ENVIRONMENTAL DEFENSE
finding the ways that work

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Subcommittee on Highways and Transit

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Mr. Chairman, Ranking Member Duncan and members of the Subcommittee. Thank you for the opportunity today to testify before you today on Public-Private Partnerships (PPP), transportation financing and protection of the public interest.

I am transportation director for Environmental Defense, a national non-profit group representing over half a million members. Our goal is to promote market-based solutions to the many environmental challenges we face today, both here in the United States and around the globe. Today I'd like to discuss how public-private partnerships in transportation financing can be used to advance important transportation, environmental, and public health goals.

I. Need for a Stronger Public Policy Framework to Guide PPPs in Transportation

Wide-spread reluctance to increase taxes and growing long-term fiscal challenges[1] have governments at all levels scrambling to find new transportation financing. Increasingly in the U.S. and abroad governments are turning to public-private partnerships (PPPs) as a way to increase private investment in transportation infrastructure and services and to promote innovation in the sector. PPPs can encompass a broad spectrum of contracting and financing strategies ranging from short-term service and operating contracts to long-term concession leases that may turn over to a private consortium control of planning, design, building, operating, and managing transportation facilities and services in a corridor for some period of time. PPP agreements are being increasingly used in many countries to develop and manage new and existing highways, public transportation, railways, ports, airports, electric utilities, water infrastructure, schools, hospitals, and other facilities and services.

Some deals have generated big up-front capital payments for cash-strapped governments by "monetizing" the value of existing public assets. The 99-year Chicago Skyway lease and 75-year Indiana Toll Road lease together netted $5.65 billion, and Texas recently signed an $8.5 billion concession deal for a new 600-mile highway corridor. Private firms enter into such partnerships in return for the prospect of a steady return on investment from tolls, user fees, performance-based fees, related real estate development or other revenues. McKinsey & Co. recently projected

[1] U.S. General Accountability Office, *21st Century Challenges: Reexamining the Base of the Federal Government,* February 2005, GAO-05-325SP.

a $330 billion global market for infrastructure PPP deals between 2005 and 2010, including $45 billion in U.S. road projects.[2]

Whether they involve leasing existing toll roads or ports or building new facilities, these deals are at times controversial. Many are asking if individual deals are a good value for the public and if PPPs are being done to evade public involvement, oversight, and accountability to environmental, labor, health, and community protections that might apply if the same initiative was publicly financed and developed. Are PPPs adding value compared to other alternatives?

Aggressive, top-down promotion of PPP deals, as with some Texas toll roads, has sometimes led to public backlash. But other deals have delivered projects and services that have won broad public support. PPPs have at times won support from both left and right political parties in the U.S. and world-wide, and have also been fiercely attacked by from both directions. Interest in PPPs is growing, and legislation is moving forward at both state and federal levels to open the door to many more such partnerships.

Environmental Defense's primary concern is that there is no policy framework in place to ensure environmental benefits in PPPs and that public oversight is often weak in these big-money, long-term deals. That could sacrifice our future for short-term gains.

While some ask, "are you for PPPs and tolls or are you against them?", we think this is the wrong question. Instead, elected officials and the public should ask how we want to use these tools. Well designed PPPs have the potential to finance transportation, save motorists time, improve reliability and customer service, boost transit choices, curb fuel use and emissions, and reduce harm to communities and the environment. But tolls and PPP deals can alternatively increase congestion on existing roads, spur pollution, fuel use, emissions, facilitate sprawl for years to come, and spur public backlash against tolls and PPP financing. Should we use PPPs just to build more roads faster and to increase short-term cash flow to deal with fiscal problems? Or use them to better manage transportation systems to deliver high performance for mobility, the environment, and public health?

Environmental Defense thinks PPP initiatives should advance along with publicly financed and managed transportation investments and strategies only if they are part of transportation plans and programs designed to accomplish the planning objectives articulated in SAFETEA-LU – to improve mobility and support economic development while reducing fuel use and air pollution.[3] Engaging private capital and expertise in these efforts could accelerate innovation and progress on these goals, but only if such engagements are designed to advance these public policy objectives—not simply to finance more system capacity. The public will support neither increased privatization of public transportation infrastructure nor the toll strategies needed to manage congestion and to attract private partners into transportation system finance unless public-private partnerships are focused on maximizing public benefits.[4]

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[2] Cheatham, Benjamin and W. Oblin, "Private-investment opportunities for public transport," *The McKinsey Quarterly: The Online Journal of McKinsey & Co.,* April 2007.

[3] 23 U.S.C. § 134(a)(1).

[4] Public skepticism of PPPs for transportation financing runs high, even within the business community. For example, *BusinessWeek,* in its May 7, 2007 edition, carried a cover story entitled: *"Hey Buddy, You Wanna Buy a*

Protecting public health and the environment must be core values of our transportation policy, along with enhancing mobility, access, and the financial stability of our transportation system. These values must be reflected in public-private partnerships agreements. More work is needed to ensure that PPP agreements safeguard public welfare.

Our goal is to create new, private-sector financing models that expand use of congestion pricing, spur investment in innovative transit, and add health and climate performance criteria into public private partnership contracts. Partnerships between environmental stakeholders and major infrastructure banks and operators are needed to demonstrate examples of success in key locations. There are also fast-moving opportunities now to craft legislation and policy that will govern public-private partnerships for decades. We look forward to working with this committee in this important effort.

This month this committee held its' first-ever hearings on climate change—a topic of central public concern. While this is not a new issue—Congress has been struggling to develop a national policy consensus in this area for decades---it is a relatively new issue for this committee. Transportation-related greenhouse gas emissions have historically been an issue for other congressional committees, with jurisdiction over fuel economy standards, energy and environmental issues. No more. In a carbon-constrained world all federally-assisted programs that directly or indirectly increase carbon emissions will attract increasingly intense public scrutiny. Transportation infrastructure financing is one such program.

Public Private Partnerships (PPPs) will not escape this scrutiny. Unless new and more effective federal and state policies towards PPP road projects are adopted, PPP road projects insulated by decades-long concession contracts could become an out-of-control source of greenhouse gas emissions that defies needed accountability. This could pose problems similar to those America has faced in recent decades trying to clean up ever-expanding old coal-fired power plants.

According to Fitch Ratings, over the period 2000-2005 the more than 50 Fitch-rated, stand-alone toll road projects experienced an *average* annual rate of traffic growth of 6.7%, more than triple the national average annual increase in travel growth (as expressed in Vehicle Miles Traveled or VMT) of 1.9%.[5] This was in spite of the recession in the early part of this decade and the spike in oil prices in 2005. While such rapid increases in traffic volume are good for the financial stability of the tolled facility, they turn such roads into major linear carbon emission sources.

Tolling and PPP policies can and should be designed to advance emerging climate and public health goals. While toll roads require traffic to ensure their financial performance, they do not need to increase their carbon footprint to achieve this result. To the contrary, performance-focused PPP contracts can be designed to reward facility operations strategies that cut pollution while improving mobility and encourage adoption of smart traffic management, expanded travel

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Bridge?" Why Investors are Clamoring to take over America's roads, bridges, and airports,---and why the public should be nervous."

[5] *U.S. Toll Road Projects: A 2006 Performance Report,* Fitch Ratings (Special Report April 19, 2006) at 1. see www.fitchratings.com.

choices, and toll discounts for cleaner, low-carbon vehicles and off-peak travelers. PPPs may also have an important role to play in improving public transportation performance.

II. Public-Private Partnerships: Aligned with Performance Objectives?

There are a wide array of activities and forms for Public-Private Partnerships (PPPs), ranging from service contracts, to management and maintenance contracts, operations and maintenance concessions, pre-development agreements, and build-operate-transfer concessions. Beyond this, greater private sector participation involves full privatization. PPPs may be used to directly or indirectly achieve a wide variety of public objectives, offering at times various advantages such as enhanced capacity to introduce new technologies, management strategies, and timely mobilization of private capital. But PPP concessions may also at times work against public welfare interests, harming labor, communities and the environment.[6]

PPP mechanisms for compensating concessionaires come in a variety of forms. These include letting concessionaires keep whatever tolls are collected, or providing a shadow toll payment based on usage of the facility. Many European PPP infrastructure concessions in recent years provide concessionaires with availability payments based on the amount of time infrastructure is available for use while meeting service standards. Another option used in England is a congestion management payment based on both the amount and speed of traffic carried on each small segment of a highway by the hour. This is a variation of a performance payment or penalty framework. Yet other concessions rely in part, explicitly or implicitly, on revenues that may be derived from service areas, side-concessions, or value-capture related to real estate development opportunities. And concessions may include combinations of grants, user fees, and other revenue guarantees. Each of these may create hidden or explicit incentives for a PPP concession to serve or work against various system and public welfare objectives.

For example, basing payment to a concessionaire on actual tolls collected on a road provides an incentive to maximize traffic volume, while shifting the traffic risk to the concessionaire. In some cases, such an approach may raise profiteering issues with some members of the public. In a quest to limit such concerns, some concession deals impose toll rate caps, which in turn may severely limit the ability of the concessionaire to use dynamic time-of-day tolling strategies to manage peak period congestion. When concessionaires are compensated based on actual toll revenue collected, concessionaires often seek to include non-compete agreements in contracts to restrict the ability of the public sector agencies to expand non-tolled highways or transit services that might compete with the facility managed by the concessionaire. Such a non-compete agreement was so objectionable in the SR-91 Riverside County corridor in southern California that it prompted the County to buy-out the concession in order to remove the non-compete clause and enable the public agencies to expand parallel highway capacity.

Shadow tolls are typically based on traffic counts and the length of the roadway. These may be used on non-tolled facilities, transferring traffic forecast risk to operator while encouraging higher traffic growth by avoiding user fees. For tolled facilities, use of a shadow toll PPP compensation approach may insulate toll rate-setting from concerns about profiteering while

[6] Sclar, Elliott D. (2000). *You Don't Always Get What You Pay For: The Economics of Privatization*. Ithaca: Cornell University Press: 28-44, 62-68.

enabling a concessionaire to employ dynamic time-of-day charging strategies to manage traffic congestion on the facility and maximize network productivity. Such a shadow tolling approach could be designed to reward a concessionaire for delivering greater mobility for more people and goods while reducing congestion and minimizing both emissions and fuel use.

Availability payment concession contracts rewards the contractor based on available facility lane-miles or lane-kilometers, taking into account the impact of maintenance closures, or the quality or quantity of other specified performance outputs. This approach is also often used on non-tolled facilities, encouraging effective facility maintenance while maximizing traffic growth. On tolled facilities, this approach could also insulate toll rate setting from concerns about profiteering. Such a payment approach could also be designed to reward minimized congestion, emissions and fuel use and maximized facility availability and reliability.

A "congestion management payment" approach has been used on a 54-kilometer stretch of the Darrington-to-Dishforth A1 Highway in Yorkshire, England to reward the concessionaire based on measured actual hourly traffic speeds and flows by 2 kilometer road segment, as shown in Figure 1. Payments are reduced when the average speed of traffic falls below the target average speed, giving an incentive to the concessionaire to manage any congestion causing event in the corridor. An allowance is made to lessen the impact of the reduction penalty as flow approaches the established road capacity, reducing the risks associated with congestion due to lack of capacity. If traffic flow exceeds the rated capacity, the concessionaire receives a bonus for traffic traveling above a minimum speed under high flow conditions. This provides an incentive for the concessionaire to actively manage and bring forward proposals to keep traffic flowing freely. If at any time minimum performance criteria are not met no payments are made for the relevant section of road.

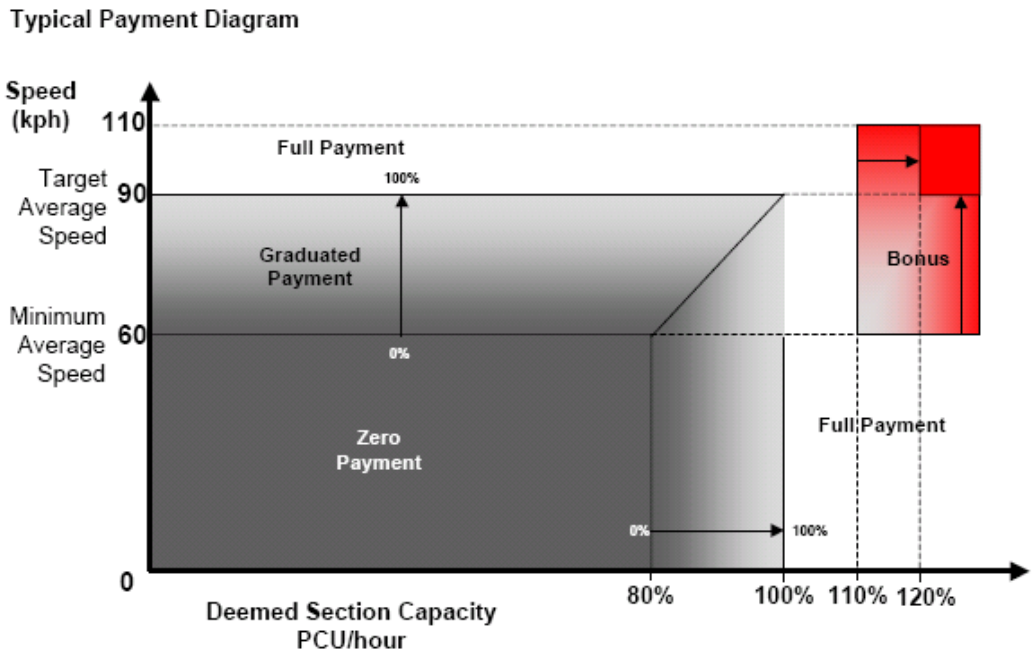

Figure 1: Congestion Management Payment on A1 Highway (Highways Agency, Leeds [7])

[7] see also: *http://wip.tu-berlin.de/workshop/2005/papers/briggs_drewett_Private%20_Financing_of_Projects.pdf*

Using new monitoring and performance measurement technologies based on toll transponders, GPS, or cell phone probes, this approach could be modified and extended to provide incentives for concessionaires to manage and develop corridors so that they move more people and more ton-miles of freight (rather than just vehicles) while meeting level-of-service standards, environmental performance standards, and the terms of community benefit agreements. Such a framework could be used to expand the market for PPP toll concessions with broader public support won by delivering guaranteed congestion relief and emission reductions to customers and communities.

III. U.S. Case Studies of PPP Toll Roads

A small sample of recent PPP road concession agreements related to both existing transportation facilities and the development of new transportation assets illustrates some of the range of experience with toll PPP highways recently advancing in the U.S.

California

SR-91, Orange and Riverside County, California. The passage of AB 680 in California in 1989 opened the door for the California Department of Transportation to enter into franchise agreements for development of new roads. Several roads - including SR-91 and SR-125 - have been developed under this law, which was repealed in 2005.

The opening in 1995 of the newly constructed Express Lanes in the median of California's SR-91 made this road the first fully automated, variably-priced toll road in the nation. Originally planned as an HOV facility, the four-lane toll facility was built years earlier than public funding would have allowed thanks to this PPP agreement. The facility was originally financed, owned, and operated under a franchise agreement between the California Private Transportation Company (CPTC) and the state.

Tolls on the roadway vary from $1.05 during off-peak hours to $6.25 during peak periods, although carpoolers with three or more people (HOV3+), zero emission vehicles (ZEVs), motorcycles, disabled plates and disabled veterans ride free during most hours. The revenues from the tolls are used to operate and maintain the roads, with no surplus revenue left over for transit or other uses.

Since the Express Lanes opened, the facility has logged more than 64 million vehicle trips and saved more than 32 million hours of commuting time. Yet, the HOT lanes have undoubtedly facilitated additional sprawl development in Riverside County, which serves as an affordable bedroom community to job-rich Orange County, offsetting some of the environmental benefits of the project.

The SR-91 project development agreement between CPTC and the state contained a non-compete clause that barred public authorities from making improvements on competing transportation facilities. However, in 2002, under intense public pressure, the Orange County

Transportation Authority purchased SR-91 back CPTC in order to abrogate the non-compete clause and make improvements on parallel non-tolled lanes in the corridor.[8]

SR-125, San Diego, California._A franchise agreement with the San Diego Expressway Limited Partnership provided for the private financing and construction of SR-125, a 9.3-mile toll highway that forms the longest segment of a 12.5-mile highway that when complete in 2006 will connect the California-Mexico border as part of an outer edge area beltway. Once the project is complete the private concessionaire will transfer ownership of the road back to the State and then lease the rights to operate and maintain the facility for a period of 35 years.[9,10]

The franchise agreement allows the private concessionaire to earn a maximum 18.5% return on total investment with additional allowed incentive return for actions to increase average vehicle occupancy on SR-125. The concessionaire has sought adding an additional 10 years to the agreement to recover its project costs, which have grown from $400 million to $635 million. Permitting delays, a lengthy environmental review process and a subsequent law suit brought in 2001 by the Center for Biological Diversity, Preserve South Bay, San Diego Audubon Society, the Sierra Club, and Preserve Wild Santee, contributed significantly to these cost increases. In fact, environmental clearances were not obtained until 2001, a decade after the franchise agreement was signed. The environmental groups that opposed this project did so because of its negative effects on sensitive wildlife habitat and because it will induce additional sprawl.

Virginia

Pocahontas Parkway. In 1995, the Virginia legislature passed the Public-Private Partnership Act (PPTA) of 1995, which enabled "private entities to acquire, construct, maintain, and/or operate 'qualifying transportation facilities' under agreement with a responsible public entity" Opened in 2002, the Pocahontas Parkway was the first project built under the PPTA. The Parkway is a toll road that serves as a bypass around Richmond. Under a 30-year franchise agreement, the road was designed and built and is now operated, including imposing and collecting tolls, by the Pocahontas Parkway Association, a nonprofit consortium.[11]

The Parkway does not rely on variable or time-of-day pricing to determine the toll rate for drivers. Instead, toll rates on the road are static, currently $1.75 for cars, trucks or buses using electronic transponders, and $2.00 for vehicles paying with cash. The revenue is used to pay off the debt incurred to build the road.

Prior to the opening of the road, traffic estimates were developed based on motorist surveys and county growth projections. During the first year of operation, actual traffic and toll revenues were

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[8] U.S. General Accountability Office (GAO). (2004). *Private Sector Sponsorship of and Investment in Major Projects Has Been Limited*. Washington, DC: GAO-04-419.

[9] Federal Highway Administration (FHWA). (2005). *SR 125 Toll Road San Miguel Mountain Parkway*. Retrieved on 4/27/05 at http://www.fhwa.dot.gov/ppp/sr125.htm.

[10] U.S. Department of Transportation (DOT). (2004). *Report to Congress on Public-Private Partnerships*. Washington, DC.

[11] Regimbal, J., Jr. (2004). *An Analysis of the Evolution of the Public-Private Transportation Act of 1995*. Prepared for the Southern Environmental Law Center.

42 percent less than the projected. Since then, traffic has increased, but not to projected levels. Much of the difference between the estimated and observed traffic levels has been attributed to slower than predicted economic growth in the Richmond area, and in particular at Richmond International Airport.[12] The project was successfully refinanced in 2006.

Illinois

Chicago Skyway. The 7.8-mile Chicago Skyway was owned, operated and maintained by the City of Chicago for more than 50 years. City officials had not raised tolls on the road for more than 15 years, even though only a quarter of the traffic on the highway consists of City residents. Nor had they fully modernized toll collection and operations. Faced with a gaping budget deficit and an underperforming asset, the City of Chicago with little public consultation signed a 99-year concession agreement in 2004 with the Skyway Concession Company (SCC) – a partnership of Macquarie and Cintra. Under terms of the 300-page agreement, SSC got rights to boost long frozen tolls (within limits), and agreed to detailed standards for long-term maintenance of the highway, with some safeguards for labor and adjacent communities.

In return, the City of Chicago received $1.8 billion. Of this, $463 million went to pay-off the Skyway's debt, $392 million was used to pay off city debt, $875million was put into city government budget reserves, and $100 million was dedicated to quality of life initiatives over the next five years, including funding for the homeless, home heating assistance, home modifications for the disabled, affordable housing programs, job training for ex-offenders, a Small Business Development Fund, and programs for children and seniors.

Indiana

Indiana Toll Road. The state of Indiana in 2006 enacted legislation (HB 1008) authorizing a $3.8 billion lease of the Indiana Toll Road for a 75 year period. The Act creates several trust funds which will be used primarily to accelerate a $10.3 billion road construction program across Indiana, with detailed allocation of funding to various counties and projects, weighted towards the counties near the toll road corridor. Some funds are dedicated to job training in the depressed communities near Gary, through which the toll road passes, but there are no provisions to provide virtually non-existent transit access to connect the low income and minority areas of Gary and Hammond with the higher wage suburban activity centers that lie just south of the toll road. The deal has been controversial, especially in the toll road corridor. Much popular opinion is focused negatively on foreign companies controlling Indianan infrastructure.

According to the terms of the concession agreement, Statewide Mobility Partners – a partnership of Macquarie and Cintra – has the right to impose and collect tolls, subject to a toll increase schedule. The tolling provisions do not authorize the Concessionaire to raise tolls at times of congestion above the toll rate caps. The agreement includes prescriptive guidelines that call for the annual submission of various operating plans. However, the standards appear unclear and thus of limited contractual value. Monitoring and enforcement provisions appear weak.

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[12] Samuel, P. (2005, June 16). "Transurban moves to buy troubled Pocahontas Parkway VA", *Toll Road News.* Retrieved on 7/25/05 at http://www.tollroadsnews.com/cgi-bin/a.cgi/Ohgiyt7KEdmcEIJ61nsxIA.

Texas

Trans Texas Corridor. In 2003, Texas enacted state legislation (HB 3588) authorizing the Trans-Texas Corridor (TTC) project, The TTC project is slated to be the largest public works project in Texas history, a proposed 1,200-foot wide, 4,000-mile long network of planned and existing toll roads, railways and utility corridors, to be developed over the next 50 years. This network is designed not to connect any existing cities and towns, but to run almost entirely through what are now non-urban Texas counties. To date, two TTC corridors are advancing through the environmental review process, the 560-mile TTC-35 running north-south across central Texas, and TTC-69, a planned 1600-mile corridor running from Larado parallel to the Gulf Coast to northeast Texas.

In parallel with the TTC effort, Texas officials have made bold efforts to promote the widespread adoption of tolling under legislation authorizing Regional Mobility Authorities (RMAs) in metropolitan areas of Texas, seeking to accelerate substantial planned highway system expansion using tolling and PPP concessions. A half dozen RMAs scattered across the state have sought to advance as much as $20 billion worth of toll concession deals, focused on building new toll lanes or new toll highways.

In 2004, Texas officials received an unsolicited proposal from a private consortium - led by Cintra Concesiones de Infraestructuras de Transporte and Zachry Construction Corporation - to develop the initial element of the Trans-Texas Corridor, known as TTC-35. The Cintra-Zachry proposal includes $6 billion in private investment to design, construct and operate for up to 50 years a four-lane, 316-mile toll road loosely connecting from near Dallas to near San Antonio. The proposal also transfers the right to build and operate TTC-35 as a toll facility from the state to the private consortium. In return, the state is to receive $1.2 billion. These proceeds are to be used to fund road improvements or high-speed and commuter rail projects along I-35 or the TTC-35 corridor. The TTC-35 and several other proposed Texas toll highways are seen by some as a strategy to redirect Asian freight traffic away from unionized U.S. west coast ports and trucking services, via cheaper Mexican ports and non-unionized Mexican trucking services and inland U.S. ports.[13]

Without public notice or input, the Texas Department of Transportation (TxDOT) signed a pre-development agreement (or umbrella agreement) with the Cintra-Zachry consortium in 2005, authorizing the preparation of a master plan, non-binding master financial plan, project management plan and quality management plan for TTC-35. Under the Special Experimental Program (SEP)-14 and the SEP-15 programs (under which U.S. DOT has asserted authority to waive provisions of federal transportation law), TxDOT selected a private partner prior to completing the NEPA review process and made this selection earlier in the planning process than is typically allowed under law. Almost two years after the signing of the deal, more than 200 pages of the 300-page pre-development agreement remain secret despite an order for their release by the Texas Attorney General that was blocked by a law suit filed by the concessionaire.

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[13] Howie, Craig. (2006). "US Divided by Superhighway Plan," *The Scotsman*, June 16, 2006, http://thescotsman.scotsman.com/

This pre-development agreement provides Cintra-Zachry with unprecedented access and opportunities to evaluate and identify ways to finance a portfolio of commercially viable projects very early in the planning process. Such an arrangement has the potential to produce cost savings and other benefits that can flow from a fully integrated design-build process. But the sweeping powers conferred to TxDOT and its concessionaires under the authorizing law, HB 5388, as well as the manner in which this mega-project has thus far been advanced, has left many concerned that the project is likely to short-circuit or overwhelm environmental protections, override the interests of local governments and private property owners, and curb full consideration of viable alternatives, including investment and system management options that may be considered in local and regional transportation plans but that lack current public financing. And many Texans just do not like the idea of paying tolls.

For these reasons, the TTC has been opposed by many local governments and environmental, civic and property-rights groups from the Sierra Club and Environmental Defense to the Texas Farm Bureau and Texas Republican Party. Efforts to reign in the TTC have had only limited success in the Texas Legislature, but a political backlash may yet pose a serious challenge to the wider use of tolls and PPPs. While Texas currently leads the U.S. in developing new toll roads, local opposition to tolls and PPP concession deals has grow to the extent that the Texas Legislature by an overwhelming margin in May 2006 sent to the Governor's desk a bill that would put a 2-year moratorium on new PPP toll roads in Texas, giving time to strengthen the public policy framework and public involvement.

IV. PPP Toll Road Concession Projects: Finding a Balanced Approach

As experience with PPP toll road concessions grows, a variety of issues are surfacing as opportunities where deals might come undone or be improved to support better transportation system performance, stronger protection for the environment and equity concerns, and increased community acceptance. This discussion is not comprehensive, but highlights several emerging areas where deals might be made more effective, challenged, or debated.

1. Non-compete Clauses

Non-compete clauses have been used to bar capacity improvements to adjacent public roads and public transportation facilities. To make improvements on parallel non-tolled lanes in the corridor, public authorities in California purchased SR-91 from the concessionaire so they could eliminate the original contract's non-compete clause. At the same time, non-compete clauses are important to private owners because improvements to parallel roads can result in less traffic and lower toll revenue. The original Dulles Greenway concession agreement did not contain a non-compete clause and the consequent expansion of nearby Virginia Route 7 by the state DOT played a significant role in suppressing demand for the toll road, a major factor in the project's default shortly after its opening.

The PPP world learned a lot from the SR-91 case. Shortly after Riverside County officials purchased the SR-91 Express Lanes, Caltrans officials amended the SR-125 concession agreement to remove restrictions on their ability to expand the capacity of transportation facilities not in the current long-term plan. In return, Caltrans must reimburse the private

developer for revenues lost due to the expansion. This type of solution allows necessary improvements to occur but also protects the private partner. Today, it appears few pubic agencies are willing to agree to the type of rigid non-compete clause included in the original SR-91 contract. Indeed on certain types of projects, the 2005 federal SAFETEA-LU federal transportation law Section 1604(c) would bar such non-compete agreements.

The Chicago Skyway does not include any kind of non-compete clause. The Indiana Toll Road lease has a very limited non-compete clause, allowing local parallel expressways but not the creation of another statewide competing road within 20 miles of the leased road.

The SR-125 non-compete clause includes protection measures that ensure a minimum level of service. If congestion exceeds a certain threshold and the concessionaire is not diligently pursuing the development and construction of additional capacity expansion, they risk losing exclusive franchise rights to the tolled corridor. While this type of contract clause may help protect the public against degradation of service in the corridor, in combination with toll rate caps that are commonly part of PPP contracts, there is a real danger such a clause may prevent a concessionaire from considering or applying the most cost-effective traffic management strategies to avoid or reduce congestion delays, such as time-of-day tolls accompanied by better corridor transit and paratransit services, even where these may be more cost-effective and less harmful to the environment and communities adjacent to major highways.

2. Toll Rate Caps

Public-private partnership agreements use a variety of contractual techniques to control toll rate increases and maximum rates. Toll rate caps for the Indiana Toll Road are to be set according to a detailed toll rate schedule. The agreement allows the concessionaire to adjust tolls by time of day. However, the tolling provisions do not authorize the private owner to raise tolls at times of congestion above the toll rate caps. This impedes the ability of the concessionaire to apply time-of-day pricing to ensure free flowing traffic at all hours of operation.

Chicago Skyway maximum toll rates are also limited by schedule through 2016. But an exemption to this schedule allows the operator to raise tolls for vehicles with three or more axles at times of congestion above the toll rate caps. This enables the operator to use time-of-day pricing as a traffic management tool, but only for trucks and buses.

Under the terms of the SR-125 agreement, the private owner has the right to impose and collect tolls, subject to limitations on its overall rate of return. This provides flexibility to establish and modify toll rates by (a) various classes of vehicles, (b) vehicle occupancy levels, (c) times of use and (d) section.

An alternative to toll rate caps that might improve environmental performance would mandate toll adjustments by time-of-day might such that the tolled portion of a road remains free flowing at all hours of operation, with off-peak discounts, without limiting the maximum toll. Or such an approach could be linked to toll rate caps that do not apply to peak hour tolls, but to average daily toll collections, allowing the concessionaire to adjust the distribution of tolls among vehicle classes and by time-of-day for most efficient facility operation, while encouraging or requiring toll discounts for registered low income travelers and high occupancy vehicles (HOVs).

3. Environmental Performance Standards and Agreements

The environmental review process has been singled out by many industry groups and PPP advocates as the most significant impediment to private sector participation in the development of transportation projects.[14] SR-125 illustrated to private sector partners the risks associated with proceeding on a project without environmental clearances in place, leading Macquarie to declare its unwillingness to fully commit to new concession agreements for greenfields road projects lacking in such clearance. Under the SEP-14 and SEP-15 programs, U.S. DOT has asserted broad authority to waive federal contracting and review procedures to encourage innovative activities to accelerate the development of PPP projects.

Public-private partnerships in combination with the SEP-15 program may enable agencies to push forward projects that stood little chance of being built under traditional procurement models. An important question then is whether these expedited agreements for the development of new transportation facilities can be designed to maximize consideration of alternatives that accommodate mobility growth while moderating the need for road system expansion and encourage a coordinated, transparent planning and environmental review with adequate public involvement.[15]

The reality is that most state transportation agencies and public authorities are less risk averse than private transportation PPP developers and investors to the consequences of a long drawn-out or failed environmental review process that ends up having to be redone because of its inadequacies. Private sector project developers and investors want to learn quickly whether they can get a bankable deal accomplished. Conversations with the latter parties suggests that many are willing to consider alternatives, indirect, secondary, and cumulative impacts, and effective impact avoidance and mitigation measures, if they are asked to do so by public agencies or if this will reduce the risk that their project will be held up or stopped by regulatory or political problems. Many are willing to see extra mitigation costs included if it results in a project that can get a robust approval with broad support of concerned stakeholders and still make financial sense.

These are all big "ifs," but there are several strategies that can help ensure such a result, including the greater use of performance based contracting, environmental performance and community benefit agreements, and concession frameworks that seek to implement an array of cost effective "fix-it-first" asset management strategies, including improvement of corridor operations, management, and transit or paratransit services, prior to advancing major new capital investments.

However, most concession agreements to date have not taken this approach. While they may include clear and enforceable operating standards for such matters as toll collection, traffic safety

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[14] U.S. Department of Transportation (DOT). (2004). *Report to Congress on Public-Private Partnerships.* Washington, DC.

[15] Environmental Defense and Natural Resources Defense Council. (2004). *Do Faster Transportation Project Reviews Deliver Better Stewardship? An Analysis of Experience with Expedited Reviews Under Executive Order 13274,* Washington, DC.

and management and pavement quality, clear metrics for environment performances are largely absent from these agreements. Instead, environmental requirements in these agreements often take the form of rudimentary, process-driven standards that are difficult to measure, monitor and enforce. As indicative of the vast majority of concession agreements, the operating standards of the Indiana Toll Road concession lease include prescriptive guidelines and criteria for the development and annual submission an Environmental Management Plan. The problem with such standards is that they focus merely on "how" rather than "what" to achieve and the details are to be worked out long after the major money decisions have been made to put a value on the concession deal. At that point, better environmental performance may too often just look like an extra cost at risk of being value-engineered out as the concessionaire looks to cut costs.

Over the past decade, businesses and many governmental agencies have increasingly focused on establishing outcome-based standards to measure performance. Outcome-based performance standards focus on measurable objectives and allow flexibility in determining how best to achieve those objectives. One of the most frequently cited benefits of public-private partnerships is that such partnerships provide more flexibility to maximize the use of innovative technologies that can lead to the development of better, faster and less expensive ways to design, build and manage highway facilities. Mandating the annual submission of an Environmental Management Plan without standards, after the concession agreement has been negotiated and financed, will do little to spur the use of innovative technologies except as these might cut the concessionaire's operating costs. Nor does it provide a strong incentive for robust environmental self-monitoring and compliance or oversight. A better time for all to focus on setting environmental performance goals is early in the design of the concession bidding process. Although it currently does not do so, model federal PPP guidance and state legislation on PPPs should require environmental performance goals and contract incentives in PPP deals.

Clear and enforceable voluntary environmental performance agreements have not yet been incorporated broadly into PPP toll road projects, which have instead simply been subject to the routine application of existing federal and state environmental requirements on transportation projects. However, such performance agreements are coming into use in other transportation sectors, such as airport and port operations and infrastructure management.

A 2004 Community Benefits Agreement (CBA) between local officials and residents regarding the modernization of Los Angeles International Airport serves as one example. In this instance, 26 community, environmental, labor, and civic groups agreed not to challenge approval of an LAX expansion plan in return for an enforceable CBA that obligated a half billion dollars towards mitigation activities aimed at reducing air pollution and noise problems while ensuring other community benefits, such as job training programs for community residents.

The San Pedro Bay Clean Air Action Plan, announced in June 2006, lays out a framework for the Port of Los Angeles and the Port of Long Beach to work with their many private and public sector partners and stakeholders to ensure substantial measurable reductions in particulate and NOx pollution from the overall activities of the ports while accommodating significant growth in freight traffic. This will be achieved by adopting a one in 10 million cancer risk standard that will be applied to all future leases, tariff changes, and project activities related to the port operations,

coordinated with ground side port access plans and engagement with other ports across the Pacific Rim.[16]

Elements incorporated into toll road PPP concession agreements, or as enforceable parts of the accompanying environmental approvals, might include various provisions to ensure that tolls will be used to manage congestion and generate revenue for impact mitigation and that the project will be managed to produce superior environmental performance, public health protection, and respect for communities and others affected by the transportation system.

Environmental performance and equity in the distribution of benefits of tolled projects may be degraded if all toll revenues are dedicated to pay for new road capacity without ensuring adequate financing for provision of transit services in tolled corridors where transit might find a market.[17] Where HOV lanes are converted to High Occupancy Toll (HOT) lanes or toll managed lanes, it is often practical to generate surplus toll revenues that can be dedicated to transit and impact mitigation, as on San Diego's I-15 HOT lanes. But where costly new road capacity is added, studies in many corridors show that it is often a struggle for such projects to be fully self-financing with tolls unless pricing is also applied to some of the existing corridor capacity.

To maximize environmental performance, PPP toll project designs should consider whether it might be more cost-beneficial to minimize new road capacity by instead applying tolls to better manage existing HOV and general purpose lanes for high productivity and to generate a revenue stream for monitoring, minimizing and avoiding adverse impacts. Among the impacts that might be considered are:

- Monitoring potential air pollution hot spots close to highways that might present a threat to public health or the environment. Purchasing improved ventilation equipment for nearby residences and schools.

- Making use of more costly, but longer-lasting and much quieter rubberized pavements to reduce noise impacts. Constructing sound barriers.

- Improving storm water management to remediate existing problems that cause combined sewer system overloads or that lead to excess storm water loads on nearby streams, producing erosion, habitat loss, and inadequate ground water recharge.

- Ensuring timely progress towards more equal access to jobs and public facilities without undue time and cost burdens for low-income people and those without cars who live or work in areas near the tolled corridor.

- Aligning the compensation and penalty structure of the concession so that contractors are clearly rewarded for superior environmental performance and penalized for failure to meet

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[16] Port of Los Angeles and Port of Long Beach. (2006). *San Pedro Bay Ports Clean Air Action Plan,* June 28, 2006, http://polb.com/civica/filebank/blobdload.asp?BlobID=2953.

[17] Replogle, Michael and Keri Funderburg. (2006). *No More Just Throwing Money Out the Window: Using Road Tolls to Cut Congestion, Protect the Environment, and Boost Access for All,* Environmental Defense, Washington, DC.

environmental performance standards, with incentives for timely compliance and for timely remediation of contracting failures.

- Careful monitoring of greenhouse gas emissions from transportation in the project corridor, subregional, or regional network, together with the development of strategies to reduce such emissions through mobility management, incentives, and market-based trading under a cap-and-trade system.

4. Use of Revenue

State enabling legislation typically specifies how toll revenues and lease proceeds are to be distributed. These revenue streams have been distributed for a wide range of purposes. The City of Chicago used the proceeds of its $1.8 billion lease to close the budget deficit, set up a rainy-day fund, and invest in human service programs for the old, the young, and the poor. In contrast, the lease proceeds from the Indiana Toll Road are to be used primarily to accelerate a state-wide highway construction program. Any excess toll revenues from SR-125 are to be paid into the California State Highway Account. Pennsylvania's Governor Rendell has proposed using proceeds from a Pennsylvania Turnpike lease to fund an annuity that might ensure the long-term ongoing repair and maintenance of the state's bridges and roads while shoring-up precarious transit service finances in Pittsburgh and Philadelphia.

This broad range in use of profits is indicative of the current disagreement among elected officials, transportation experts, and the public as to how best to re-invest such revenue. Some question the wisdom and morality of having toll revenues used to subsidize transit, claiming that such practice is simply a new taxation of mobility. Others argue it is often wise for PPP toll roads to cross-subsidize transit, viewing the transportation system as a portfolio of assets that should be managed to best address the array of objectives, stakeholder, and market place needs.[18] Dedicating a portion of toll or lease revenues to transit may help optimize mobility performance and increases the likelihood that the toll road will benefit a greater share of the potential travelers in the corridor, not just those who can afford to pay the tolls. It may offset some of the adverse impacts on those who live close to these roadways.

It is not uncommon for toll revenues or the proceeds of concession leases to be put into statewide or regional agency transportation funds, general government funds, or investments in other corridors. In the U.S. federal transportation bill reauthorization process in 2004-05, a broad coalition of transportation and environmental groups took the position that such diversions of toll revenues out of the corridor in which they are collected should be allowed for other transportation purposes only if a toll project operator is on track in meeting its financial obligations and satisfying the performance goals established for their project relating to satisfactory operations and maintenance of the toll corridor, including meeting environmental, equity, and system performance objectives established at the initiation of the project. This language became a requirement under Section 1604(b), which pertains to the Express Lanes

[18] Giglio, Joseph M. (2006). *Mobility: America's Transportation Mess and How to Fix It,* Hudson Institute, Washington, DC.

Demonstration Program, one of six programs established by SAFETEA-LU to authorize toll roads and toll lanes. Under that program[19] -

> *the Transportation Secretary, in cooperation with State and local agencies and other program participants and with opportunity for public comment, shall –*
> *i. develop and publish performance goals for each express lane project;*
> *ii. establish a program for regular monitoring and reporting on the achievement of performance goals, including –*
> *a. effects on travel, traffic, and air quality;*
> *b. distribution of benefits and burdens;*
> *c. use of alternative transportation modes; and*
> *d. use of revenues to meet transportation or impact mitigation needs.*

PPP concession agreements may employ various means to ensure that environmental, community and system performance goals will be met through the duration of the concession, including making these enforceable as part of environmental approvals and concession agreements, developing incentive-based performance contracting agreements, and considering such instruments as performance bonds, funding set-asides, and enforceable contingency measures.

5. Disclosure, Transparency, Oversight, Public Involvement

The Chicago Skyway, Indiana Toll Road, SR-125 all mandate annual financial and performance disclosure, and require independent oversight and auditing of compliance with applicable laws. This is common practice in the PPP world. However, these deals fell short on providing opportunities for public input prior to contract approval. For instance, public hearings on the Indiana Toll Road Lease Agreement were held only after the lease was formally announced by Governor Mitch Daniels. Some lawmakers criticized the hearings as a pro forma process that insults the public.[20] In a similar manner, Texas officials signed the TTC-35 pre-development agreement without public notice. If the terms of public-private partnership agreements are negotiated in a more transparent manner and encourage public input, they may win easier acceptance by the public and other stakeholders, rather than facing delays and longer-term risks to regulatory and political stability or the kind of backlash that is now happening in Texas.

Clearly there is a tension between concerns over confidentiality of business financial information and investor interests vs. needs for oversight, transparency, and timely disclosure to enable effective public input on major PPP projects. Failure to release to the public hundreds of pages of the contracts related to the proposed Trans-Texas Corridor PPP fueled public distrust and contributed to the pending adoption of a two-year moratorium on new toll PPP projects in that state. Virginia's public-private partnership legislation provides somewhat greater opportunities

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[19] U.S. Congress (2005). *Conference Report of the Committee of Conference on H.R.3, Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, SAFETEA-LU,* 109th Congress, 1st Session, Report 109-203, Section 1604.

[20] DeAgostino, Martin. (2006). "After Fact, State Sets Toll Road Hearings," South Bend Tribune, http://www.southbendtribune.com/apps/pbcs.dll/article?AID=/20060322/News01/603220372/-1/NEWS01/CAT=News01, March 22, 2006.

for public oversight with a two-part submission process and review by an advisory panel and localities. Yet many local and civic stakeholders find that Virginia's process also falls short.

The I-95/395 corridor HOT lanes project in Northern Virginia illustrates why many environmental and transit advocates are concerned about the way that PPPs are now being developed in some states. This project could help advance better transit service and congestion relief in a fast-growing corridor.[21] The project developer, Fluor, won guarded support for its proposal from some environmental and civic groups over a competing proposal in part by promising a $500 million a contribution toward transit capital and operating costs over the life of the concession. But in the following year this shrank to a public $390 million commitment. And in the financing plan released only days before a vote on the project by regional officials, only $195 million in new money would actually be provided by the project and toll revenues. The other funding --transit program grants ($38 million) and the fare box recovery ($157 million) funds -- could be generated for a direct transit upgrade in the corridor without turning this public asset over to a private contractor. As of May 2007, as the metropolitan planning organization voted to include the project for conformity testing, the publicly available project summary sheet has not made clear the duration of the concession period for this project, the projected toll revenues, or the proposed profit-margin for the private investors, so there is no way of knowing if this transit investment is a fair or adequate share of the corridor investment.

These matters need to be addressed through the planning and environmental review process if the public is to have opportunities for input. Binding contractual agreements for environmental performance and transit benefits should be built into project and plan approvals and any resulting concession agreements to ensure that these promises are not just a marketing façade, but it is unclear whether or when Virginia DOT will make these agreements available for public review and comment prior to their adoption. These concerns are exacerbated by the project sponsor's intent to advance the project as a Categorical Exclusion under the National Environmental Policy Act, rather than carrying out a full Environmental Impact Study and considering alternatives, thus curtailing opportunities for public review and comment.

A number of recent studies have revealed the tendency of traffic and revenue forecasts from green-field toll road projects to significantly overestimate demand and serious questions have been raised about conflicts of interest between forecasters and project construction interests.[22,23] Revenue forecasting for existing highway facilities is a far more certain business, which makes concessioning of existing toll properties far less risky than greenfield projects that are developing new right-of-way with uncertain demand. Advance forecasting of toll revenues from the application of tolls to existing untolled road networks, such as the cordon charging systems in London, Stockholm, Oslo, Bergen, Trondheim, and Singapore, is nearly as challenging a task as greenfield road revenue forecasting.

As a result of demand estimation problems, a large share of greenfield PPP toll road projects, including Pocahontas Parkway and Dulles Greenway in Virginia, the Orange County toll roads

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[21] Breakthrough Technologies Institute and Environmental Defense, *Changing Lanes: Linking Bus Rapid Transit and High Occupancy Toll Networks in Northern Virginia*, September 2005, Washington, DC.

[22] Barron, Kelly. (2001). "Roads Less Traveled: New Toll Roads Have Been a Bonanza for Consultants, but not for Bondholders," *Forbes Magazine*, September 3, 2001.

[23] Plunkett, Chuck. (2006). "Roads to riches: Paved with bad projections," *Denver Post*, May 28-30, 2006.

in California, and E-470 in Colorado, go through refinancing shortly after opening. Directly or indirectly, bondholders or taxpayers may end up with the bill when project finances are restructured to extend the repayment period for bonds, spurring greater long-term financing costs. Public debate over the efficacy of long-term concessions has often been clouded by a lack of knowledge of the officials and stakeholders over trade-offs on the length of concession terms, or lack of opportunity for any public discussion because contracts are negotiated in secret. This too often cedes the public debate to cynical talk radio demagogues, undermining opportunities to help build public trust in informed civic leadership through open fact-based public deliberation. The "Value-for-Money" analyses and public cost comparators that are required in several countries as part of PPP deals, prior to financial close, can help address these issues with better public disclosure and more open and fair competition, potentially dispelling concerns that these are nothing but insider-driven, bad value for the public deals.

Greater public oversight and independent auditing of transportation and revenue forecasts prior to final project approvals might also help reduce some of these problems in the future. Beyond this, development of more effective performance-based contracting frameworks that focus on improving the operation of existing transportation corridors using shorter-term PPP operating and management concessions prior to any design-build investment in new capacity may be a better way to ensure wise and cost-effective decisions about new corridor capacity.

V. Use of Tolls in PPPs and Publicly-Financed Projects

While tolls need not be part of PPPs, they are often a part of the financial element that makes a corridor attractive for private investment. Environmental Defense believes several principles should guide new tolling initiatives, whether advanced by public agencies or through PPPs.[24]

1. **Tolled roads and PPPs should be designed to optimize traffic management and the use of public transportation.** A key method for optimizing performance is to dedicate a portion of toll revenues to transit to guarantee that the toll road will benefit all travelers, and not just those who can afford to pay the tolls.

2. **Toll road projects should be designed to meet enforceable short- and long-term performance goals for system performance, environmental and community protection, and equitable transportation access to jobs and opportunities.** If projects are designed to meet these goals, they will likely win faster public acceptance rather than facing years of controversy, delay, and possible legal or regulatory challenges.

3. **Tolls should be set at a level to insure that all project goals are met.** Well intended populist efforts to curb tolls may undermine the capacity of project managers to fulfill commitments to communities for improved transit services, reduced traffic delay for trucks, or other impact mitigation. This may undermine not only system effectiveness and equity, but the very capacity of government to sustain public support for mobility investments.

[24] For more discussion see: Replogle, Michael and Keri Funderberg, *No More Just Throwing Money Out the Window: Using Road Tolls to Cut Congestion, Protect the Environment, and Boost Access for All*, Environmental Defense, Washington, DC, June 2006. (www.environmentaldefense.org/go/highperformancenetworks)

4. **Agencies should consider alternatives that apply time-of-day, automated tolling to a portion of existing road capacity.** Converting existing road capacity to tolled lanes is often a more cost-effective way to reduce congestion and protect the environment. More U.S. officials are considering this approach in light of the successful experience in London, Stockholm, and other cities. The SAFETEA-LU federal transportation law provides authorization for any U.S. highway to be tolled and U.S. DOT is encouraging such efforts. Engineering science shows that during times of peak congestion toll managed lanes can carry twice as many vehicles at three times the speed compared to free lanes. Thus, for every two free unmanaged motorway lanes upgraded to toll managed lanes, it is like creating a new virtual lane of motorway capacity (see Figure 2 below).

5. **Agencies should consider emission-based tolling.** Emission based tolls can achieve a more robust revenue stream due to the premium paid by high-emitter, inefficient vehicles, and an accelerated fleet turnover to low-emission vehicles to reduce toll charges. In addition, the toll premium collected from high-emitter vehicles can be used to finance vehicle retrofits of Auxiliary Power Units to reduce idling and installation of low-carbon fueling stations at rest areas. This further reduces total carbon emissions from these tolled facilities.

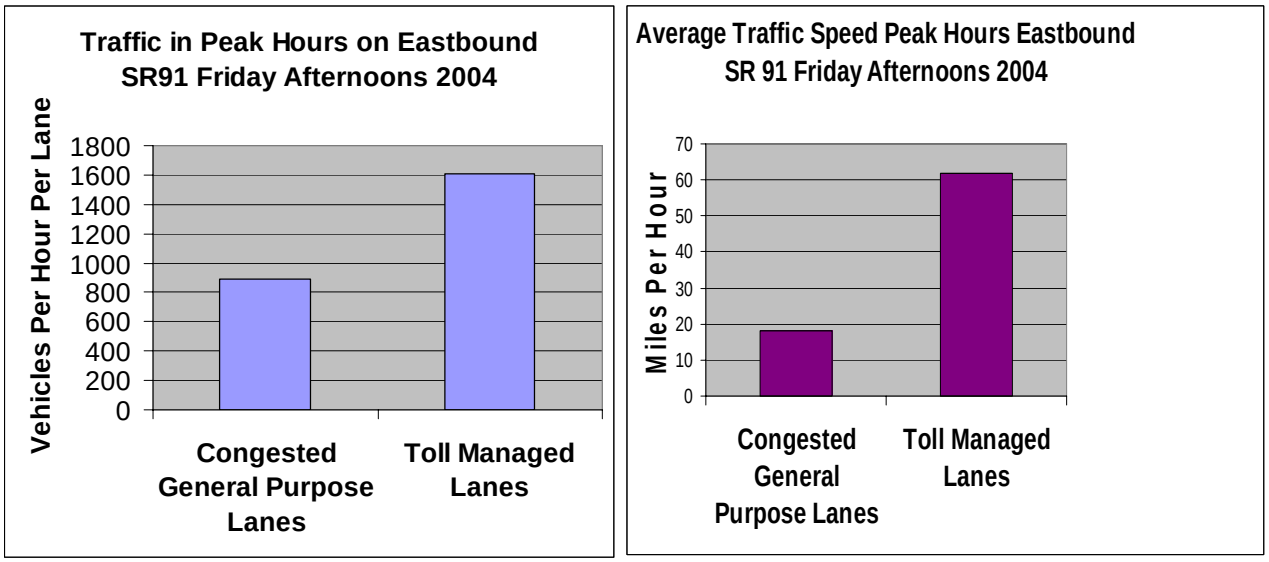

Figure 2: Upgrading existing free lanes to toll managed lanes could recover lost capacity with two toll managed lanes carrying as much traffic – at three times the speed – as moved in four free, but congested lanes (Federal Highway Administration, *Report to Congress on the Value Pricing Pilot Program Through March 2004*, US Federal Highway Administration, 2004.)

Germany and Switzerland both toll legacy trucks at significantly higher rates than newer low-emitter trucks. This has accelerated the purchase of modern clean vehicles and promoted smarter logistics planning to cut the number of empty freight backhauls. London will also implement an emissions-based pricing policy for the entire city in 2008.

Americans are used to thinking of tolls as a revenue tool to pay for new roads, which is how they have most often been used. However, several states are using tolls to manage traffic flow as well. California's experience with High Occupancy Toll Lanes on SR-91 and I-15 demonstrate that when tolls are adjusted by time-of-day to prevent traffic from backing up at bottlenecks, tolls can play a different role, yielding higher traffic throughput than on ordinary freeways. This can

reduce congestion delay for all the travelers in a corridor, whether they pay the toll or not, whether they are drivers, passengers, or bus riders.

Experience suggests the public will accept tolling of existing lanes only when they get viscerally better performance and expanded travel choices. Attractive, high quality public transportation and other new travel services, such as rapid traffic incident management and improved traveler information should be made available before introducing tolls on existing lanes. Travelers need to be convinced that they will get better performance from the transportation system in return for new congestion charges. If drivers think they will still get stuck in traffic while getting stuck with new tolls, they will see a toll as just another tax. New tolls should be used as part of a smart traffic management toolbox and linked to funding for high performance public transportation and new performance based funding and contracting strategies.

VI. Can PPP Concessions Foster High Performance Metro and State Transportation Plans?

U.S. Metropolitan Planning Organizations (MPOs) and states face challenging new federal planning requirements that will press them to consider how to transform today's low efficiency roads into high performance corridors and networks. The 2005 SAFETEA-LU law requires regional transportation plans to include "operational and management strategies to improve the performance of existing transportation facilities." It requires state and metropolitan transportation plans to "achieve the objectives of the planning process," with a focus on serving mobility needs and fostering economic growth and development while minimizing fuel use and air pollution. And it requires "capital investment and other strategies to preserve the existing and projected future metro transportation infrastructure and provide for multimodal capacity increases." For MPOs and states to do all this under fiscal constraints is a tall order demanding new approaches.

To its credit, U.S. DOT is through its Urban Partnership Program giving some incentive for states and MPOs to think about such performance-based strategies. Unfortunately, U.S. DOT has failed to issue criteria to help states and MPOs evaluate how effectively they are complying with these planning requirements. Yet the challenge remains for states and MPOs to develop plans that accomplish all four objectives together, using appropriate measures of performance. The requirements, if implemented, could give impetus to strategies that create high-performance corridors, either through better public agency coordination or new kinds of public-private partnerships, with more focus on system operations and management and less emphasis on just building more roads and adding new lanes.

Experience shows that there is a significant opportunity to cut congestion and reduce fuel use and air pollution with a combination of traffic management, signalization improvement, toll managed lanes, improved transit service, and market incentives such as pay-as-you-drive insurance and parking cash-out. This approach — along with the creation of complete streets that accommodate pedestrians and cyclists, bicycle-transit integration, and truck-only toll lanes — could be part of a comprehensive asset management framework. Such a high performance transportation strategy would be much more cost-effective and practical than the long-failed "let's-try-to-build-our-way-out-of-congestion" strategy advocated on May 16, 2007, to this committee by the American Highway Users Alliance.

As Federal Highway Administrator, Richard Capka, said at a hearing of this subcommittee on June 27, 2006, "The answer is not just building extra capacity, but to maximize use of the current system. We need to make better use of the current system." He said policymakers should "look at the use of highways as utilities," adopting congestion pricing strategies to make the system work more effectively and to handle ever-increasing environmental impacts.[25]

Some states are already pressing forward. Oregon has for some years been moving to adopt a fix-it-first approach in its planning and asset management. Oregon DOT has linked its Highway Economic Requirement System (HERS) asset management analysis systems to some of the nation's most advanced transportation models to account for induced travel and behavior impacts of investment choices. Oregon has for some years used performance goals seeking to reduce traffic growth per capita and to manage sprawl, linking transportation investment decisions to land use and natural resource planning. Washington State is also advancing tolls and other market incentives, such as pay-as-you-drive insurance and parking-cash-out, as traffic management tools.

States are beginning to look at tolls as a tool to manage traffic in existing lanes. Maryland DOT is proposing to add one toll managed lane in each direction on the Capital Beltway while upgrading an existing lane in each direction to a toll managed lane, rather than just adding new toll lanes. A study carried out by Pat DeCorla-Souza of the Federal Highway Administration looking at the Capital Beltway in Virginia showed that this kind of investment and operations strategy would produce just as much congestion relief as adding two new toll managed lanes in each direction, but would cost less and produce three times more revenue which could be used to fund better public transportation, spurring much less new traffic and sprawl development.[26]

Pioneering metropolitan areas have gone a step farther by tolling existing lanes while improving public transportation and road traffic management. London, Oslo, Singapore, Stockholm and other cities have produced stunning results with considerable popular support. Stockholm's experience is illustrative. Since the January 2006 implementation of a variable time-of-day central area cordon charge combined with adding 197 new buses and 16 new bus lines, motor vehicle traffic to and from the central city is down by 20-25 percent, with half the former motor vehicle trips switching to the public transport system, queue times are down 30-50 percent in most locations inside and outside the charging zone, CO_2 emissions are down 14 percent in the inner city and by 2-3 percent regionally. Before implementation, 44 percent of those polled in the region thought the cordon charge was a good decision and 51 percent thought it a bad decision. Experience with the cordon charge caused public opinion to reverse and a majority of Stockholm voters voted by referendum to reinstate the charge. Today, two-thirds of the public in the Stockholm area support the cordon charge, which was initially put in place by a Green-Social Democratic coalition government that has since lost power. The cordon charge is being reinstated by a new conservative coalition government that had initially campaigned against congestion pricing but now supports it because it cuts congestion and can raise a lot of money for transportation.

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[25] Bureau of National Affairs. (2006). *Transportation / Environment Alert,* Volume 8, Issue 42, June 23, 2006.

[26] DeCorla-Souza, Patrick (2003) "Evaluation of Toll Options Using Quick-Response Analysis Tools: A Case Study of the Capital Beltway," *Transportation Research Record 1839*. Paper No.03-2946, Transportation Research Board, Washington, DC.

These innovations are being considered widely now in America. From Miami to Seattle, San Diego to New York, agencies and investors are moving road tolls and innovative financing tools into the mainstream of planning and transportation development. Last year, the San Francisco County Transportation Authority began a $1 million study of how congestion charging might help address its urban traffic problems. Noting the success of these strategies abroad, on December 8, 2006, the U.S. Department of Transportation announced a $100 million Urban Partnership Initiative aimed at reducing congestion through better transportation management in U.S. metropolitan areas, soliciting proposals for integrated congestion charging, bus rapid transit, traffic management, and telework strategies.

America's mayors and governors can and are starting to rise to the challenge. More than 15 applications were submitted to USDOT under this initiative at the end of April 2007 according to press reports. Most notable is the proposal by New York City's Mayor Bloomberg in April 2007 to initiate an $8 a day toll for traffic entering Manhattan below 86th Street to cut congestion and fund bus rapid transit and rail service improvements across the city. This is part of a comprehensive plan to cut pollution and greenhouse emissions in the city by 30 percent.

Performance-based contracting may provide a way forward in some metropolitan areas in the face of public distrust of tolls as a traffic management tool. In a paper presented at the 2006 Transportation Research Board Annual Meeting, FHWA's Patrick DeCorla-Souza, described how this might work. An "Operate-Design-Build-Operate contract model" would focus first on inviting a concessionaire to operate an existing highway corridor for higher productivity with such strategies as improved transit and rideshare services, rush hour shoulder lanes, improved transit access, ramp-metering, and peak-period congestion management tolls. Investment in new capacity would follow only in response to a demonstration of cost-effectiveness compared with operational and service improvements. Peak period tolls set to manage congestion would not be retained by the private concessionaire as profit, but managed publicly with accountability and transparency.[27,28]

More widespread in the U.S. is the consideration of road pricing as a strategy for conversion of existing or planned HOV lanes to HOT lanes, in conjunction with additions of new lane capacity. A number of studies published by the Reason Public Policy Institute have advocated this approach.[29] This approach is also embodied in a planning study released by the Metropolitan Washington Transportation Planning Board in fall 2006 which envisions creating a 600+ lane-mile network of HOT lanes composed of existing or planned HOV lanes, including about 250 additional lanes of motorway capacity beyond what is now planned for 2030. That study showed that tolls would have to be as high as several dollars per mile on many segments of a HOT lanes network to keep these lanes free-flowing, while leaving other lanes jammed with congestion.

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[27] DeCorla-Souza, Patrick. (2006). *A New Financing Approach for Transportation Infrastructure Expansion*. Presented at Transportation Research Board Annual Meeting, Washington, D.C.

[28] DeCorla-Souza, Patrick. (2004). *A New Public-Private Partnership Model for Road Pricing Implementation.* 2005 Annual Meeting of the Transportation Research Forum, Federal Highway Administration,Washington D.C.

[29] Poole, Robert W., Jr. and C. Kenneth Orski. (2003). *HOT Networks: A New Plan for Congestion Relief and Better Transit,* Reason Public Policy Institute, Policy Study 305. http://www.reason.org/ps305.pdf , accessed June 30, 2006

An alternative approach is to convert and upgrade metropolitan motorways in their entirety to metropolitan toll managed networks. Pat DeCorla Souza, heads the Value Pricing Program at the U.S. Federal Highway Administration, has been an articulate advocate for this approach.[30] This approach avoids the complex merges, direct connector ramps, and operational problems poised by creating and integrating parallel high-speed toll managed lanes next to lower productivity and often congested, low-speed, unmanaged free lanes. Studies suggest this approach would have lead to far lower tolls while providing congestion relief for all and opportunities for financing much greater transit improvements with less new road capacity.

A recent study by Smart Mobility for Environmental Defense shows the impacts of a high performance corridor strategy in one portion of the metro Washington, DC region compared to business-as-usual. The Metro Washington MPO in 2005 added to its transportation plan and program a proposed new $3 billion, 6-lane tolled outer beltway that would run east-west for 18 miles in suburban Maryland, about 7-10 miles north of the existing Capital Beltway. Environmental Defense's 2005 study, using current official transportation and emission models, shows this would in 2030 increase gasoline use by 13 million gallons per year for the entire Washington metropolitan area compared to doing nothing, resulting in 2.5 more million metric tons (MMT) of CO2, a 5 percent increase.

An alternative to this planned outer beltway that would at less cost improve existing highways with toll traffic management and public transportation represents a low end estimate of what might result from a high performance corridor approach. This latter scenario would do more to relieve traffic congestion and would reduce 2030 gasoline use by 29 million gallons per year, resulting in 4.7 MMT of CO2, an 11 percent decrease from doing nothing.[31] Thus, the high performance corridor approach would deliver a 16 percent decrease in CO2 emissions by 2030 from business-as-usual. In the project study area, the proposed outer beltway produces hydrocarbon emissions 7 percent higher than doing nothing and 14 percent higher than the high performance corridor approach. The proposed outer beltway produces nitrogen oxide emissions 9 percent higher than doing nothing and 18 percent higher than a high performance corridor approach.[32]

The new SAFETEA-LU planning requirements ought to prompt wider consideration of the full array of high performance transportation strategies by state DOTs and MPOs in coming years – cordon charging, HOT networks, and fully toll-managed motorways linked to improved public transportation. While it remains to be seen how readily MPOs and state DOTs will embrace such an integrated approach, clearly planners will be spending more time in coming years focusing on how traffic operations, safety, and management of the existing system can deliver better performance. Guidance from U.S. DOT on criteria to quantify performance could still

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[30] DeCorla-Souza. (2003) Clearing Existing Freeway Bottlenecks with Fast and Intertwined Regular Networks: Costs, Benefits and Revenues. 2004 TRB Annual Meeting. http://knowledge.fhwa.dot.gov/cops/hcx.nsf/All+Documents/A5A934A66798F6AA85256DE00000A713/$FILE/Paper%2004-3993.pdf, accessed June 30, 2006.

[31] Environmental Defense (2005) Maryland's Intercounty Connector: Exacerbating Petroleum Dependence and Global Warming, www.environmentaldefense.org/go/iccoptions.

[32] Environmental Defense, et al. (2005) The Intercounty Connector: Performance and Alternatives. (http://www.environmentaldefense.org/article.cfm?contentid=4220)

help guide state and MPO efforts to implement these new provisions. Congress should press the Administration to issue such guidance.

Conclusion. Surface transportation finance, management, and operations in the U.S. and abroad are being transformed as information and communications technologies and market incentives are incorporated into the systems architecture. This is part of a transformation from a mid-20th century system that focused on the accommodation of ever-growing traffic through construction of physical infrastructure to a 21st century system that focuses on understanding and meeting customer needs and delivering more cost-effective performance through systems management and integration of services. Public-private partnerships will likely be a growing part of that unfolding story.

Will we throw away our existing transportation system by building a new toll road system and letting the old systems decay, leaving behind millions of citizens who can't afford to use the new highways? Or will we revitalize and restore the dynamic potential of our existing system of streets, highways, and public transportation to renew our older communities and knit them together in a fabric that encourages walking, biking, transit, electronic communications, and smooth, efficient driving opportunities, using pricing to keep a balance? The decisions this committee makes in the coming months leading up to the reauthorization of our federal transportation program in 2009 could help set the stage for the next chapter of the story.

Thank you for your attention.