyden-Hoeven proposed TRIP Bonds and LA Metro’s proposed America Fast Forward Bonds; could also include P3 projects.)

**Policy Rationale:**
- Certain high priority projects with large public “spillover” benefits require a deeper subsidy than tax-exemption or TIFIA-style federal credit assistance to be financeable.
- Uses annual tax credits under the tax code to generate a 50%+ PV benefit to borrower/project sponsor.

**Program Design:**
- $10 billion/year of volume cap over 10 years ($100 billion total program).
- Federal government effectively pays most or all of the interest on bonds via an annual nonrefundable tax credit; issuer uses local sources (dedicated taxes, user charges, etc.) to repay the principal.
- Allocation:
  - Volume cap would be allocated among transportation projects, water and other sectors (based on assessment of national investment needs and financing capacity).
  - Part of volume in each sector would be *discretionary allocation* by designated federal agencies (or a future National Infrastructure Fund) for major projects of national / regional significance.
  - Balance of volume would be *formula allocation* to the states for state/local projects.
- Marketability would be enhanced by allowing tax credits to be applied against non-FICA withholding tax on wages and retirement benefits (which should attract pension funds and life insurance companies).

**Advantages:**
- Bonds could finance both governmental and P3 projects.
- Treasury, not the bond underwriter, determines the interest subsidy level (tax credit rate); intended to allow bonds to be sold at face value, without requiring issuer to supplement credit with cash interest.
- No contingent liability to the Federal Government if project defaults, unlike federal credit.
- Fiscal cost is known at outset due to volume cap (unlike Build America Bonds).

**Budget Impact:**
- Program needs to be volume capped to limit tax expenditures (estimated at ~20% of face amount of bonds or ~$20 billion for the proposed $100 billion program).
The Performance Infrastructure Review Committee (PIRC) recommends that Congress enact a new volume-capped program of qualified tax-credit bonds for public infrastructure: Infrastructure Credit Bonds (ICBs).

ICBs would be structured as a sixth class of “qualified tax credit bonds” (QTCBs) under section 54A of the Internal Revenue Code. Over the last decade, Congress has authorized over $35 billion of QTCBs to assist sectors such as public education, clean renewable energy generation, and energy and forestry conservation.

QTCBs all share certain common features. The issuer identifies local revenues (taxes, fees or user charges) to repay bond principal. The annual credit is considered taxable interest income to the bondholder for federal tax purposes. The issuance amount is volume-capped, the use of the proceeds is limited to targeted purposes, and the annual interest subsidy is determined by the Treasury Department. [As of early April, the tax credit bond rate was 4.45%--approximately 150 basis points over the comparable-term Treasury bond yield--and the maximum bond maturity was 31 years.]

**Infrastructure Credit Bonds For Water, Transportation**

Infrastructure Credit Bonds would be a $100-billion national program with eligibility including transportation and water projects (and potentially extending to other critical sectors). Proceeds could be used for both capacity expansion projects and state of good repair capital renewal. The total issuance volume would be subject to an annual allocation cap of $10 billion per year over 10 years. The allocation to projects or states could be made on a discretionary basis, on a formula basis, or some combination of the two. Eligible issuers would be state or local governmental units, and could include public-private partnerships.

The table below shows how a project sponsor’s potential financing capacity would be dramatically expanded using ICBs compared to the smaller subsidies provided through tax-exempt bonds and TIFIA loans.

**Marketability and Liquidity**

Municipal bond market participants have expressed a valid concern about the marketability of qualified tax credit bonds. Since their introduction nearly 20 years ago, tax credit bonds have been approved by Congress (under both parties) in piecemeal fashion—in relatively small amounts and for limited issuance periods. This has stunted the development of a broad and liquid market.

The tax credits generally have taken the form of non-refundable credits (sometimes referred to as “investor tax credits”), which require the investor to have other federal tax liability to offset. Demand for the bonds has been hindered by a combination of small program size, investor uncertainty about their tax position in future years, and very limited secondary market potential.

While making the credits “refundable” (presentable to Treasury for cash) would overcome the tax uncertainty issue, many members of Congress are opposed since it requires outlays from the U.S. Treasury tantamount to grants. Moreover, refundable credits have proven vulnerable to sequestration, in the event of federal budgetary cutbacks, as issuers of Build America Bonds discovered.

To overcome these problems, the ICB proposal would:
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1. Be sized sufficiently large ($100 billion) to attract the interest of both dealers and investors; and

2. Expand the list of “creditable” taxes beyond regular federal income tax and the AMT to include withholding taxes retained by employers on wages and by retirement plan sponsors on benefits (“designated distributions”) under sections 3402 and 3405 of the tax code, respectively. The credits would not be permitted to be applied against FICA withholdings for Social Security or Medicare.

An ICB Bondholder that had liability to remit these withheld taxes to Treasury could apply the annual tax credits against such payments each year. Thus, the credits could be converted into a yearly cash benefit like an interest payment—even for bond investors that don’t pay regular income taxes. It is anticipated that this modification could make ICBs a suitable investment for institutional investors such as life insurance companies and pension funds that: (a) have large and predictable multi-year withholding tax liability; and (b) also invest in long-term taxable rate bonds for their own account. These investors currently hold over $3.5 trillion in corporate and foreign taxable-yield bonds.

Under the proposal, the employee or retiree would be treated as having paid her/his withholding tax to the government—notwithstanding the fact that the employer or plan sponsor that held ICBs retained a portion to receive its yearly return through the annual tax credit.

**Scored Cost**

Based on precedents with other proposed and enacted tax credit bond legislation, it appears that a program designed in this fashion would be scored at about 20 percent of the face amount of the authorized bond volume. That is, a $100-billion, 10-year program would have tax expenditures of about $20 billion over the 10-year budget window. While not an insignificant sum, there would appear to be an opportunity to “pay for” this type of major infrastructure investment program in conjunction with larger “tax reform” legislation that Congress will be taking up in coming weeks.

**Conclusion**

ICBs could play a very meaningful role in addressing the nation’s infrastructure investment gap by substantially increasing the borrowing capacity of state, local, and P3 project sponsors compared to other potential federal policy tools. Expanding the list of creditable taxes to bring in life insurance and pension fund investors should both broaden the primary market and facilitate a liquid secondary market.

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**Comparing Investment Capacity of Borrowing Techniques**

[Assuming a 35-year Revenue Stream of $10M/Year to Pay Level Debt Service]

<table>
<thead>
<tr>
<th>Type of Bond</th>
<th>Interest Rate</th>
<th>Level Annual Debt Service</th>
<th>Bonding Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax-exempt Bonds (or BABs with 28% interest subsidy) (1)</td>
<td>3.25%</td>
<td>$10.0 M</td>
<td>$207 M</td>
</tr>
<tr>
<td>TIFIA Loans (2)</td>
<td>2.95%</td>
<td>$10.0 M</td>
<td>$217 M (1.05x increase)</td>
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<td>Infrastructure Credit Bonds (3)</td>
<td>0.00%</td>
<td>$10.0 M</td>
<td>$528 M (2.55x increase)</td>
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Assumptions:

1. The tax-exempt borrowing rate is assumed to be 3.25% (average coupon for a mid-investment grade issuer of serial and term bonds).
2. The TIFIA rate is based on the 30-year U.S. Treasury yield; TIFIA may offer greater flexibility as concerns back-loaded repayments and other features.
3. The ICB borrowing rate would be 0% if the bonds could be marketed at par (face value) with a 4.45% tax credit rate (the Treasury tax credit bond rate as of early April). The sinking fund reinvestment rate is assumed to be 2.29%, which is the maximum permitted sinking fund yield as of April, 2017.
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The Nation’s Premier P3 Business Networking Event

JULY 12-14, 2017
Hyatt Regency Washington on Capitol Hill

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Conference and speaker updates, and registration: www.artbap3.org
# 3. Performance Incentive Innovation (PII) Grants

| Summary: | Discretionary capital grant program to incentivize needed life cycle asset management and procurement innovation reforms at the local and state level  
(Similar to successful efforts in Canada and Australia.) |
|---|---|
| Policy Rationale: | • Need to reform procurement practices that currently favor lowest “first” cost and instead encourage full life cycle perspective on capital, operations and maintenance costs.  
• A Performance Innovation Initiative (PII) will help build new capacities to leverage public benefits of risk transfer, accelerate project delivery, free up existing funds for other investments and (through pre-development grants) grow the pipeline of investible projects. |
| Program Design: | • $20 billion, made available at $2B/year over a 10-year period.  
• Designated federal agencies with innovative financing programs (or a future National Infrastructure Fund, if established) would make grant awards for up to 20% of project costs.  
• 5-10% of funding ($100-200 M/year) set aside for pre-development and business planning costs.  
• Public authorities, public-private partnerships, and entities of any type or geography would be eligible so long as their proposals address life cycle performance standards (to be developed by the National Academies / TRB and the National Academy of Public Administration under their congressional charters). |
| Advantages: | • Simple/straightforward to administer and understand. Successful precedent with P3 Canada Fund.  
• Covers up to 20% of project costs, lowering required user charges or tax-supported payments.  
• Available for both governmental and P3 projects that use “best practices,” including benefit cost and value-for-money analyses.  
• 5:1 leverage ratio, or greater. |
| Budget Impact: | • Grants would require discretionary Budget Authority (BA) of $2 billion/year. |
## 4. Standardized Private Activity Bonds

| Summary: | Unlimited tax-exempt debt volume for P3 “public use” infrastructure  
(Similar to proposed Qualified Public Infrastructure Bonds – QPIBs proposed in FY 2017 Budget Revenue Measures / Treasury “Green Book”.) |
|---|---|
| Policy Rationale: | - P3 projects offer benefits of risk transfer and project acceleration, but have higher cost of debt capital. This program helps “level the playing field.”  
- Program would homogenize the patchwork of different IRS rules today for various projects that qualify for PAB categories (airports, seaports, highways, transit, water, etc.). |
| Program Design: | - Projects must be governmentally-owned for tax purposes but would use P3 procurement.  
- State and local agencies could serve as conduit issuers of debt for projects with private participation (management, equity investment, etc.) with no federal volume cap limitation.  
- Bonds would not be subject to Alternative Minimum Tax (AMT). |
| Advantages: | - No need for federal involvement in authorizing project debt.  
- No federal exposure to project or borrower credit risk. |
| Budget Impact: | - 10-year scored cost is modest, perhaps $5 billion in tax expenditures for uncapped volume, based on Joint Committee on Taxation (JCT) budget analysis of QPIBs (JCX-50-15).  
- Implied issuance volume (projected by JCT) of ~$10 billion/year. |
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## 5. Strengthened Platform for Federal Credit

| Summary: | Consolidate and improve the administration of federal credit programs for public infrastructure  
(This could be accomplished through a repurposed existing entity, such as the Federal Financing Bank within Treasury, federal regional consolidation of program delivery, or a newly-established National Infrastructure Fund.) |
|---|---|
| Policy Rationale: | - Currently, each federal agency with a credit program separately manages its loan and loan guarantee portfolios (Agriculture, Energy, EPA, Transportation, etc.).  
  - There is a lack of coordination, consistency and implementation of best practices.  
  - “Moral hazard” in having federal agencies serve as both project promoters and credit providers.  
  - A consolidated, professionalized, comprehensive platform is needed to integrate the different infrastructure sectors (e.g., one entity with multiple “lending windows”).  
- Expert board of directors (majority non-government officials) would improve governance. |
| Program Design: | - Entity would underwrite loans/guarantees for both new and existing federal credit programs.  
- Expanded eligibilities needed for key public infrastructure sectors, including aviation and water.  
- Line Agencies (DOT/Build America Bureau, DOE/LPO, EPA, RUS, etc.) would continue to be responsible for assisting project applicants seeking credit assistance. |
| Advantages: | - Credit review and surveillance would be autonomous from project advocates within federal agencies.  
- Provides consistency and better accountability for credit programs.  
- Should be more cost-effective than the current fragmented structure. |
| Budget Impact: | - $10B of additional funding over 10 years could support $100+ billion of loans assuming average loan subsidy costs of 10% (actual multiple could be higher based on existing credit program subsidy costs).  
- Should result in enhanced financial management, based on administrative cost efficiencies and improved risk management and underwriting practices. |
**Five Reasons Not To Toll The Interstates**

by Alan E. Pisarski, a consultant in travel behavior

We have to begin by recognizing the context in which we operate. The prime element in that context is the dramatic lack of credibility of government institutions at all levels in America today. In my view, this largely stems from the insatiable need by governments for more money to feed their budgets, their pension obligations, etc. This has led to subterfuges and masquerading by government to raise more revenue—first, install red light cameras in the name of safety, and then reduce yellow signal times to generate more revenue from tickets. The ARRA program was justified on congestion grounds by government but then maybe 3% or 4% of the money came to transportation. State programs are justified in the name of congestion, and then money is spent on favorite hobby-horses. The public is absolutely right not to trust us.

The second element in the current context is that we have a new group in Washington making big promises. The feeding frenzy in all corners of the transportation world to get in on the trillion-dollar festival only reinforces the public's distrust.

The final background element is the decline, maybe the end, of the virtuous triangle that made highway tolling such a powerful and acceptable tool for infrastructure. That triangle consisted of the road users, road owners, and bond-holders, each of whose interests counterbalanced the others. That triad of mutual trust has been broken by the diversion of user-fee revenues to support other policy goals; the trust in the virtuous triangle is being eroded. This leads us to the first of our five reasons not to toll the Interstate System.

**#1 The CashCowification of Tolls**

It has become more and more typical that other “needs,” other purposes are incorporated into the toll road construct. The quintessential example is the Dulles Toll Road where an airport authority charges road users a toll to pay for a transit system. If only we could have gotten a barge canal in, it would have been the perfect exemplar of modern multi-modalism: unimodal funding and multi-modal spending. Perfect! We all agree that we must dedicate road fees to the uses that road users paid for. No one has demonstrated how that can be assured.

**#2 What Happens to People Who Are Priced Off the Interstates**

If we go back to the 1939 report to Congress “Toll Roads and Free Roads,” we find the fundamental justification for the Interstate System. The goal was to connect America for military, economic, and social reasons. That goal remains today, and it needs to be extended. There was never any intent to price people of limited means off of the super highways. Rather, the national goal was to “price” people onto it. When I was asked by reporters at the 50th anniversary of the Interstate System why we didn’t toll it at the beginning, my answer in 2006 was that the Interstates would have stopped at the Mississippi. Think of the critical linking together of America, integrating the South and the West, that would have been lost. So we still need to answer: Where do those people and trucks go if they are priced off the Interstate highways by tolling? What national interest can justify that action? No answer has been forthcoming in the 10 years since the 50th anniversary.

**#3 If the Last Vestige of Justification for a Federal Role is Gone—Then What?**

Yes, I agree that recapitalizing the Interstates could very adequately be funded by tolling, a perhaps feasible replacement for the gas tax. But, if we toll the Interstates, then what federal role remains in transportation? If the Interstate System is the fundamental fruition of the federal role in transportation, and if it is the justification for the federal right to tax motor fuel, do we then shift our national focus and federal resources to lower levels of the road system that are fundamentally local in nature? This is the conundrum of public transportation policy—the quintessential truth is that the main features that are federal are quite capable of funding themselves through user fees (think international airports). It’s the marginal elements of the transportation system that need federal money.

**#4 Kill the Gas Tax or Use It for Nice Things**

So, if we don’t need the federal gas tax to pay for its fundamental purpose, we will therefore abolish the fed gas tax, right? Not a chance. What is more frightening than a tax without a purpose? Think of all the barnacles on the federal-aid program that would suffer and fight that loss of funds. The camels would be in charge of the tent.

**#5 Tolling the Federal System Isn’t a Marketplace**

When we built roads in the past, when the road filled up, the process of considering expansion began. But largely this has been ended by forces united against expanding any road. Amazingly enough, those forces also want the gas tax money to go to pay for their favorite tool. In the private world, congestion is the market’s signal for expansion. But in a socialistic system where government decides on expansion, will congestion be a signal for rationing via price increases, or other forms of managing demand? Will the public road owners seek to maximize service to road users, or to maximize revenue needed for other worthy goals, or to penalize those terrible people who think cars and trucks are useful?

These issues have been recognized and argued before, but no one has really been able to address them, and assure that the future with a tolled Interstate system is a benign one.
The White House is trying to square the circle on its promised $1-trillion infrastructure plan. While still emphasizing the need for private (P3) capital investment, the Administration can hope for bipartisan support only if the plan includes net additions to federal spending, especially for projects not feasible for revenue-based financing. Conservative Republicans will insist that any new federal spending be paid for (rather than further ballooning the deficit).

As I’ve written elsewhere, there is no need for a federal tax credit to induce private investment. With infrastructure funds having raised in excess of $250 billion over the last five years, there is plenty of willingness to invest. The problem is a dearth of U.S. projects.

In a recent piece for Time.com, former Bush DOT policy maven Tyler Duvall and two McKinsey colleagues suggested that the federal government “consider providing incentives to the states to monetize existing assets into new projects,” citing the successful Australian asset recycling policy that I wrote about here last year. And in February, the Australian Embassy issued its own suggested application of their experience to a “Rebuilding American 20/20 Infrastructure Program.”

The aim of such proposals is to incentivize state and local governments to create two kinds of project pipelines. The first would be user-fee-based brownfield assets (airports, highways and bridges, seaports) needing refurbishment, which have proved very attractive to infrastructure investment funds and public pension funds. The second would be both brownfield and greenfield infrastructure that would not pencil out with user-fee financing—such as public buildings, rural roads and bridges, well-justified transit projects, etc.

The Australian Embassy suggests that the U.S. federal government create a $100-billion Asset Recycling Fund, capitalized by selling revenue bonds backed by future corporate income tax revenue from the refurbished brownfield assets. To encourage states to lease brownfield assets and invest the proceeds in other infrastructure, the Fund would offer states a 20% bonus on the value of each lease transaction, provided all the proceeds were used for other infrastructure. (And I will note that if the brownfield project’s existing tax-exempt bonds did not have to be replaced with taxable bonds by the lessee, the proceeds for new infrastructure would be greater.) The infrastructure law could encourage or require the non-revenue projects to be procured via availability-payment P3 concessions, helping to create the second pipeline of projects for private capital investment.
Here’s an example. There is still no funding plan for the $24-billion Gateway Project to provide new rail tunnels and adjacent infrastructure between New York and New Jersey. Yet the Port Authority of New York & New Jersey owns three sets of not-very-well managed revenue-producing assets: airports, bridges and tunnels, and seaports. In a recent study for the Manhattan Institute, I estimated the likely market value of these assets if they were to be long-term leased under P3 concessions. Using a database of global transactions from the last decade or so, my mid-range asset values were $16.4 billion for the airports, $28.2 billion for the bridges and tunnels, and $3.3 billion for the seaports. Leasing only some of these assets would raise enough to pay for a Gateway Project structured as a long-term availability-payment concession.

Is this approach anywhere within the realm of political feasibility? For Republicans in Congress, the biggest stumbling block is likely to be the initial $100-billion Asset Recycling Fund. The credibility of those bonds being paid off over time by corporate profits from the leased brownfield assets is questionable. An alternative, assuming a comprehensive tax reform bill is passed prior to the infrastructure program, would be to capitalize the fund using a portion of the one-time receipts from repatriation of overseas corporate income tax revenue, along the lines proposed by Rep. John Delaney (D, MD). Making Delaney’s idea part of the plan, though in a modified form, could open the door to some degree of bipartisan support in Congress.

Another factor that could help attract bipartisan support (by overcoming potential public employee union attacks on the Asset Recycling plan as “privatization”) would be to include participation by U.S. public employee pension funds. I would not argue for a federal mandate to this effect, but simply point to the high-equity approach employed in recent pension-fund buyouts of the Chicago Skyway and the Indiana Toll Road. Since pension funds typically seek only high-single-digit returns on brownfield assets, the user fees can be less than in a purely private deal, since the weighted average cost of capital is lower in such a financing structure. And public employee union leaders are coming to terms with a portion of their pension funds’ assets being invested in revenue-producing infrastructure. Union support could bring a critical mass of Democrats on board.

Politicians of both major parties love infrastructure, but Republicans and Democrats differ rather sharply on how to pay for such programs. I see zero chance that House or Senate Republicans would agree to $1 trillion worth of new federal spending on infrastructure, without close to $1 trillion worth of “pay-fors.” In some recent debates (e.g., over air traffic control corporatization), most congressional Democrats automatically termed the proposal “privatization” and therefore beyond the pale. But think back to September 2014, when a bipartisan panel of the House Transportation & Infrastructure Committee released a report solidly supportive of P3 infrastructure. The kind of asset recycling proposal set forth here has the potential for garnering similar bipartisan support.

President Trump has expressed dismay at the poor condition of the New York airports, while expressing support for the Gateway project. Asset recycling could solve both problems, while providing a model for the rest of the country. ■

Robert W. Poole, Jr. is the director of transportation studies at the Reason Foundation.
Relying on gas taxes to sustain the federal highway trust fund and state road improvement and maintenance programs is doomed because cars keep getting more fuel efficient. Public Works Financing readers will certainly be familiar with this trend. Electric vehicles do not pay any fees for using roads, which lots of people rightly view as unfair. Enter road usage charges—the solution of choice for people that spend a lot of time thinking about declining gas tax revenue. Mileage-based road usage charges as a replacement for the per-gallon gas tax are enticing for sure. Everybody should pay in proportion to what they use and nobody should get a free ride. Emerging technology lets us count and identify where miles are driven and generate bills. Indeed, USDOT is poised to spend $95 million to research and test road usage charging over the next five years through the Surface Transportation System Funding Alternatives (STSFA) grant program. As I explain below, this money should be spent exploring other ways to support the national highway system.

Road usage charging is definitely “feasible”. I led a consultant team for the Washington State Transportation Commission that came to that conclusion. Other studies have echoed that finding. But the real question is whether road usage charging is a good idea, and this is where I part company with many of my friends and colleagues. Although a followup study that I led in Washington State concluded that road usage charging would generate higher net revenue than leaving the current motor fuel tax in place over 25 years, numerous questions remain, and I do not believe that those questions can be addressed satisfactorily. I am dismayed that we sink more and more resources into a solution that is doomed to failure, while ignoring those that are more practical, and arguably more fair.

While industry insiders think road usage charging is great, regular people hate it. To be sure, drivers that participated in pilot programs improved their opinion of road usage charging—but that does not translate into a groundswell of popular support. It is too hard to explain and has problems that are just too difficult to solve. If I can get someone’s attention for 10 minutes, I can explain the rationale, operation, and outcome of road usage charging to the point where people “get it”. But, at best, we’re lucky to get 30 seconds. Given the same amount of time, opponents can easily turn people against the idea with some pretty compelling arguments:

- Government can’t make a complicated system like this work (remember ObamaCare?)
- I don’t want government tracking me.
- This is just a trick to make us pay more money – they waste the money we give them already.
- This is the camel’s nose under the tent – next comes congestion pricing.
- Why create an expensive, complicated system to replace the gas tax, which is simple and inexpensive to operate?

The lightning-rod issues are privacy and the ability to distinguish miles driven in a state different from the driver’s home state. The two issues are linked because virtually all of the past and current research is for road usage charge systems for an individual state or a group of contiguous states—not a national system. With dif-
different gas tax rates in different states, mileage-based road usage systems need to be able to tell where miles are driven, which requires an in-vehicle GPS-enabled device. The back-office systems can then allocate miles appropriately (in a multi-state system) or credit out-of-state miles (in a single-state system).

Drivers that do not want an in-vehicle “tracking” device would be allowed to opt out this technology. But this is a flawed solution because drivers who value their privacy would be forced to accept a mileage-based system that cannot credit them for miles driven out of state, leading to over-payment. This is no more fair than a system that lets electric vehicles get away with not paying at all.

Fairness comes in many flavors, and always depends on perspective:

- It is fair to pay for roads in proportion to the amount you drive. This points to a road usage charge solution.
- It is fair for drivers to pay for the social costs of driving, such as pollution, crashes, medical costs, and greenhouse gas effects. This points to a system that addresses the size of vehicle (bigger vehicles cause more severe crashes), and fuel consumption (related to pollution and greenhouse gas emissions), and miles driven.
- Users benefit from simply having access to a transportation network, so it is fair to pay a fee even if I only drive a little. This points to a flat fee.
- Non-users benefit too. Ask any developer that wants to build near a new highway interchange or transit stop. Or look at the many reports with titles such as “The Economic Benefits of the Transportation System.” We all benefit from a robust transportation system. In fact, this suggests that it would be fair to use personal and corporate income tax revenues to pay for part of the transportation network, with the progressive nature of the income tax ensuring that those who benefit most from the system (i.e., wealthy people pay the most).

This is only the tip of the iceberg. Evaluating fairness is daunting, as noted in TRB Special Report 303 called “Equity of Evolving Transportation Finance Mechanisms” (a report that I contributed to). At the risk of vast oversimplification the report concludes: “The equity implications of transportation finance mechanisms are complex, often controversial, and important in decision making. Policy makers addressing such equity issues need to have a broad understanding of the array of issues involved.”

In addition to these “big picture” issues, I have another practical objection related to the expensive bookkeeping effort needed to keep track of just a few dollars. For example, in Washington State, with a per-gallon tax rate of $0.494—second highest in the country—a typical car driven 10,000 miles per year would only pay between $100 and $300 per year in gas taxes. Why create a complicated billing system to distinguish between these relatively small amounts of money?

But it gets even more ridiculous. No one is talking about an instant transition from gas taxes to road usage charges because of the extensive public acceptance and technology challenges, meaning that both systems will be active at the same time. This transition could last a decade or two. This means that the expensive new billing system would be used simply to reconcile legacy gas tax payments and new road usage charges. For drivers of gas guzzlers, this would amount to a rebate, and gas sippers would have to pay additional tax. The net dollar amounts might be in the tens of dollars per year for many drivers—hardly worth the effort to create a
This is by no means a comprehensive discussion, but is enough to illustrate that simply equating miles driven to responsibility for paying for roads is too simplistic. We do ourselves a disservice by jumping to road-usage charges as “the” solution that deserves millions of dollars of research money. If we are willing to consider adopting an unpopular, disruptive, expensive replacement for the motor fuel tax, we ought to also consider alternatives, which may also be unpopular and disruptive, but less expensive to implement and more aligned with a comprehensive set of social objectives.

We should consider some combination of:

- A flat usage fee to pay for access to the transportation system, scaled by vehicle weight to address the social costs of crashes.
- A gas tax sized to pay for the social costs of emissions.
- An odometer charge to pay for roadway use.
- An income tax set aside or surcharge to ensure the transportation system continues to deliver economic benefits.

In all cases, there would be important nuances to overlay a federal system onto systems that might be implemented in individual states.

Fantasy? Perhaps. But no more so than believing that we can put in place a new, complicated, costly, in-your-face road usage charge in a world where we cannot agree on simply raising gas taxes to keep up with inflation. We owe it to ourselves to consider better alternatives.

Jeffrey N. Buxbaum is a former consultant who specialized in transportation funding and finance issues over a 30+ year career.
### $5bn Private Equity Invested In 25 Transportation DBFOM Deals

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

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</tbody>
</table>

Of the total 25 projects:
- 13 are toll revenue risk concessions
- 12 are availability payment P3s

(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.

* excludes public sunk predevelopment costs.

(1) Toll revenue financing (demand risk)
(2) Availability payment financing (sovereign risk)
# U.S. P3 Market Attracts World-Class Players

Source: Public Works Financing newsletter (4/17)

## National/international firms pursuing the U.S. P3 market

### Investor Developers
- ACS Infrastructure (Dragados)
- Cintra (Ferrovial Agroman)
- Infrarred
- John Laing
- Macquarie
- Meridiam
- Plenary Group
- Table Rock Capital
- Transurban

### Public Advisors

#### Technical
- AECOM/URS
- Arup
- CDM Smith
- CH2M
- HDR
- HNTB
- Jacobs
- Lea+Elliot
- Lochner MMM Group
- WSP|Parsons Brinckerhoff
- Raba Kistner
- Reynolds Smith and Hills
- Stantec

#### Design-Builders
- Balfour Beatty
- Bechtel
- Bouygues
- Clark Construction
- Dragados
- Ferrovial
- Flatiorn
- Granite
- Herzog
- Hochtief
- Kiewit
- Lane Construction
- Skanska
- Traylor Bros.
- Walsh/Archer Western
- Weeks Marine
- Zachry

#### Public Advisors

#### Legal
- Ashurst
- Allen & Overy
- Elias Group
- Freshfields Bruckhaus Deringer
- Hawkins Delafield & Wood
- Hunton & Williams
- Mayer Brown
- Nixon Peabody
- Nossaman

#### Financial
- Citi
- Ernst & Young
- First Southwest
- Goldman Sachs
- KPMG
- Macquarie Capital Advisors
- Morgan Stanley
- Piper Jaffray & Co.
- Public Financial Management
- RBC Capital Markets
- Scully Capital
- UBS
- William Blair

#### Private Advisors

- **to equity:**
  - Barclays Capital
  - BMO Capital Markets
  - Chadbourne & Parke
  - Gibson, Dunn & Crutcher
  - Macquarie
  - Scotiabank

- **to banks/bonds:**
  - Arup
  - Baker & McKenzie
  - BTY Group
  - Cleary Gottlieb
  - Clifford Chance
  - Hatch Mott McDonald
  - Hogan Lovells
  - Latham & Watkins
  - Milbank Tweed
  - Orrick
  - WSP|Parsons Brinckerhoff
  - Simpson Thacher
  - Skadden Arps
  - Steer Davies Gleave

#### Banks/Bonds/Insurers
- Assured Guaranty
- Barclays
- BofA Merrill Lynch
- Goldman Sachs
- JP Morgan
- KeyBank
- Piper Jaffray & Co.
- RBC
- Scotiabank
- Wells Fargo

#### Institutional Investors
- Allianz
- APG Infrastructure
- Calpers
- CDPQ
- Dallas Police & Fire Pension System
- DIF
- Northleaf Capital Partners
- OMERS
- PSP Investments
- Sun Life Financial
- Teachers Insurance
- TIAA-CREFF
- ULLICO

### Contractor Developers
- Acciona
- AECOM
- Balfour Beatty
- Bechtel
- Bouygues
- Edgemoor
- Fluor
- Granite
- Kiewit
- Lane
- OHL
- Parsons
- Shikun & Binui
- Skanska
- SNC Lavalin
- VINCI
- Walsh/Archer Western
- Zachry

### Insurance
- AON
- Liberty Mutual
- Travelers
- Zurich

### O&M
- Cobra Industrial Services
- Colas USA
- DBI
- Infrastructure Corp. of America (HDR)
- Johnson Controls
- Roy Jorgenson
- Transfield Services
WSP | Parsons Brinckerhoff is a global consulting firm assisting public and private sector clients to plan, develop, design, construct, operate, and maintain hundreds of critical infrastructure projects around the world. WSP | Parsons Brinckerhoff’s experience extends to every form of transportation, including airports, rail systems, buses, roads, and ports. For complex projects procured through public-private partnerships or using design-build, the company provides project development, design engineering, and operations services to contractors and concessionaires. We apply our world-class technical expertise and our deep understanding of local needs to develop innovative solutions that create value for our clients and for the community the project serves. For more information please contact:

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(212) 465-5059, HedlundKJ@pbworld.com; or  
John Porcari, President, Advisory Services, U.S., (202) 661-5302, PorcariJ@pbworld.com

O. R. Colan Associates (ORC) provides a full range of real estate services related to the appraisal, acquisition and relocation phase of design build projects. With more than 24 offices in 16 states nationwide, the company is broadly recognized as a leader in providing real estate solutions for infrastructure projects. ORC provided full turnkey right-of-way services for the following successful design-build highway projects: Segments 1-6 of SH 130 in Austin, TX; the Grand Parkway in Houston, TX; and the SH 183 Managed Lanes and DFW Connector projects in Dallas, TX; South Mountain Freeway in AZ, the Pocahontas Parkway, and I-581/Valley View Boulevard Interchange Phase II in VA; US 158 in NC; Route 3 North in MA; I-64 in MO; I-93 in NH; and Sections 2 & 3 of I-69 in IN. ORC is currently providing right of way services on I-85 in SC and the Wellsburg Bridge in WV. These projects combined involved the acquisition of more than 3,500 parcels and the relocation of more than 1,200 residences and businesses. Time is money on a design build project. ORC has the proven ability to deliver the right of way on time for construction on fast paced projects while meeting all state and federal requirements. Contact Steve Toth, COO, at stoth@orcolan.com or visit us at www.orcolan.com.

SUEZ in North America operates across all 50 states and Canada with 3,430 employees dedicated to environmental sustainability and leading the resource revolution. The company owns 15 regulated water utilities, provides contracted public-private partnership services to 84 municipalities, offers water treatment and advanced network solutions to 16,000 industrial and municipal sites, provides drinking water, wastewater and waste collection service to nearly 7.5 million people on a daily basis, processes 55,000 tons of waste for recycling and manages $3.3 billion in total assets. For more information, visit suez-na.com or contact Mary Campbell at mary.campbell@suez-na.com or 201-767-9300.

For information about how to list your firm in PWF’s Public-Private Services Directory contact William Reinhardt at (908) 577-8411 or www.pwfinance.net or email: pwfinance@aol.com
Throughout its 20-year track record, Sacyr Concesiones has more than proven its expertise and technical know-how, as well as its financial capacity with committed global investment amounting to 30 billion dollars. The company specialises in greenfield projects in which it handles the design, financing, construction and management of assets. This global conception of business, combined with its active project management, allows the company to bring added value to its concessions, thereby attracting financial partners. It currently operates 35 infrastructure concessions in eight countries (Spain, Portugal, Chile, Peru, Colombia, Uruguay, Italy and Ireland) within such sectors as motorways (3,605 kilometres), transport hubs, hospitals (more than 2,250 beds) and metro lines. These assets have an average remaining lifespan of 27 years.

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

Sacyr Concesiones
“We create future value”

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.

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gabra@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.

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**Public-Private Services Directory**

**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

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- **Patrick Harder**, pharder@nossaman.com


**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 restructurings.

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** 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

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

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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.

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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.

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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:
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Ryan Van Meter, Director Risk Management—rvanmeter@herzog.com

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.

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

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**Hawkins Delafield & Wood LLP**

**Hawkins Delafield & Wood** provides legal advisory services to governmental owners on PPP and alternative delivery infrastructure projects in the United States and Canada. The firm also represents PPP project investment bankers and lenders.

Our infrastructure legal practice 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 and three provinces. We practice in the transportation, water, wastewater, solid waste, renewable energy and social infrastructure sectors. Leading projects on which Hawkins has served as owner’s lead counsel include:

- **Carlsbad Seawater Desalination Project** (San Diego County Water Authority), a Project Finance International water infrastructure PPP deal of the year.
- **New Long Beach Courthouse 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)

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**Granite Construction Incorpo rated** 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

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**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.


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**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 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.

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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.

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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

For information about how to list your firm in PWF’s Public-Private Services Directory contact William Reinhardt at (908) 577-8411 or www.pwfinance.net or email: pwfinance@aol.com
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.

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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
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
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