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Annual Privatization Report 2014
Surface Transportation

By Robert W. Poole, Jr.

Edited by Leonard Gilroy

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A. Global Overview

Long-term public-private partnerships (PPPs) for highways are a global phenomenon. As documented by Jose Gomez-Ibanez and John R. Meyer in their book *Going Private* (Brookings, 1993), the phenomenon began in a major way in France and Spain in the 1960s and 1970s, building on the experience of Italy with its then state-owned toll concession companies. In all three countries, their counterparts of the U.S. Interstate highway system were developed under long-term toll concession agreements. That model was adapted by the Australian state New South Wales in the 1980s, and subsequently by Victoria and Queensland, to develop modern tolled urban expressway systems in Sydney, Melbourne and Brisbane, respectively. The model spread to Latin America in the 1990s, with significant projects in Argentina, Brazil, Chile, Colombia, Mexico and Peru—mostly inter-city toll roads but also major urban tolled expressways in Santiago, Chile. That decade also saw toll concession projects in China, India and a number of Southeast Asian countries. Most recently, such projects have begun to appear in Africa and the Middle East.

The United States is a relative latecomer to highway concessions. The first two projects appeared in the mid-1990s: the 91 Express Lanes in Orange County, California and the Dulles Greenway in northern Virginia. Two other greenfield toll roads were developed under nonprofit corporation approaches (one in South Carolina and another in Virginia), but both failed due to insufficient traffic. The toll concession trend revived in the 2000s, with the long-term leases of the Chicago Skyway and the Indiana Toll Road attracting global investor interest. These were followed by greenfield toll road concessions in California and Texas and a number of projects to add express toll lanes to existing congested freeways in Florida, Texas and Virginia. By the 2010s, bridge replacements were being authorized as long-term concessions, along with more express toll lane projects. And 2011, Puerto Rico leased an existing toll road under a long-term concession.

Table 1 provides some perspective on long-term PPP highway deals proposed and funded worldwide since 1985, the first year of a comprehensive global database on PPP infrastructure projects created and maintained by *Public Works Financing* newsletter.

Table 1: Global Highway PPP Projects Since 1985

Region	Number Planned	Est. Cost ($B)	Number Funded	Cost ($B)
Europe	367	$367.4	231	$215.2
Asia & Australia	346	$122.4	232	$ 75.5
Latin America & Caribbean	268	$137.9	168	$ 72.9
United States	117	$ 97.4	61	$ 34.6
Canada	35	$ 27.3	30	$ 20.2
Africa & Middle East	26	$ 15.0	15	$ 6.3
Total Worldwide	1,159	$767.4	737	$424.7

Source: "2013 Roads, Rail, Water, and Building PPPs by Region," *Public Works Financing*, October 2013 ("Roads" column only)

Table 1 includes long-term design/build/finance/operate/maintain concessions (DBFOM) of both toll and availability-payment kinds, design/build/finance (DBF) projects, design/build/operate/maintain (DBOM) projects, and design/build/maintain (DBM) projects. The majority of the projects discussed in this chapter are DBFOM concessions.

As can be seen, Europe leads in both numbers of projects and total project budgets, with Asia and Australia close behind in numbers but not in invested dollars. Latin America and the Caribbean also have far more projects and investment than the United States thus far. And although the United States has

nearly 10 times the population of Canada, it has less than twice as much investment in highway PPPs.

Table 2 lists the 20 largest North American PPP highway and bridge concession projects financed to date, whether by a long-term lease of an existing (brownfield) toll road, a long-term greenfield concession (DBFOM) with compensation either via tolls (T) or availability payments (AP), or as design/build/operate/maintain concessions (DBOM).

Table 2: 20 Largest Long-Term Highway Concessions in North America

Project	Location	Value ($B)	Type	Begun	Concessionaire
Indiana Toll Road	Indiana	$3.85	99-yr. lease-T	2006	Cintra/Macquarie
407 ETR	Toronto	$3.60	99-yr lease-T	1999	Cintra/SNC
LBJ Express Lanes	Dallas	$2.80	DBFOM-T	2010	Cintra/Meridiam
Elizabeth River Crossings	Norfolk	$2.10	DBFOM-T	2012	Skanska/Macquarie
N. Tarrant Express Ph. 1&2	Fort Worth	$2.05	DBFOM-T	2009	Cintra/Meridiam
I-495 Express Lanes	N. Virginia	$1.90	DBFOM-T	2008	Transurban/Fluor
Chicago Skyway	Chicago	$1.83	99-yr. lease-T	2005	Cintra/Macquarie
I-595 Express Lanes	Ft. Lauderdale	$1.81	DBFOM-AP	2009	ACS Infrastructure
NE Hendey Dr.	Alberta	$1.80	DBFOM-AP	2012	Hochtief/ACS/Meridiam
A-30	Montreal	$1.43	DBFOM-AP	2008	Acciona/Iridium
N. Tarrant Express Ph. 3	Ft. Worth	$1.40	DBFOM-T	2013	Cintra/Meridiam
SH 130, Segments 5&6	Austin	$1.36	DBFOM-T	2008	Cintra/Zachry
NW Hendey Dr.	Alberta	$1.34	DBFOM-AP	2008	Bilfinger Berger
East End Crossing	Louisville	$1.18	DBFOM-AP	2013	Walsh/Vinci/Bilfinger
PR-22	Puerto Rico	$1.08	40-yr. lease-T	2011	Abertis/GIP II
Grand Parkway 1 & 2	Houston	$1.01	DBOM	2012	Zachry/Odebrecht
I-95 Express Lanes	N. Virginia	$0.94	DBFOM-T	2012	Transurban/Fluor
Port of Miami Tunnel	Miami	$0.91	DBFOM-AP	2009	Meridiam
Golden Ears Bridge	Vancouver	$0.81	DBFOM-AP	2006	Bilfinger
South Bay Expressway	San Diego	$0.77	DBFOM-T	2003	Macquarie

Source: "U.S. & Canadian Transportation Projects Scorecard," *Public Works Financing*, September 2013

Four major U.S. projects reached financial close in 2013. The largest of these was Phase 3 of the North Tarrant Express (I-35W) in Fort Worth, at $1.4 billion, a long-term toll concession. Second largest was the East End Crossing bridge across the Ohio River connecting Indiana and Kentucky at Louisville, a $1.2 billion tolled bridge procured as an availability-pay concession. Third largest was the I-95 Express Lanes project in northern Virginia, a toll concession at $940 million. Considerably smaller is the $200 million Cline Avenue bridge replacement in East Chicago, Indiana, a build-own-operate project (not shown in Table 2).

B. Leasing Existing Toll Roads

No existing (brownfield) toll roads were leased in 2013, and the most recent proposed lease—of the Ohio Turnpike—was rejected by Gov. John Kasich in late 2012. Instead of a long-term lease that KPMG estimated could have yielded $4.03 billion ($2.6 billion up front and the balance as annual revenue-sharing), Kasich decided to issue $1.5 billion worth of bonds backed by future Turnpike toll revenue to pay for other highway projects, mostly in northern Ohio. Some critics pointed out that this "monetization" requires toll road users to pay for improvements to non-tolled highways, thereby violating the traditional users-pay/users-benefit toll road principle.

Infrastructure investors seeking lower-risk brownfield-type projects began expressing interest in a Reason Foundation proposal released in September 2013. Called "Interstate 2.0," it proposes that a $1 trillion reconstruction and modernization of the entire Interstate highway system be financed via toll revenues collected using all-electronic tolling. Each of the numerous projects this would entail would be a hybrid of brownfield and greenfield, in that the approach calls for a corridor with a long, well-documented traffic history, but would involve billion-dollar-scale reconstruction and in some cases widening and interchange replacement. This would be higher risk than a plain-vanilla lease of an existing toll road but lower risk than financing, building and operating a greenfield toll road with only projections of traffic and revenue. Hence, it could yield returns higher than a brownfield concession but with lower risk than a purely greenfield toll project. The Interstate 2.0 policy study is online at http://reason.org/studies/show/modernizing-the-interstate-highway.

C. Public-Private Partnership Enabling Legislation and Litigation

An October 2012 review by the National Conference of State Legislatures found that 36 states and Puerto Rico have some form of transportation public-private partnership (PPP) enabling legislation. However, many of these are rather limited or are project-specific. (For example, California's sunsets on January 1, 2014, and Nevada's authorizes only a single project.) While a number of PPP bills were introduced and debated in legislatures during the past year, only one—Maryland's HB 560—was enacted. In New Mexico, HB 405 was passed by the House but did not progress in the Senate.

Of states without transportation PPP legislation, the one thought most likely to enact such a measure in the near future is New York. The Port Authority of New York & New Jersey already has PPP authority and is using it for the $1.5 billion project to replace the aging Goethals Bridge. The New York State Thruway Authority's $4 billion project to replace the aging Tappan Zee Bridge is being procured as a design-build project, not a toll concession.

In a case with nationwide implications for tolling and public-private partnerships, the Virginia Supreme Court ruled unanimously late in 2013 that the tolls scheduled to begin in early 2014 for the Elizabeth River Crossing project between Portsmouth and Norfolk, Virginia, are legitimate charges for the use of highway infrastructure, not "taxes" as alleged by the plaintiff. The court rejected a laundry list of allegations, including that the Virginia Public-Private Transportation Act (PPTA) was an unconstitutional delegation of legislative and taxing power to the Virginia DOT.

The case in question was complicated by the fact that the project to add a third tunnel to the two existing ones, while also making improvements to the latter, would charge tolls on all three, rather than only on the new tunnel. The court found ample evidence that the state legislation under which the original tunnel was funded envisioned a *system* of crossings, thereby permitting tolling of all three to pay for the combined set of improvements (as well as 58 years of operation and maintenance costs on all three).

Perhaps equally important was the Court's upholding of the Virginia PPTA itself, one of the nation's earliest and best transportation PPP enabling laws. Besides the $2.1 billion Elizabeth River Crossing project, the PPTA has enabled the $1.9 billion express lanes project on the Capital Beltway (I-495), which has been in operation for the past year, and the $940 million I-95 express lanes project, now under construction. The plaintiff had claimed that the PPTA

illegally delegated toll-setting powers to VDOT. But that claim actually rested on the plaintiff's prior claim that the tolls were taxes, and it is established law in Virginia that the legislature cannot delegate its taxing power. But since the tolls are clearly not taxes, the delegation claim was also rejected. The text of the decision may be found at:
http://www.courts.state.va.us/opinions/opnscvwp/1130954.pdf.

D. Major Public-Private Partnership Highway Projects by State

Alaska: The only current project in this state was intended to be the $1 billion Knik Arm Crossing, a toll bridge between Anchorage and its fastest-growing borough. In December 2013, the toll authority established for this project terminated the procurement, which means the project will likely be developed via design-build instead of as a concession.

Arizona: Broad PPP enabling legislation was enacted in 2009 and fine-tuned in 2012, but as of the end of 2013 Arizona DOT was still studying possible toll highway projects, such as managed lanes in Phoenix/Maricopa County, a new Interstate 11 between Phoenix and Las Vegas, the proposed South Mountain Freeway in Phoenix, the planned North-South corridor between Phoenix and Tucson, and a widened SR 189 in Nogales, serving trucks crossing from Mexico.

California: The first PPP project under the state's 2009 enabling law got under way in 2012 after the state Supreme Court rejected an appeal from the Caltrans engineers' union, Professional Engineers in California Government, alleging that the PPP law was unconstitutional. The $365 million non-tolled Presidio Parkway availability-pay project reached financial close in June 2012, enabling the Hochtief/Meridiam team to begin construction before the end of that year. Five other PPP highway projects are being pursued by Los Angeles County Metropolitan Transportation Authority, and Metro has applied for TIFIA loans for four of them. Those four are: I-710 freight corridor including truck-only lanes from the port to downtown Los Angeles, the I-710 north gap closure deep-bore tunnel, an ambitious road/rail tunnel under Sepulveda Pass to relieve congested I-405, and the High Desert Corridor in northern L.A. County. LA Metro's first PPP project will be a "bundle" of freeway improvements including managed lanes on I-5 in the San Fernando Valley.

Colorado: Furthest along is the US 36 managed lanes project between Denver and Boulder. Winning bidder Plenary was selected in July 2013, but the

Colorado High-Performance Transportation Enterprise is still awaiting word from FHWA on its 2012 TIFIA loan request. Parsons Corporation submitted a proposal for a $3.5 billion project to add reversible express toll lanes and bus rapid transit to 53 miles of I-70 in and west of Denver. Another potential PPP project is the missing link in the Denver beltway, being sought by the Jefferson Parkway Public Highway Authority; it would connect the southern end of the Northwest Parkway with the western end of C-470 near Golden.

Florida: Two large availability payment concession projects are nearing completion in Florida. Work has been completed on the second of two parallel tubes of the $900 million Port of Miami Tunnel, and opening is scheduled for May 2014. Also nearing completion is the reconstruction and modernization of I-595 in the Ft. Lauderdale area. This $1.8 billion project by ACS Infrastructure is reconstructing and expanding this east-west expressway including the addition of three reversible express toll lanes in the median. Both projects received TIFIA loans. Florida DOT has also applied for a TIFIA loan for its next major PPP project, for congested I-4 in Orlando. The $2.7 billion project will add four express toll lanes in the median on 20 miles of I-4, under an availability-pay concession funded in part by the new toll revenues. FDOT is also moving forward with the first phase of a new tolled ring road for Jacksonville, the First Coast Outer Beltway. The first 15-mile segment of this eventual $1.9 billion project, costing $400 million, is under way as a conventional procurement, upgrading an existing state highway. The subsequent 31-mile St. Johns River Crossing portion will be developed as a concession.

Georgia: After the late-2011 cancellation of an in-process concession procurement for the $1 billion West by Northwest project to add managed lanes to I-75 and I-575 in Atlanta, Georgia DOT redefined the project to reduce its cost to $834 million and procure it as a design-build project. GDOT received a $275 million TIFIA loan for what is now called the Northwest Corridor. The winning bidder to develop the project is the team of Archer Western/Hubbard/Parsons. Already under construction is a design-build project adding managed lanes to a stretch of I-75 southeast of Atlanta.

Indiana: Indiana and Illinois are operating under a bi-state Memorandum of Understanding to develop the Illiana Expressway, a 47-mile, $1.3 billion project from I-65 in Indiana to I-55 in Illinois. Due to feedback from potential bidders leery of taking toll revenue risk on this greenfield toll road, the Illiana Expressway will be procured as an availability-pay concession, with each state managing its portion as a separate concession. Indiana is also partnered with Kentucky on the Ohio River Bridges project in the Louisville metro area. While

Kentucky will build its portion conventionally, Indiana's portion—the $1.2 billion East End Crossing—will be done as an availability-pay PPP concession by an international consortium selected in November. Both bridges will be tolled. Finally, East Chicago's privately financed project for the $200 million Cline Avenue Bridge replacement is expected to begin construction in 2014.

Illinois: The 2011 PPP enabling law permits use of this method by both Illinois DOT and the Illinois Tollway. It also allows design-build to be used, but only for PPP projects. IDOT and the Tollway are assessing possible managed lanes projects in the Chicago area and possible bridge projects. As noted above under Indiana, IDOT has partnered with Indiana DOT to procure the greenfield Illiana toll road as an availability-pay concession.

Maine: The $2.1 billion, 220-mile, east-west toll road across the state proposed by Cianbro Co. would link the underutilized coastal port of Eastport to Cobun Gore on the Quebec border. The plan would be entirely privately financed, and would proceed using existing (mostly private) roads that would be acquired for this purpose. It experienced a setback in May when the legislature rescinded a previous agreement to pay for the needed feasibility study.

Maryland: So far Maryland officials are using their new PPP enabling legislation for transit projects, but not highways. But several highway projects have been discussed. With the opening of tolled express lanes on the western half of the Capital Beltway (I-495) in northern Virginia, officials in Montgomery County, Maryland, just across the Potomac River, have discussed extending the Beltway lanes across the American Legion Bridge, onto their portion of the Beltway. And the Maryland State Highway Administration is studying possible express toll lanes extending northward from the Beltway up I-270 toward Frederick. The state is nearing completion of the first eight miles of express toll lanes on a portion of I-95 near Baltimore.

Michigan: This state does not yet have PPP enabling legislation, but is working on a toll bridge with Canada. The Detroit River International Crossing (DRIC) would supplement (and compete with) the privately owned Ambassador Bridge linking Detroit with Windsor, Ontario. The new bridge has the full support of the Canadian government, which has offered to create a public authority to finance the bridge, based on toll revenue, and possibly procure it as a PPP concession (but likely based on availability payments); all tolling will take place on Canadian soil. But Michigan Gov. Rick Snyder has been unable to obtain majority support for the bridge (or a PPP law) in the legislature. Due to

legislative opposition, Michigan DOT has not applied for a TIFIA loan for the project.

New York: Three major toll bridge replacement projects are under way in the New York/New Jersey metro area. Most national attention has focused on the $4 billion replacement of the aging Tappan Zee Bridge across the Hudson River, north of New York City. Its owner, the New York State Thruway Authority, lacks PPP authority, so it is proceeding as a design-build project. The state requested a $2.9 billion TIFIA loan and was awarded $1.6 billion late in 2013. A toll schedule for the replacement bridge has not yet been announced. The other two projects are being carried out by the Port Authority of New York & New Jersey, which has PPP authority. The Goethals Bridge replacement project, estimated at $1.5 billion, is being procured as an availability-pay concession; it received a $474 million TIFIA loan in November and reached financial close shortly thereafter with its Macquarie/Kiewit team. The Bayonne Bridge will be revamped via a $1.3 billion project to raise the existing bridge deck to provide 215 ft. clearance for ships, rather than the 151 ft. with the current deck, via a conventional procurement contract awarded in May.

North Carolina: This state's first PPP concession was to have been the Mid-Currituck Bridge, a seven-mile, two-lane toll bridge linking the mainland to the Outer Banks. But feasibility studies were not robust enough for NC DOT to proceed. Instead, the state's first PPP endeavor will be a $545 million project to add HOT lanes to 26 miles of I-77 in Charlotte, the state's largest metro area. After receiving the approval of the local MPO in May, NC DOT is proceeding with the procurement of the project as a 50-year toll concession. It is also awaiting word on its TIFIA loan application.

Ohio: The Ohio DOT is using a design-build-finance approach for the new Inner Belt Bridge in Cleveland, a river crossing on I-90. The westbound replacement bridge is already under way as a conventional procurement. The $330 million eastbound span, which the state could not afford to do at the same time as the westbound one, will be accelerated thanks to the DBF contractor providing six years of gap financing. Ohio DOT is also partnering with Kentucky DOT for the $2.4 billion Brent Spence Bridge over the Ohio River at Cincinnati. Tolls are being considered as a funding source, along with some form of innovative procurement.

Oregon: This state's first toll project is to be the Columbia River Crossing, now a $2.6 billion design-build project to replace the current I-5 bridge. Originally intended to be procured jointly with Washington State DOT, it is now an

Oregon-only project after the Washington legislature decided against allocating funding for it. The bridge will accommodate an extension of a Portland light rail line across the river to Vancouver, Washington, for which FTA New Starts funding is being sought.

Pennsylvania: The Pennsylvania Department of Transportation issued a request for qualifications in December 2013 seeking qualified private contractors for its Rapid Bridge Replacement Project, a public-private partnership to reconstruct at least 500 structurally deficient bridges of similar design. The selected team will manage the bridges' design, construction and maintenance under one comprehensive contract to streamline project delivery, and it will finance the project in an availability-payment concession. The department anticipates significant cost savings since the same basic design and construction standards can be used for multiple bridges. The project will launch in 2015, and the selected team will also maintain the bridges for as long as 35 years.

The bridge replacement project is one of three public-private partnerships authorized by the state in 2013, constituting the first batch of projects under the public-private partnerships enabling legislation enacted in September 2012, allowing for state transportation entities to partner with private companies to finance, deliver and maintain transportation-related projects.

Puerto Rico: The original plan, following the successful lease of PR-22 and PR-5, was to use PPP concessions for up to five greenfield toll projects, including an extension of PR-22, three new toll roads, and bus rapid transit lanes on PR-22. In October the Commonwealth’s new transportation secretary announced a $1 billion project to add elevated reversible express toll lanes to PR-22 between San Juan and Aguadilla, a distance of 33 miles. It is being managed by the Public-Private Partnerships Authority.

Texas: November 2012 witnessed the opening to traffic of SH 130, Sections 5 and 6—the rural portion of the SH 130 toll road between Austin and San Antonio, providing an 85 mph alternative to congested I-35. Developed by a Cintra/Zachry team, this is the first of a number of Texas toll concession projects to be completed. As of its one-year anniversary, traffic and revenue were far below projections, raising the question of a financial restructuring. In the Dallas/Ft. Worth metro area, Cintra/Meridiam teams are far along constructing two additional tolled megaprojects, the LBJ Express Lanes on I-635 in Dallas and phases 1 and 2 of the North Tarrant Express in Ft. Worth. The same team won the concession for the $1.4 billion phase 3 of NTE for I-35W and reached financial close in September 2013. Two other concession-eligible

projects in the DFW metroplex—SH 360 and the Trinity Parkway—will be handled instead by the local toll agency, NTTA, which exercised its primacy option. And for the managed lanes project on the SH 183 Airport Freeway, TxDOT is using a shadow toll concession (called "pass-through tolls" in Texas). For the $1.1 billion project to add managed lanes to I-35E in Dallas, TxDOT opted against a concession and is procuring the project as a design-build contract. An article in the September 2013 issue of *Public Works Financing* put the total value of PPP concessions just in the Dallas/Ft. Worth area at $10 billion. Procurement is under way for a toll concession for express toll lanes on 10 miles of SH 288 in Houston, and a TIFIA loan request is pending. And TxDOT is procuring the new toll road Loop 375 in El Paso under a design/build/maintain contract.

Virginia: In November 2012 the long-awaited express toll lanes on the Capital Beltway (I-495) opened to traffic, developed as a 75-year toll concession project by Fluor/Transurban. First-year traffic and revenue came in well below the projections that were finalized in 2008, prior to the financial markets crunch and the ensuing recession. The same team gained VDOT's approval for an adjoining project to convert and expand the existing HOV lanes on I-95 south of the Beltway to express toll lanes. The $940 million project is now under construction. The 28-mile reversible facility includes expansion of the existing HOV lanes from two lanes to three lanes north of the Prince William Parkway and a two-mile extension of the lanes south to Stafford County. VDOT is proceeding with a nonprofit corporation approach (under IRC 63-20) to finance the planned US 460 toll road, to be built by Ferrovial under a design-build contract. And the $2.1 billion Elizabeth River Crossings project in the Norfolk area is under construction, after surviving a court challenge to the legitimacy of both tolling and PPPs in Virginia.

Washington: This state has two conventionally procured toll megaprojects under way: replacement of the SR 520 floating bridge and replacement of the SR 99 Alaskan Way Viaduct with a deep-bore tunnel. A third project is a $1.5 billion effort to add express toll lanes to congested I-405 on the east side of Lake Washington. The state has PPP enabling legislation but thus far has not made use of it. The initial northern phase of the 405 project began construction in 2013 via conventional procurement.

Table 3 provides a summary of pending TIFIA loan requests as of October 2013.

Table 3: Pending TIFIA Loan Requests for PPP Highway Projects, Oct. 2013

Jurisdiction	Project Name	LOI Received	Project Budget
Anchorage, AK	Knik Arm Crossing	Aug. 2012	$1.022B
Colorado HPTE	US 36 MLs, Ph. 2	FY 2012	$ .140B
Florida DOT	I-4 Express Lanes	Jan. 2013	$2.746B
Indiana Finance Auth.	East End Crossing	Sept. 2012	$1.276B
Nevada DOT	I-15 Project NEON	Aug. 2013	$ .772B
Port Auth. of NY/NJ	Goethals Bridge*	FY 2010	$1.500B
North Carolina DOT	I-77 HOT Lanes	Aug. 2012	$ .545B
Ohio DOT	Portsmouth Bypass	Nov. 2012	$ .819B
Texas DOT	SH 288	Aug. 2012	$ .272B
Texas DOT	SH 183	Aug. 2012	$ .876B
Texas DOT	Grand Parkway SH 99	Aug. 2012	$2.551B

Source: "U.S. Highway P3s Waiting for TIFIA Loans," *Public Works Financing*, October 2013. *Awarded November 2013

E. Managed Lanes and Networks

Most of America's 20 most congested metro areas either have variably priced managed lanes already in place or have plans to implement such lanes. Of the 15 most congested "very large" metro areas in the 2012 *Urban Mobility Report* from the Texas Transportation Institute, nine have one or more managed lane projects in operation, with two others planning similar projects. Thus 73% of these major urban areas have embraced the managed lanes concept. Of the next tier of large urban areas with significant congestion problems, 12 of the next 25 most congested have one or more managed lanes projects in operation, under construction, or in the planning stages (48% of them).

In this second group, the newest members are Austin, Las Vegas, Riverside and San Bernardino Counties (California), and Tampa. Austin has begun work adding a single express toll lane each way to 11 miles of its MoPac Expressway. The $200 million project is being done in-house by the Central Texas Regional Mobility Authority, which is taking the traffic and revenue risk. Riverside County, California has embarked on a $1.3 billion project to extend Orange County's 91 Express Lanes eastward to I-15. With a 2012 TIFIA loan in hand, construction will begin in 2014. Neighboring San Bernardino County is considering express toll lanes on its portions of I-15 and I-10. In Tampa, the Florida DOT has studies under way on express toll lanes for portions of I-4, I-75 and I-275. In addition, under a federal Value Pricing grant, the Tampa Hillsborough Expressway Authority and Hillsborough Area Regional Transit concluded that a "Bus Toll Lanes" version of express toll lanes would be a feasible addition to selected expressways and arterials in that county. Nevada

DOT has plans worked up for managed lanes on I-15 in Las Vegas, but has not yet obtained legislative authority to implement them.

Should urban toll roads implement variably priced managed lanes? This idea has been somewhat controversial within the toll agency community, but two public agencies have decided it's a good idea. The Florida Turnpike Enterprise will implement premium-priced express lanes on the Veterans Expressway in the Tampa area and on portions of the Homestead Extension of Florida's Turnpike (HEFT) in the Miami area. The first sections of these new express lanes will open, respectively, in 2016 and 2017. The Miami-Dade Expressway Authority is debating whether to do likewise on its congested Dolphin Expressway. The Chicago Metropolitan Agency for Planning is working to gain public support for similar projects for three congested tollways in that region: the Stevenson (I-55), Eisenhower (I-290) and Jane Adams (I-90).

Many of the "very large" metro areas have adopted plans for networks of priced managed lanes. Here is a brief recap of where those plans stand as of 2013.

Atlanta: The State Transportation Board in December 2009 adopted a $16 billion plan for a 300-route-mile network of priced managed lanes, covering most of the metro area's expressway system. The first conversion of an HOV lane to express tolling took place in autumn 2011 on a 16-mile stretch of I-85, in a joint effort of the State Road & Tollway Authority and Georgia DOT. The DOT's network plan had to be scaled back after Gov. Nathan Deal vetoed both toll concessions and increasing the HOV lane occupancy requirement from two to three on existing HOV lanes within the I-285 Perimeter. New express toll lanes on I-75 south of downtown are under construction, and the Northwest Corridor project for reversible express toll lanes on I-75 and I-575 is nearing the construction stage.

Dallas/Ft. Worth: The 2030 long-range transportation plan includes an extensive system of managed lanes and toll roads, covering nearly the whole expressway system. It aims to have 450 lane-miles in place by 2019 and 843 lane-miles by 2030. Besides the LBJ (I-635) and North Tarrant Express toll concession projects described earlier, other managed lane additions are in progress on the SH 183 Airport Freeway, I-30 between Dallas and Fort Worth, and the $1.1 billion reconstruction of I-35E. TxDOT has recently taken over four HOV lanes from transit agency DART and is considering whether to convert them to HOT lanes.

Houston: This region was one of the first to complete a managed lanes network plan, in 2008. After implementing two managed lanes each way on the rebuilt Katy Freeway, Houston Metro has converted all 83 route-miles of its remaining HOV lane system to priced managed lanes. TxDOT is also proceeding with a toll concession to add express toll lanes to 10 miles of SH 288 in the southwestern suburbs.

Los Angeles: The first two HOV conversions were completed at the end of 2012 (on the I-110 Harbor Freeway) and early 2013 (on the I-10 San Bernardino Freeway). LA Metro plans to add express toll lanes to portions of I-5 in northern LA County under its first PPP concession project. The Orange County Transportation Authority, in the face of considerable political opposition, decided in December 2013 not to proceed with adding express toll lanes as part of widening I-405 from John Wayne Airport north to the L.A. County line. Riverside County, as noted, is extending the existing express toll lanes on SR 91 eastward to I-15 and plans to add such lanes to I-15 as well. And San Bernardino County is pursuing express toll lanes for its portions of I-10 and I-15. The Southern California Association of Governments has completed a large-scale planning study for a six-county managed lanes network, but it has not yet formally been added to the region's long-range transportation plan.

Miami: Phase 2 of Florida DOT's I-95 express lanes project is under construction, adding 14 miles to the initial seven miles, extending the lanes from downtown Miami to downtown Ft. Lauderdale. FDOT and partner agencies (Miami-Dade Expressway Authority, Florida Turnpike Enterprise, and three county transit agencies, among others) have developed a detailed "concept of operations" for a three-county managed lanes network. The second component of the network—reversible express toll lanes on I-595 near Ft. Lauderdale—will open to traffic in 2014. And the next two components of the network will begin construction in early 2014, adding express toll lanes to I-75 in Broward County and the Palmetto Expressway in Miami-Dade County. The Turnpike's planned express toll lanes on its Homestead Extension will also be part of this network.

Minneapolis/St. Paul: With two HOV lane conversion projects accomplished in recent years (on I-394 and I-35W), Minnesota DOT did a "next stage" study that identified 10 other expressway corridors as good candidates. The first of these—I-35E in St. Paul—is under construction to add managed lanes in the downtown section. The other corridors are in various stages of study.

Phoenix: AzDOT and the Maricopa Association of Governments are studying a managed lanes network for the Phoenix metro area, some of which may be procured via a PPP process.

San Diego: This region's MPO, SANDAG, was the first in the nation to include a managed lanes network in its long-range transportation plan. It has completed a major project to expand the HOT lanes on I-15, which now extend a full 20 miles and include four lanes with a movable barrier. Direct-access ramps connect park-and-ride lots and bus stations to the HOT lanes. The network plan includes such lanes on I-5 and SR 52.

San Francisco: In 2008 the Metropolitan Planning Commission, the region's MPO, included an 800 route-mile managed lanes network in its long-range transportation plan, of which 500 would be conversions of HOV lanes and the balance would be lane additions. Budget cuts in 2010 led to a scaled-back version of 540 route-miles. Two HOV conversions were completed and opened to traffic in 2012—on I-680 (the Sunol Grade) and on SR 237 in Silicon Valley. In September 2013 the MTC began procurement of the electronic tolling system for the first 90 miles of the 270-mile initial network: on I-880 and two cross-bay bridge approaches in Alameda County, on I-680 in Contra Costa County, and on I-80 in Solano County. These projects will mostly be conversions of existing HOV lanes, and are to be in operation in the 2016–17 time frame.

Seattle: In its Vision 2040 project several years ago, the Puget Sound Regional Council embraced a 300 route-mile managed lanes network for the Seattle metro area, similar in concept to that adopted for the San Francisco Bay Area. Only one small project is in operation thus far: converted HOV lanes on SR 167. The first phase of a much larger project to add managed lanes to I-405 is now under construction.

Washington, DC: The Metropolitan Washington Council of Governments did a study on a regional managed lanes network in 2008, but no decision has been made about including it in the long-range transportation plan. The Transportation Planning Board completed a two-year pricing alternatives study in late 2013, which selected a 500-mile network of express toll lanes as the best solution to chronic traffic congestion. The region's first express toll lanes opened on the I-495 Beltway in northern Virginia in November 2012, and an extension from the Beltway south along I-95 was financed and is now under construction.

About the Author

Robert Poole is Director of Transportation Policy and the Searle Freedom Trust Transportation Fellow at Reason Foundation. He received his B.S. and M.S. in mechanical engineering from MIT and did graduate work in operations research at New York University. He has advised the US DOT Office of the Secretary, the Federal Highway Administration, the Federal Transit Administration, and the state DOTs of a half dozen states, including California and Florida. He has also testified before House and Senate committees on transportation policy issues, as well as before a number of state legislatures. He is a member of the Transportation Research Board's standing committees on Congestion Pricing and on Managed Lanes. In 1995–96 he was a member of California's Commission on Transportation Investment. In 2008 he was a member of the Texas Study Committee on Private Participation in Toll Roads, and in 2010 he served as a member of Washington State DOT's Expert Review Panel on a proposed $1.5 billion managed lanes project on I-405. And in 2010 he was a member of the transportation policy transition team for Florida Gov.-elect Rick Scott. He received the American Road & Transportation Builders Association's 2007 Private Sector Entrepreneur of the Year award, and he received the TRB Managed Lanes Committee's 2012 Leadership Award.