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Managing Public-Private Partnership of Transportation Infrastructure: Lessons Learned from California's SR-91

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White Report

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Executive Summary

In the face of increasing demands on mobility and nation-wide fiscal stress, governments at all levels have increased their interest in public-private partnerships (PPP) in order to introduce private investment to the public transportation infrastructure.

Sometimes referred to as public-private venture, a PPP is a contractual arrangement between public and private-sector entities. Typically, the arrangement involves a government agency contracting with a business or non-profit entity in order to renovate, construct, operate, maintain, and/or manage a facility or system, in whole or in part, that provides a public service.

Traditionally, transportation PPP comprises an arrangement whereupon the private sector undertakes the responsibility of constructing new projects. In recent years, the term has acquired a broader, more descriptive meaning, and now defines any scenario under which the private sector assumes a role in the planning, design, construction, operation, and maintenance of a transportation facility as compared to the more traditional procurement methods. As of 2009, twenty-three states and one U.S. territory have enacted statutes that enable the use of various PPP approaches for the development of their transportation infrastructures.

Potential benefits of transportation PPPs include saving cost, sharing risks, expediting project, improving project certainty, leveraging expertise, and encouraging innovations.

However, the complexity of PPP creates a number of unusual challenges for management:

- Legal Challenges: PPP for transport projects are subjected to a variety of federal and state laws and regulations. Some states tend to be hostile toward PPP and state procurement laws continue to be an impediment to their establishment.

- Political Challenges: Toll projects can easily encounter public resistance. The involvement of a private sector partner often draws suspect, leading some to believe that the greater public interest may be comprised for an even greater private sector profit. The discontinuities of political champions and public policies may present additional challenges.

- Financial Challenges: Credit-rating agencies may view some PPP projects as "off-book financing" by a government agency, which may result in a lowering of the government agency's credit rating. A private entity typically must pay a higher interest rate than would a public entity, so it takes a substantially increased means

of efficiency to make up for the interest advantage of tax-free government-issued bonds. Very often, government entities end up reimbursing private partners for this higher cost of debt through the implementation of higher user fees.

- Risk-Sharing Challenges: International infrastructure firms generally get involved only in low risk projects. In anticipating demand risk, the shrewd private businessman often requests non-compete provisions, toll rate settings, a guaranteed minimum ridership, or payment for availability regardless of use.

- Partnership Challenges: Public officials face many challenges associated with the nature of a principal-agent relationship, such as interest diversion, information asymmetry, vendor capture, and accountability issues.

To illustrate many of these pitfalls and challenges, this report traces the evolution of the 91 Express Lanes (SR 91) PPP project, which has been in continuous evolution over the past two decades.

In 1989, the California legislature passed Assembly Bill (AB) 680, which paved the way for the California Department of Transportation (Caltrans) to enter into contractual agreements with private entities for the construction and operation of toll roads. SR 91 is the one of the operating toll roads to have moved forward.

The SR 91 project was proposed as a congestion-priced facility to alleviate the traffic jams that routinely occur along the 91 Freeway. The project was developed in partnership with the California Private Transportation Company (CTPC), an LLC formed by subsidiaries of three major private partners: Level 3, Granite, and Cofiroute. An agreement between Caltrans and CTPC granted CTPA a 35-year franchise, which includes the provision that Caltrans would not build any competing road capacity within a 3-mile corridor for the entire 30-mile of the franchise (non-compete clause). The 10-mile express lanes started construction in September 1993 and was completed in December 1995 at a total cost of $135 million. When opened, the toll road was one of the nation's leading transportation projects in many aspects and was viewed by many as a net public benefit. The profitability of the toll road to the private partner was also deemed promising.

However, the SR 91 PPP has encountered a number of unexpected problems. Demands for more capacity on the freeway were soon surfacing. The nature of the franchise granted by the State became a subject of intense public debate when the non-compete clause restricted modest improvements to congested roads. A law suit was filed between the two partners. Meanwhile, two of CPTC's three partners—Level 3 and Granite—were concerned

about their investment and expressed a lack of interest in continuously operating the facility. NewTrac, a private, nonprofit entity, proposed purchasing the toll road. In the face of these controversies and risks, in January 2003, Orange County Transportation Agency (OCTA) reached an agreement with CPTC to acquire the franchise agreement for $207.5 million under the authorizing legislation AB1010.

Because OCTA had no toll road experience, it retained the toll road's previous operator—Cofiroute Global Mobility (CGM)—under a three-year management contract and resumed a second contract with CGM in 2006. OCTA consequently removed the non-compete clause and adopted a new toll policy, enabling the project to maintain its financial stability. The SR 91 PPP has been in a state of continuous evolution in order to enter its current phase. Taking the lessons from the past, OCTA has paid close attention in order to build public confidence toward the project. It has successfully refinanced the debt with Toll Road Revenue Refunding Bonds. Many of these innovative practices paved the way for the project to win the 2008 Toll Excellence Award for tollway administration, awarded by the International Bridge, Tunnel and Turnpike Association (IBTTA).

The experience of the SR 91 PPP provides four clear lessons:

- Gaining public acceptance is critical to the success of any transport PPP project
- Aligning partners' interests is fundamental to a sustained partnership
- Public agencies needs to build up their organizational capacity to accommodate contractual relationships and contingencies
- Public officials need to better embrace the entrepreneur spirit that actively take risks and seek for return-on-investment

In conclusion, a public-private partnership entails both opportunities and pitfalls. The twenty-year odyssey of SR 91 demonstrates that managing transportation PPP requires the recognition of sectoral differences, the skills to concert divergent interests, the willingness to change and learn, and the courage to take risks and explore practical solutions in an erratic political and economic environment.

1. Public Private Partnership of Transportation Infrastructure

Government historically has relied on public monies to finance its infrastructure. In recent decades, compelled by the widespread fiscal stress, government has increasingly explored public-private partnerships (PPPs) as a way to introduce private investment into public infrastructure and services.

1.1. Defining PPP

Sometimes referred to as public-private venture, a PPP is a contractual arrangement between public and private-sector entities, typically involving a government agency contracting with a business or non-profit entity in order to renovate, construct, operate, maintain, and/or manage a facility or system, in whole or in part, that provides a public service.[1]

In such a contractual arrangement, the private-sector partner usually makes a substantial cash, at-risk, equity investment in the project, while the public sector partner gains access to a new revenue stream or service delivery capacity without having to make a substantial capital investment. The private partner obtains a steady return from investment via tolls, user charges, performance-based fees, related real estate development or other revenues. It is typical under such an arrangement for the government agency to retain ownership of the public facility or system while each party shares in the income resulting from the newly formed partnership.

Peters' five-point characterization of PPP states that PPP:

1) Involves "two or more actors," at least one of which is a public entity.
2) Each of the participating actors can bargain on its own behalf.
3) The partnership involves a long-term, "enduring" relationship.
4) Each actor must be able to bring either material or symbolic goods to the relationship.

[1] Government Accounting Office (GAO). *Public-Private Partnerships: Terms Related to Building and Facility Partnerships*. GAO/GGD-99-71. April, 1999.

5) All actors have a "shared responsibility" for the outcomes (pp. 12-13).[2]

In recent decades, PPP has been increasingly applied to develop and manage various aspects of public transportation, be they highways, ports, railways, airports, or other related facilities and services.

1.2. PPP of Transportation Infrastructure

In the United States, the private sector historically has played an important role in the financing, construction, and operation of the transportation infrastructure. Although the role of the private sector in transportation projects was in decline for a period during the 1930s to 1970s, it started to revive and show interest again in the 1980s. In recent years, as the need for highly efficient surface transportation systems continued to grow despite the stagnant state fiscal capabilities, governments and legislatures at both state and federal levels have exhibited a growing interest in PPP and are moving forward to open the door to many more such arrangements.

Traditionally, transportation PPP has involved arrangements where the private sector takes on the responsibility for constructing new projects. However, in recent years, many other mechanisms have been explored to capture the values of efficiency, financial capacity, and expertise that the private sector can provide. An increasing number of public transportation agencies are now outsourcing maintenance and operation, program management, and strategic planning responsibilities to private firms, tasks which are normally done in house.[3] The term "public-private partnership" has acquired a broader meaning to describe any scenario under which the private sector assumes a role in the planning, design, construction, operation, and maintenance of a transportation facility as compared to traditional procurement methods.[4] These types of collaboration include[5]:

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[2] Peters, B.G. (1998). With a Little Help from Our Friends: Public-private Partnerships as Institutions and Instruments. In J. Pierre (Ed.), *Partnerships in Urban Governance*. New York: St. Martins' Press.

[3] GAO. (2008). *Highway Public-Private Partnerships: More Rigorous Up-front Analysis Could Better Secure Potential Benefits and Protect the Public Interest.* GAO-08-44.

[4] More information on PPP can be found on the U.S. Federal Highway Administrations Public-Private Partnership webpage http://www.fhwa.dot.gov/ppp/.

[5] Ibid 1; KCI Technologies. (2005). Current Practices in Public-Private Partnerships for Highways. URL: http://www.mdta.maryland.gov/About/documents/currentpractise.pdf, accessed 07/20/2009; Perez, Benjamin G. and March, James W. (2006). Public-Private Partnerships and the Development of Transport Infrastructure: Trends on Both Sides of the Atlantic. Institute of Public Economics at the University of Alberta.

- Design-Build (DB): a private partner designs and builds a facility to specifications agreed to by a public agency, within an agreed upon timeframe and at a predetermined price. This is often viewed as the traditional form of PPP.
- Design-Build-Operate (DBO), Design-Build-Maintain (DBM), and Design-Build-Operate-Maintain (DBOM): similar to DB, but the private partner also operates and/or maintains the facility.
- Design-Build-Operate-Turnover (DBOT), Build-Operate-Transfer (BOT), and Design-Build-Warranty (DBW): these types involve the private partner transferring the facility to the public agency upon completion of the project. In DBW, the private partner also provides a warranty to guarantee the condition of the facility.[6]
- Build-Own-Operate (BOO), Buy-Build-Operate (BBO), and Buy/Lease-Develop-Operate (BDO): These transactions involve a franchise, an asset sale, or a lease with the private sector (the facility's ownership or right-of-use belongs to the private partner). The private partner builds, or in some cases, renovates, modernizes, and expands a facility, and then operates it under a contract with the public agency.
- Maintenance and Operation: the public agency outsources the maintenance and operation of the transportation facility to private companies.
- Program Management and Strategic Planning: this type of collaboration often involves large and complex projects that benefit from integrated strategic planning, coordination of design and construction activities, and consolidating multi-year capital programs into shorter implementation periods.

PPPs have been widely used by states for large transportation projects. As of 2004, 22 states have enabled laws for transportation PPPs and 32 state transportation agencies have authorized PPP projects.[7] Of the 46 PPP projects identified in 2004, DB, or Design-Build, is the most commonly used type for large transportation facility contracts.[8] Other new types of partnerships have been increasingly explored by public agencies. For example, the

[6] When the private partner provides financing, an "F" sometimes is added to the acronym, such as DBFO.

[7] USDOT. (2004). Report to Congress: Public-Private Partnership. URL: http://www.fhwa.dot.gov/reports/pppdec2004/#2a, accessed on 07/20/2009.

[8] KCI Technologies. (2005). Current Practices in Public-Private Partnerships for Highways. URL: http://www.mdta.maryland.gov/About/documents/currentpractise.pdf, accessed 07/20/2009.

transportation agencies of Virginia and the District of Colombia have contracted out the maintenance of their highway and street networks to private companies.[9] About two thirds of the transportation PPP projects in the United States are highway-oriented projects, while the rest are transit-related projects.[10] The use and visibility of PPP for large transportation projects has increased substantially in recent years. Between 1990 and 1994, only three projects received a notice to proceed. However, from 2000 to 2004, more than half of the 46 projects received a notice to proceed.[11] As of 2009, twenty-three states and one U.S. territory have enacted statutes that enable the use of various PPP approaches for the development of transportation infrastructure.[12]

1.3. Potential Benefits of Transportation PPP

Potential benefits of transportation PPPs have been widely explored and documented by numerous federal and state transportation agencies, as well as by many designated private and non-profit researchers. Their ideas are capsulized in the following six categories:[13]

1.3.1. Saving Cost

Cost-saving is often cited as the ultimate goal for many public agencies engaging in transportation PPPs. Through the use of the PPP, government agencies can construct new transportation facilities with a minimal initial public investment, reduce the costs affiliated with a new transportation facility to the general taxpayers, and avoid an increase to the bonded indebtedness of the state. Without any addition to existing internal staff capacity, PPPs can enhance production resources for the delivery, operations, and maintenance of major projects.

Furthermore, PPP helps government gain access to nontraditional revenue sources for transportation projects, such as tollway monies, local tax revenues, or private capital. The

[9] Perez, Benjamin G. and March, James W. (2006). Public-Private Partnerships and the Development of Transport Infrastructure: Trends on Both Sides of the Atlantic. Institute of Public Economics at the University of Alberta.

[10] Ibid 8.

[11] Ibid 8.

[12] The FHWA PPP Webpage contains comprehensive analysis of the current state PPP enabling legislation. URL: http://www.fhwa.dot.gov/ppp/tools_state_legis_statues.htm, accessed 07/20/2009.

[13] Ibid 2, 7, 8, and 9.

use of non-traditional funding can also reduce the pool of projects competing for the traditional funding resources.

1.3.2. Sharing Risks

Transportation projects often involve a variety of risks.[14] Foremost, there is force majeure, which refers to those unpredictable and unavoidable risks, such as natural disaster, social unrest, acts of war, etc. There are also technical risks associated with construction, operation, and the overall project quality. Economic and financial risks can result from uncertainty over ebbs and flows in the economy. Finally, there are commercial risks related to the number of future users and income levels. Traditionally, many of the risks associated with a transportation project are shouldered by the government. PPP allows for the transfer of these risks to the private partner involved, who indeed may be considered better able to manage those risks.

1.3.3. Expediting Project

With access to increased staff for project development, efficiencies that produce cost savings, and through streamlining the procurement process, the foray into a PPP can save time in overall project schedules and delivery.

The use of tolls and private capital can provide healthy revenue sources to construct projects that might otherwise have been delayed or not build at all.

1.3.4. Improving Project Certainty

As it softens the blow of inflation, force majeure, or any other risks that may occur in projects lasting many years, PPP offers a greater potential for price certainty and a greater predictability for final project delivery.

PPP projects are usually permitted to proceed as a whole rather than in the phased construction often required by a State's budgetary process. This also works to improve the overall project certainty in the policy making process.

1.3.5. Leveraging Expertise

[14] Fayard, Alain (1999). Overview of the Scope and Limitations of Public-Private Partnerships. European Conference of Ministers of Transport, URL: http://rru.worldbank.org/Documents/Toolkits/Highways/pdf/46.pdf, accessed on 07/20/2009.

Many private transportation enterprises have engaged in business over a long period of time and have accumulated valuable experiences and expertise in the various development aspects of transportation projects. Through PPP, government can leverage the private sector's expertise in planning, designing, financing, construction, operation, and management for public purposes without adding to existing payroll.

In addition, large private transport enterprises often have employees and projects across different states, countries, and continents. By venturing into a partnership with these private enterprises, government can gain access to a source of expertise and project experience that might otherwise not be available in their local jurisdictions.

1.3.6. Encouraging Innovations

As compared to traditional procurement methods, PPPs have more flexibility when it comes to optimizing the use of innovative technologies. This, in turn, can lead to an increase in quality and the development of faster, less expensive ways to design and build transportation facilities.

Both the federal as well as many state governments have legal constraints regarding their procurement mechanisms, which often result in unintended limitations to new technologies and methods. For example, state governments who participate in federal fund payment for premiums or royalties on patented or proprietary material are subjected to restrictions that may limit ability to use newer technologies on projects.[15] Since private companies are not constrained by these laws and regulations, they can easily and efficiently incorporate these new products and trade secrets into the PPP.

PPP often grants the private partner more freedom to decide the best method and materials for the project as compared to what government agencies can access under public procurement restrictions. Taking the advantage of innovative techniques and materials, PPPs can enjoy improved quality, reduced duration, and a lowered life-cycle cost of the project as a whole.

In addition to the public sector benefits, transportation PPPs can also potentially provide the private sector with the availability of various tax incentives, stable cash flow, and profit generation over the course of a concession.

[15] See, 23 C.F.R. § 635.111 [Code of Federal Regulations - Title 23: Highways – 635.111: Tied Bids] (2003).

2. Challenges of Managing Transportation PPP

Despite the benefits of using PPP for public transport projects, the increased complexity of PPP creates some unusual challenges for management.

2.1. Legal Challenges

Transportation PPP is subjected to a long list of federal and state laws and regulations, which cover various components of project delivery: contracting, compliance with environmental requirements, project finance, right-of-way acquisition, and so on.

At the federal level, the Transportation Equity Act for the 21st Century (TEA-21) mandated that Federal Highway Administration (FHWA) develop regulations to permit the use of DB contracts for federal-aid highway projects.[16] The "Design Build Contracting: Final Rule"[17] applies to all forms of DB contracts, including contracts that address financing, warranties, operations, and maintenance functions. These regulations set specific requirements for Request for Qualifications (RFQ) and Request for Proposals (RFP), the selection procedure and award process, which must be met when federal funds or financial tools are applied.[18] In addition, the National Environmental Protection Act (NEPA) requires a review of the environmental impact for any transport project that involves a federal decision due to the use of federal funds or loan guarantees, or for approving the use of tolls on any interstate or federal-funded highway.

While the federal government generally has been receptive to DB, some states tend to be hostile to PPP. State transportation agencies have relied predominately on the Design-Bid-Build (DBB) approach to award highway and transit construction contracts. In the DBB contract, the agency first approves the design, and then solicits bids through an open competition for construction. It normally awards the contract to the qualified bidder who offers to complete the project according to the exact specifications at the lowest cost. Some states have never entered into any form of PPP for a transit project; among the states that allow the use of PPPs, some limit the use of design-build to pilot programs or to a very

[16] These regulations, include Title 23 of the US Code, CFR parts 627, 635, 636, 637, and 710, were adopted on December 10, 2002.

[17] See 23 C.F.R. § 710.

[18] In recent years, U.S. Department of Transportation (DOT) established Special Experimental Projects No. 14 (SEP-14) and No. 15 (SEP-15) to assert broad authority to waive federal contracting and review procedures to encourage innovative activities to accelerate the development of PPP projects.

small number of projects. Despite the increasing numbers of states authorizing DB, state procurement laws continue to be an impediment to the PPP venture. In 2003, nearly half of the design and construction firms surveyed reported that procurement laws in their states had effectively shut them out of acquiring public DB project.[19]

States that have PPP programs generally have specific legislation governing the activity.[20] In addition, to empower the state to enter into PPP, the legislation normally establishes the types of projects that are eligible for participation, sets out project procurement and selection processes, and outlines the contents of the franchise agreement or the overall contract between the public agency and the private sector partner.

2.2. Political Challenges

Political challenges are inherent in high-cost PPPs. The first and foremost political challenge to a transportation PPP project comes from public opposition. Generally speaking, new toll projects and the tolling of pre-existing tax-supported roads can easily encounter strong public resistance. Transportation facilities are generally perceived as public goods in the US. Tolls are often viewed as an additional charge for which the public believes that it has already paid through federal and state gas taxes and other fees. Even some government officials, having historically committed to "free" roads, lack enthusiasm for toll facilities, especially in the face of public resistance.

The involvement of a private sector partner often draws a heterogeneous response from the public. While some will applaud the potential efficiency and innovation, others may suspect that the real cost of the project may be inflated and that public interest can be compromised for private sector profit.

Political challenges can be further aggravated by the discontinuities of political champions and public policies. Political champions of the PPPs may enter and leave office throughout the course of a project. Public policies, especially those involving adopting new practices or piloting new mechanisms, are likely to be repealed or changed when encountering public resistance. These discontinuities create uncertainty for private partners, and can discourage private entities from pursuing PPPs.

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[19] Concrete Products. (2003). Study Finds State Procurement Laws Impeded Design/Build Use. URL: http://concreteproducts.com/mag/concrete_study_finds_state/index.html, accessed 07/20/2009.

[20] Ibid 12.

Additionally, a transportation PPP project is likely to encounter objections from state employees unions, local trade unions, local contractors and engineering firms, and environmental groups because of their potential threats to public jobs, local businesses, and the environment. [21]

2.3. Financial Challenges

Challenges for financing the final design and construction phases of transportation projects are intrinsic in PPPs. A primary motive for the states using PPP is the desire to issue bonds that will not be secured by the state's general fund.[22] In such cases, the bond rating of the issuing entity and the tax status of those bonds will determine the interest rate, and thus the financing cost. Recently, after the Enron Scandal, credit-rating agencies have started to view some PPP projects as "off-book financing" by the government agency and to treat PPP debt as government debt.[23] This may result in a lowering of the government agency's credit rating and lead to higher interest cost for government debt.

In most states, the interest paid on many state and local government bonds is exempt from federal and state income taxes. In contrast, private entity debt usually is fully taxable. Therefore, the private entity typically must pay a higher interest rate than a public entity would. Despite the argument by PPP advocates that private enterprises are more efficient than governmental entities, it takes substantive increased efficiency to make up for the interest advantage of tax-free government-issued bonds. Very often, the government entities end up reimbursing the private partner for this higher cost of debt through higher toll charges or user fees.

When a PPP plans to issue bonds, it must first establish a corporate structure—often a Limited Liability Corporation (LLC)—to issue the debt.[24] This corporate structure will

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[21] Ibid 8.

[22] Ibid 8.

[23] Off-book financing, which led to Enron's bankruptcy, refers to a procedure under which a subsidiary entity has separate assets, debts and cash flow from the parent company. See Harold, Bierman Jr. (2008). *Accounting /Finance Lessons of Enron: A Case Study*. World Scientific Publishing Company. In PPP cases, this could happen if the government entity permits the developer to use some of the state's non-taxable financing ceiling to issue the bonds and retains ownership in some fashion, e.g., the ability to set or limit toll rates.

[24] The LLC can be organized either as a for-profit or a non-profit entity. In the latter case, it may be eligible to issue tax-free bonds under Section 63-20 of the IRS code. However, the non-profit structure restricts the ability to draw excess revenue from the project as profit to the joint venture. It also "traps" the majority of the funding for capital

shield the firms participating in the PPP from putting their entire asset at risk by limiting their financial exposure to their actual investment in the PPP venture. The LLC must exist and collect revenues for the full life of the bonds. The duration and prepayment flexibility of the debt are defined by market conditions. If the LLC fails to make its debt payments, the bonds may be refinanced, or the LLC may default on the bonds. Should default occur, the bondholders cannot seek legal recourse to the government. Given this risk, bond-rating institutions commonly rate PPP corporations low. It is typical that a new, stand-alone, toll facility without well-documented traffic flow analysis gets a rating of BBB or even lower.

2.4. Risk-Sharing Challenges

Proponents of PPPs often justify the arrangement by its potential advantage of allocating risks to the private entity that otherwise would be borne by the public sector. However, this risk transfer can be illusory, as a shrewd and artful private partner can frequently push it right back onto the onus of the public sector.

International infrastructure firms, though very interested in entering the US market, generally get involved only in low risk projects over which they have significant control of toll revenues for an extended period and a significant rate of return on their investment. Except in a few select cases, private sector equity contributions rarely supplement the public funds and toll revenues that support a new facility unless there is a considerable long-range potential for profit.

In anticipating the potential demand risk, private entities often push for non-compete provisions, toll rate settings, a set-guaranteed minimum ridership, or payment for availability, regardless of use. In these cases, the public sector may lose some control over its ability to modify existing assets or implement plans that would accommodate changes over the course of time.

In addition, not all risks can, or should, be transferred. For example, the costs and risks associated with environmental issues often cannot or should not be transferred to the private sector in a PPP. The risk of delays, or overruns due to the environmental assessment process, or even whether the project will be approved at all normally resides with the public sector. This is because the private partner normally is unwilling to accept

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construction, bond redemption, or reserve fund deposits. For-profit LLC, often created for toll roads, collects the tolls, uses them to pay for the facility, and keeps any money in excess of the debt, operation, maintenance, and administrative and reserve costs as profit to itself.

the risks and project uncertainties associated with a publicly controlled process. Such processes can add to project costs and can cause significant delays.

2.5. Partnership Challenges

In managing the partnership, public officials often face many challenges associated with the nature of a principal-agent relationship:[25]

1) Interest Diversion: The public and private participants in a PPP have significantly different interests in engaging in the relationship. While the public sector emphasizes cost savings, time savings, innovation, access to additional revenue and staff sources, private partners are interested in making a decent profit, increasing market share, and securing a long-term commitment to their team.[26] Public agencies must resort to profit sharing, performance measurement, or financial incentives in order to align the interest of the private partners to that of the public.

2) Information Asymmetry: Public agencies that seek PPPs for transportation projects commonly lack productive, financial, or management expertise and capacity and, very likely, have no previous experience in managing a PPP. In contrast, private entities that bid for, and win, public contracts generally have long engaged in the business and have accumulated expertise in assessing risks, negotiating benefits, and crafting contracts. They may also demonstrate considerable experience in various aspects of developing the facility. This apparent information asymmetry may find the public sector holding a disadvantageous position in the arrangement or susceptible to unanticipated risks.

3) Agent Capture: The complexity of a PPP and the cost of negotiating it usually lead to reduced competition. PPPs with two or three candidates are not uncommon. In many cases, public agencies have to rely on a single partner to carry out the various aspects of the project and may well lose the bargaining position in the relationship.

4) Accountability: PPPs also raise considerable accountability issues. Many have seen it as a way to evade public involvement and scrutiny to labor, environmental, and community protections that might apply if the same initiative were to be publicly financed and developed. If the public is charged with such idea, it could lead to failed expectations, popular outcry, and a loss of appreciation for the potential

[25] Eisenhardt, K. (1989) Agency theory: An assessment and review, *Academy of Management Review*, 14 (1): 57-74.

[26] Ibid 8.

benefits that transportation PPPs can bring to society in general. As transportation projects are public goods in nature, government agencies will ultimately be held responsible for any potential incident or result of the project, despite the partnership. The private entity in a PPP project almost always is a special purpose entity that exists only for one project.[27] If the project goes badly, the entity can go bankrupt. In this case, the governmental entity must step in and cover remaining costs in order to keep the project in operation.

Despite the promises of PPP in developing and managing public transportation projects, public agencies face a multitude of challenges to effectively manage PPPs for the public interest. In the following, the report traces the evolution of the State Route 91 Express Lanes (SR 91) project, illustrating and discussing many of the potential pitfalls and challenges that occur in such arrangement.

[27] Government engaged in PPP applications often requires private entity to post significant size bonds or letters of credit to protect the public.

3. The Evolving PPP of SR91

3.1. Legal Background of SR-91

California has historically restricted private sector involvement in the construction of public infrastructures. The general mode prescribed for public contracts was traditionally the DBB method. The California Supreme Court, viewing DB as a venue for the exercise of favoritism, long ago rejected it for public projects.[28] The Supreme Court's antagonism toward DB has also found its way into the statutes governing contracting by California counties.[29] However, as the state's population has increased, the demand on the transportation infrastructure has increased dramatically, yet the availability of public revenues to fund infrastructure improvement projects has not kept pace with that demand.

With the goal of attracting alternate funding sources to meet the State's growing transportation needs, in 1989, the California legislature passed Assembly Bill (AB) 680,[30] which paved the way for the California Department of Transportation (Caltrans) to enter into contractual agreements with private entities for the construction and operation of toll roads.

In March 1990, Caltrans issued an RFQ for a private Build-Operate-Transfer (BOT) for any project proposed in the state transportation program. The State received responses from 13 firms. In June of the same year, the State issued an RFP and elicited 12 proposed projects (with two for the same facility). Caltrans selected four proposals for implementation: one in Northern California and three in Southern California. Only two of the four projects have moved forward: SR 91 and SR 125 in San Diego County.[31]

3.2. Phase One—Design-Build-Operate

The 91 Freeway is a major east-west freeway which extends from Riverside County through northern Orange County and ultimately adjoins the 405 Freeway in Los Angeles. With more than 268,000 vehicles per day, the freeway connects rapidly growing residential

[28] See Ertle v. Leary, 114 Cal. 238 (1896).

[29] See Public Contract Code §20124, §20127, and §20128.

[30] The bill was repealed in 2005.

[31] A description of the SR 125 case can be found at http://www.fhwa.dot.gov/innovativeFinance/ifp/cssr125.htm.

areas in Riverside and San Bernardino counties with major employment centers in Orange and Los Angeles counties.

The SR 91 project was proposed as a congestion-priced facility to help alleviate the traffic jam commonly experienced along the length of the 91 Freeway. The proposed accommodation was a four-lane tolled facility that would operate in the median of the 91 Freeway for a 30-mile length. To date, only the express lanes of the first 10 miles (from the Riverside/Orange County boundary westward to the 55 Freeway) have been developed and operated. The project was developed in partner with California Private Transportation Company (CTPC), an LLC formed by subsidiaries of three major private partners: 1) Level 3—a global communications and information services company; 2) Granite—a Delware corporation and one of the largest construction contractors in the United States; and 3) Cofiroute—a French company involved in the development of private toll roads in France and other European countries. An agreement between Caltrans and CTPC granted a 35-year franchise along 30-mile portion of SR 91, commencing at the opening of the first phase. The distribution of the roles and efforts between the State and the CPTC was presented as in Table 1.

Table 1 Distribution of Efforts by the SR 91 PPP[32]

Development Stage	Private	Public
Land investment		Existing state ownership
Plan/environmental objectives		State transportation plan
Engineering design/permits	CPTC	
Construction	CPTC	
Tollway operation	CPTC	
Roadway maintenance		Caltrans provides[33]
Roadway policing		California Highway Patrol provides[34]

[32] Adapted from Price, Willard T., An Odyssey of Privatizing Highways: The Evolving Case of SR 91. *Public Works Management & Policy*, 5(4): 259-269, April 2001.

[33] Caltrans provides this service for a fee and the SR91 is not obliged to use Caltrans' service.

[34] The California Highway Patrol provides the policing service for a fee.

Orange County Transportation Authority (OCTA) had completed the NEPA process for a high-occupancy vehicle (HOV) facility along the 91 Freeway, and CTPC purchased those environmental documents from OCTA. Those documents were then supplemented to address the design changes and tolling proposals needed by CTPC to implement their proposal.

The comprehensive agreement established the maximum rate of return to CTPC (23%), defined treatment of HOVs, provided that Caltrans would not build competing road capacity within a 3-mile corridor for the entire 30 miles of the franchise (non-compete clause), and stipulated that traffic enforcement and facility maintenance would be provided by the State on a reimbursement basis.[35]

The 10-mile express lanes started construction in September 1993 and was completed in December 1995 at a total cost of $135 million. CPTC brought $30 million in equity to the project and a $101 million non-recourse bank debt package. The project's relatively modest price tag was agreeable to the financial community. In addition, the well documented traffic volumes and vexing congestion levels on the parallel highway also suggested promising demand. In 2001, CPTC successfully refinanced its construction debt through a private placement offering of $135 million, AAA rated, taxable bonds insured by XL Capital.

When the express lanes opened in December 1995, it was the first fully automated and the first variably priced toll road in the nation.[36] Tolls on the express lanes varied from $1.00 to $4.75 by hours of the day, days of the week, and direction of travel, reflecting the level of congestion delay avoided in the adjacent non-tolled freeway lanes. Carpoolers with three or more people (HOV 3+), zero emission vehicles, motorcycles, disabled plates and disabled veterans could ride free for most hours. As such, it is also the first operating High Occupancy Toll (HOT) lane in the United States.

In the first few years after the opening, the SR 91 was viewed by many as a net public benefit. Early public satisfaction surveys showed a majority of SR 91 drivers supported the pricing scheme. A designated impact study showed dramatic reductions in peak-hour travel times and average peak-hour travel speeds on the free lanes were also significantly

[35] See AB 1010.

[36] More benefits of the SR-91 PPP are discussed in Felbinger, C., and Price, W. Organization and Management of Public Works in State Government. In J. Gargan (ed.), Handbook of State Government Administration (pp.613-640). New York: Marcel Dekker, 2000.

improved.[37] In the first six years of operation, CPTC provided $6.8 million in tax revenue to the County. The profitability of the toll road to the private sector was also promising. The toll road broke even in the third month of operation and cash flow broke even in the third year of operation.

3.3. Phase Two—The Non-Compete Controversy and the Transfer

In spite of its long list of innovations, the SR 91 PPP has encountered unexpected problems. In a state that has traditionally enjoyed highways as public goods, some citizens took the private ownership and the toll charge as an "incredible breach of public trust." Whereas the "free" lanes on the 91 Freeway were enjoying reduced congestion because of the new toll lanes, safety issues arose as many drivers made abrupt lane shifts when deciding whether or not to use the toll way. Meanwhile, demands for greater capacity on the freeway were surfacing. The nature of the franchise granted by the State became a subject of intense public debate when the non-compete clause restricted improvements to congested roads. This debate was widely covered in the local media, which portrayed the PPP as a clash between competing interests: public v. private; safety v. profit, transit v. highways, taxation v. private ownership; and, nonprofit v. for-profit organization.[38] Limitations on improvements to "free" roads that compete with "toll" roads were characterized by the media as "monopolies." The State was accused of failing in its duty to protect the traveling public.

When Caltrans publicly considered various traffic improvements to serve the freeway, without seeking further dispute resolutions within the partnership, the CPTC anxiously exercised the non-compete clause and filed a lawsuit in March 1999 asking for damages as a result of Caltrans' action to plan enhancements. A settlement, which reaffirmed the non-compete clause, between the disputing partners was reached in October 1999 without further litigation.

During this dispute, discordant voices started to arise within the internal partners of the CPTC consortium. Due to the unfriendly marketplace and weaker than expected revenues, the CTPC came to see the project as too risky for the partners' continued involvement. Two

[37] Sullivan, E. (1998). Evaluating the impact of the SR 91 variable-toll express lane facility (Final report to the Department of Transportation, State of California). San Luis Obispo, CA: Department of Civil and Environmental Engineering, Cal Poly State University.

[38] Ibid 34.

of CPTC's three partners—Level 3, which provided project management, construction, and financial services, and Granite, the primary construction contractor —thought the franchise was no longer an appropriate investment. Unlike Cofiroute, which provided toll and traffic operations management, the two companies lacked a strong interest and expertise in operating the facility. The CPTC started to formulate the idea of selling the facility to a non-profit corporation. It participated in the formation of NewTrac, a private, non-profit entity initiated by some local politicians and businessmen, and proposed selling the project to NewTrac in September 1999. The proposed acquisition involved the sale of nearly $275 million in tax-exempt bonds issued by the California Infrastructure and Economic Development Bank to assist NewTrac in the purchase of the toll road. The bond sale, however, was halted by the State Treasurer after concerns were expressed by local transportation officials and others about the relationship of CPTC and NewTrac. Amid a firestorm of disputation,[39] the CPTC withdrew the proposed sale three months later.

In the face of these controversies and risks, OCTA, in January 2003, reached an agreement with CPTC to acquire the franchise for $207.5 million (assuming $135 million in 7.63% taxable debt) under the authorizing legislation AB1010. Acting under the agreement, OCTA assumed the existing debt of $135 million and made a one-time payment of $72.5 million through internal borrowing.

3.4. Phase Three—New Operation Contract

Because OCTA had no toll road experience, it retained the toll road's previous operator—Cofiroute Global Mobility (CGM), a wholly-owned subsidiary formed by one of the previous CPTC joint-venture members—Cofiroute. In January 2003, OCTA signed a three-year Management Contract (with two one-year renewal options) with CGM (aka Cofiroute USA). The contract specified the company's responsibilities and compensation and assured a smooth operational transition while OCTA was learning the toll road business and preparing to refinance its acquisition debt and cost. In January 2006, OCTA entered into a second operating agreement with CGM. In spite of the ownership turnover, the SR 91 PPP has been continuously maturing to its current phase. OCTA represents the public ownership of the toll road. Operations of the toll road are carried out by many partners,

[39] TollroadsNews. (1999). Farce & Scandal: 91 Express "Sale" to NewTrac Unravels. URL: http://www.tollroadsnews.com/node/2458, accessed 07/20/2009.

including Cofiroute USA, Sirit Corporation and Telvent, all private firms that contract with OCTA.

Taking lessons learned from past experiences within the project, OCTA has paid close attention in order to build public confidence toward the project.[40] Before the purchase of SR 91, OCTA initiated a public policy debate about the benefits of acquiring the lanes in 2001. In 2003, OTCA designated a research institute to conduct market research and administer a customer satisfaction survey. During five years of ownership, the agency also has strived to achieve transparency through a variety of venues, including public education workshops, customer mailings and focus groups, customer service centers, a project Web Site, and meetings with the press.

On November 12, 2003, OCTA issued $195.265 million in Toll Road Revenue Refunding Bonds (Aaa/AAA/AAA insured 27 year 4.43% tax-exempt debt) to refund the $135 million taxable 7.63% Senior Secured Bonds and to reimburse OCTA for a portion of its prior payment for the cost of acquiring the toll road. The SR 91 enterprise has continuously been a model of financial stability. Though the economic downturn extorted an influence on the number of vehicle trips in Fiscal Year 2008, the project continued to receive a strong rating from Moody's Investors Service, Fitch Ratings and Standard and Poor's. Under AB 1010, OCTA's purchase allowed any revenues in excess of those needed to support ongoing operations and bond payments to be used for improvements along the SR 91 corridor. After five years of ownership, OCTA has accumulated a net asset of $52 million from SR 91. The state of revenues, expenses, and changes in fund net assets in FY 2008 is shown in Table 2.

OCTA consequently removed the non-compete provisions and adopted a new toll policy in July 2003.[41] The new toll policy specifies that "OCTA shall charge and collect tolls that generate enough revenue to maintain the Debt Service Coverage Ratio to be at least 1.30 to 1.00." It also raised the maximum one-way toll to $5.50 and removed the HOV 3+ tolls for

[40] See Avila, Kirk. The 91 Express Lanes Experience (Presentation in Transportation Finance Summit). March 4, 2004. URL: www.ibtta.org/files/filedownloads/03042004_avilaestiot.ppt, accessed on 07/20/2009.

[41] OTCA uses similar congestion pricing to set tolls as CPTC did, but it established an automatic Consumer Pricing Index (CPI) adjustment. Previously, CPTC increased tolls (there were no decreases because traffic never decline) by an amount considered sufficient to decrease traffic for that hour to the desired level. The amount was based on market conditions.

most hours.[42] Consequently, HOV3+ trips have steadily increased from 15 percent in 2003 to 21.8 percent of total trips in 2008. The new toll policy implemented a "Trigger Point" defined as 92 percent or more of maximum optimal capacity, and constant monitoring of hourly, daily, and directional traffic volumes to adjust tolls up or down. It also implemented an annual Cost of Living Adjustment (COLA), indexing non-super peak hours to inflation. Because of these innovative practices, the project was awarded the 2008 Toll Excellence Award for tollway administration by the International Bridge, Tunnel and Turnpike Association (IBTTA).

Table 2 FY 2008 SR 91 State of Revenues, Expenses, and Changes in Fund Net Assets[43]

Operating Revenues	
User fees and charges	46,236,247
Operating Expenses	
Contracted services	5,887,842
Administrative services	1,851,123
Other	268,994
Insurance claims	389,687
Professional services	5,103,119
General and administrative	563,187
Depreciation and amortization	9,332,703
Total Operating Expenses	23,396,655
Operating Income	22,839,592
Non-operating Revenues (Expenses)	
Federal operating assistance grants	9,780
Investment earnings	4,629,113
Interest expense	-11,977,097
Other	173,890
Total Non-operating Revenues	-7,164,314
Change In Net Assets	15,675,278
Total Net Assets-Beginning	36,388,243
Total Net Assets-Ending	$ 52,063,521

[42] Due to weaker than expected revenues, CPTC exercised its right to charge HOV vehicles a half-priced toll rather than allowing them to use the facility at no cost soon after its opening.

[43] Adapted from OCTA 2008 Annual Report. URL: http://www.octa.net/pdf/91annual08.pdf, accessed 07/20/2009.

In September 2008, the passage of Senate Bill 1316 (Correa) approved OCTA to work in conjunction with the Riverside County Transportation Commission (RCTC) to extend the 91 express lanes an additional 10 miles into Riverside County. The bill also extended the franchise agreement between Caltrans and OCTA to a date no later than December 31, 2065.

4. Lessons Learned

The experience of the SR 91 PPP over the past two decades provides at least four lessons for public officials entertaining PPPs as transportation solutions.

4.1. Gaining public acceptance is critical to the success of any transport PPP project

The SR 91 experience has demonstrated the significance of public acceptance and political support in defining the success of a PPP project. A project that enjoys broad public support can reduce not only the political risk for the public agency, but also the financial risk for the private partners. In contrast, a project that has been constantly questioned and disputed can easily drain a partner's interest and confidence. Because of the size and costs ivolved, transportation PPP projects can easily generate attention from the public, media, local businesses, and local politicians. They are likely to oppose the physical, environmental, economic, and social impacts of the facility, and, especially in economically conservative states, the expanded role of private corporations within the public sector.

Given California's historical, political and legislative stands, it is not unusual that the franchise agreement, especially the "monopoly" created by the non-compete clause, raised significant policy, financial, and ethical attacks for the public-private partnership. In states that are less receptive to private ownership of public facilities, building up public confidence through outreach and education is necessary, but it alone may not be sufficient. Public agencies may consider alternative partnership mechanisms in order to avoid the ownership dilemma. For example, instead of having the private sector as sole financier, public agencies may consider co-financing the transport project alongside the private entity. Such an arrangement would create a joint-venture that could overcome public funding limitations, would share the investment between the two parties, and would most likely retain the right-of-way in the public sector.

Additionally, if the public is hostile to toll charges, public transportation agencies may shift to the "shadow toll" approach, in which the public sector pays "tolls" to private contractors based on the number and type of vehicles using the facilities, while the motorists themselves pay no tolls. This approach may enable the government to gain access to new sources of capital and to capture the efficiencies of the private sector without losing the perception of the highway as a "free" facility.

These innovative practices provide more options for the public sector to win public acceptance, but all, unavoidably, have their limitations. It is important for public officials to make prudent judgments regarding feasibility, specific needs, and conditions of a project.

4.2. Aligning partners' interests is fundamental to sustaining a viable, working partnership

The conflicts between public and private sector interests have been extensively observed in PPPs and the precarious balancing of the interests of the two sectors has also been extensively documented. However, a large transportation PPP is not just business between these two sectors; it often involves a vast array of private and public institutions, each in pursuit of their own interest through the vehicle of the project. As the SR 91 case illustrated, divergent interests of partners among the private consortium can also increase the uncertainty and instability of the partnership. Public officials should not haphazardly treat the private counterpart as a whole, but try to understand their individual views and interests within in the confines of the consortium. An effective communication network connecting every participant may reduce such risk.

In retrospect, some participants commented that there were numerous ways to solve the non-compete controversy at the time.[44] However, under the constant pressure of accusations from the public and press, all parties involved were not able to "sit down and talk." Instead, each of them chose to tactically and anxiously pursue their own individual agendas. In doing so, all parties lost the opportunity to seek an optimal solution to the controversy and the sustainability of the partnership was compromised.

The nonalignment of interests could happen on the public sector side as well. For example, when OCTA was negotiating of the second term of contract with CGM in 2005, a private entity, VESystems, which was designated by the county's Transportation Corridor Agency (TCA), tried to compete for the contract. VESystems is a local business engaged in communication signal enhancement network services. It has long been a contractual partner with TCA, a public entity formed to plan, design, finance, construct and operate the tollways in Orange County. Given that VESystems had no expertise in toll way operation, CGM eventually resumed the partnership. VESystems' involvement was not a fair, competitive bid for public contract because it is not a highway operating company. Rather, it reflected competing interests among public agencies. This "reverse competition," resulting from conflicting interests, overlap of functions, and lack of coordination in public

[44] Comment made by Jan Mittermeier, Sr. Vice President Operations at Cofiroute USA.

bureaucracies, was taken by the private partner as a threat to the partnership. Therefore, it is equally critical for the public sector to coordinate interests from different authorities before engaging in PPP, in order to create a stable and sustainable policy environment.

4.3. Public agency needs to build up organizational capacity for contractual relationship and for contingencies

PPP is often justified through access to a private sector's employees and expertise as compensation for a lean and weak public agency. However, the complexity and significance of transportation PPP projects often require a strong and capable public partner that is well-staffed, well-trained, and sound in institutional design. Public officials need bisectoral knowledge in project finance, construction, and operation. They also need skills in negotiating, evaluating, and monitoring contracts. Most importantly, they need to know how to communicate with their private partners, the press, and the public. This challenge may exert serious impact to the institutional and organizational design. For example, public agencies may need to redesign their hiring policies and training programs to reflect any PPP requirements.

As shown in the SR 91 case, the private consortium for a transportation PPP project is difficult to create and sustain; very often there is only one private partner available or accessible for a given transport project. This often puts the public sector in a very risky situation, because it must ultimately be fully accountable if the private partner fails. When Caltrans initiated the BOT scheme, the agency had no experience in such arrangements; it could neither foresee the risks of the non-compete provision, nor plan for the contingencies of a divorce. In the end, it took the public sector several years to finally resolve the issue.

When OTCA took over the facility, again, it had no experience in operating tollways. The contract with CGM was handy and efficient. Despite the fact that a large toll management market exists, few companies have either the interest or the experience when compared to CGM. The deal with CGM enabled OTCA to manage the contractual relationship with less than three employees (2.5 FTEs).[45] This arrangement generates great administrative efficiency. However, it also leads to both a lack of interest and the capacity to plan for contingencies.

[45] Other individuals within the agency are involved in SR91 as part of their other obligations. The involvement of the agency's contract, engineering, telephone, accounting staff and others are charged against the revenues of the facility.

4.4. Public officials need to embrace the entrepreneur spirit that actively takes risk and seeks return-on-investment

When partnering with a private counterpart, public officials need to set aside the traditional bureaucratic procurement mentality and embrace the spirit of entrepreneurship. However, being largely constrained by excessive procurement rules and regulations, public procurement officials generally exhibit limited enthusiasm in pursuing an active economic agenda, as their counterpart would normally do. With such mentality, they can easily be "prey" to a shrewd business counterpart. The PPP in reality is a joint-venture in which both parties should reap returns as they both contribute equitably and share in the risks and expenses. Public officials should view the public assets involved in any PPP as public investments that could generate economic gain. When a PPP lifts many of the typical restrictions, they may be able to actively partner with the private sector in seeking returns.

Traditional public project managers are also reluctant to take risks. As shown in the SR 91, the original intent of the public sector was to avoid risk—letting the private venture take the risk and reap the reward as well. However, with risk often comes profitability. When OCTA assumed the risk through repurchasing the facility, the public sector also absorbed the returns of the investment. Within five years of operation, the project accumulated a massive net asset and became a revenue source for improving the 91 corridor for the cash-strapped transportation agency.[46]

Therefore, public entrepreneurs should view transportation PPPs as investment opportunities. Through cooperation, collaboration, compensation, and competition with each other, both sectors can well reap the economic benefits.

[46] The excess revenues of the 91 Express Lanes are invested by OCTA in the 91 corridor in compliance with requirements of enabling legislation. Improving the corridor was not an OCTA obligation prior to the purchase of the lanes.

5. Conclusion

PPP has much to offer governments in their scramble to find new transportation financing and innovation. In a time when the nation is facing increasing traffic congestion and gloomy economic conditions, private sector involvement can be of particular interest. Barring changes to the current tax structure, government agencies that embrace entrepreneurship will be better equipped to leverage alternative resources in order to meet an increasing public demand for greater infrastructure and service.

The joint-venture with the private sector, as demonstrated in the SR 91 case, entails both opportunities and pitfalls. As a model for the nation, the SR 91 PPP has pioneered and piloted many of the challenges encountered in the formation of a transportation PPP. The twenty-year odyssey has provided valuable lessons for both the public and private sectors alike.

The primary lesson learned here is that there is no panacea to success; managing transportation PPP requires the recognition of sectoral differences, skills to concert divergent interests, a willingness to change and to learn, and the courage to take risks and explore practical solutions in an erratic political and economic environment.

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Appendix I Chronicle of SR 91

Year	Events
1989	AB 680 passed on July 10
1990	RFQ issued in March
1990	RFQ issued in June
1991	Comprehensive Agreement executed in January
1993	Construction began in September
1995	Construction ended; Road open to traffic in December
1996	Operation broke-even in 3rd month of operation
1998	Cash flow broke-even in 3rd year of operation
1999	CPTC filed a lawsuit against Caltrans in March
	A settlement was reached in October
2001	CPTC refinanced its construction debt through a private placement offering of $135 million AAA rated taxable bonds insured by XL Capital
2002	AB 1010 (Correa) passed
2003	OCTA acquired at $207.5 million on January 3
	OCTA entered into an operating agreement with CGM on Jan 3
	OCTA Board of Directors adopted new toll policy on July 14
	First toll adjustment raised the maximum one-way toll to $5.50 on August 1
	OCTA issued $195.265 million tax-exempt Toll Road Revenue Refunding Bonds in November
2006	OCTA entered into a second operating agreement with CGM on January 3
2008	Senate Bill 1316 (Correa) passed in September
	Honored with the International Bridge, Tunnel and Turnpike Association's Toll Excellence Award for tollway administration.