

## **The Advantages and Risks of Pursuing Public Private Partnerships Elements of Express Lane Networks in California, USA: Lessons for Developing Countries**

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### **Introduction: Public Private Partnerships**

Public Private Partnerships (also referred to as P3s or PPPs) are contractual arrangements between public and private sector entities where the private sector's role involves participation in multiple elements of public infrastructure projects. PPPs are unlike conventional methods of contracting for a project, where discrete functions are divided and procured through separate solicitations. (US Federal Highway Administration 2009). Thus in P3s a single private entity is responsible and financially liable for performing all or a significant number of functions in connection with a project. The "private partner" is typically a consortium of multiple private companies that vary in expertise and specialty so that the different elements or functions are sufficiently performed and executed (design, construction, financing, operation and/or maintenance).

### **Common types of Transportation sector PPPs in developing countries**

PPP's associated with the transport sector in the developing world are mostly concessions and Greenfields projects. (World Bank, 2004). Concessions occurs when a private entity takes over the management of a state-owned road for a given period during which it also assumes significant investment risk. Concessions include but are not limited to; Rehabilitate- Operate-Transfer (ROT); b) Rehabilitate-Lease-Transfer (RLT) or Rehabilitate-Rent- Transfer (RRT); and c) Build-Rehabilitate-Operate-Transfer (BROT). Greenfield Projects require a private entity or a public-private joint venture to build and operate a new road project for the period specified in the contract. The road project usually returns to the public sector at the end of the concession period. Greenfield projects may include but not limited to; Build-Lease-Own (BLO), Build-Operate-Transfer (BOT) or Build-Own-Operate-Transfer (BOOT); and c) Build-Own-Operate (BOO)

Among the developing nations India has one of the most rapidly expanding transport PPP programs. Between 1995 and 2006 the country engaged in PPP projects with an estimated cost of US\$15.8 billion. The transport sector accounted for more than 90% of the total value and number of projects, with roads and bridges accounting for 54%, ports 20% , airports 17% and railways 2%. The predominant form of these PPPs is the Built Operate and Transfer (BOT)- Tolling and BOT Annuity.

The Design Built Finance Operate (DBFO) scheme, a Greenfields type of PPP and a preferred strategy for road financing in the UK and other developed countries is relatively new in the market and research suggests that it has never been tried in developing countries. (Silva 2000). Thus, the overall purpose of this paper is to examine in-depth the advantages and risks of pursuing PPPs for delivery of large transportation infrastructure through a case study of the SR 91 express lanes project that was delivered through a DBFO style PPP.

The DBFO scheme represents a break with tradition by assigning more risk and control to the private sector as opposed to the DBB and the DB models. This model has gained prominence in developed nations especially the UK, Australia and the United States as a means of delivering large public sector transportation. Proponents of this model argue that it achieves project benefits by introducing greater competition into project planning processes and by aligning the interests, rewards, and risks of both public and private partners through a long-term contractual relationship (Grimsey & Lewis, 2005).

### Why The SR 91 Express Lanes Project?

Analysis of the SR 91 express lane facility reveals that the DBFO PPP used created a number of conflicts and exhibited weakness and successes at various levels of project implementation. The intersection of these conflicts and success within the project ,the tensions that emerged thereof and how they were resolved make the SR 91 project a relevant case study for developing countries considering using the DBFO model to deliver large transportation infrastructure. Overall it still remains arguable that the project has been judged as achieving its objectives, which were to raise funds for the project, transfer risk to the private sector and realize value for money.

### Case Study background

The 1989 assembly Bill 680 authorized the California Department of Transportation (CALTRANS) to enter into agreements with private entities for development, construction and operation of four demonstration transportation projects at private sector expense without the use of state funds. Development franchise agreements were executed in December 1990 and January 1991 for four projects among them the SR 91 Express Lanes projects. The SR 91 Express Lanes project is a \$134million privately financed and fully automated project located within the median of an existing eight lane freeway between the state route 55 in Orange County and the Riverside county line. In the state of California USA Los Angeles Counties, thereby reducing the congestion that existed on route SR 91. The project was intended to connect the rapidly growing residential (bedroom communities) of Riverside and San Bernardino counties to the major employment centers in Orange and Los Angeles Counties, thereby reducing the congestion that existed on route SR 91.(See Fig 2 & 3)



Fig 1.Contextual location of case study.USA: Source: Google Maps ([www.googlemaps.com](http://www.googlemaps.com))

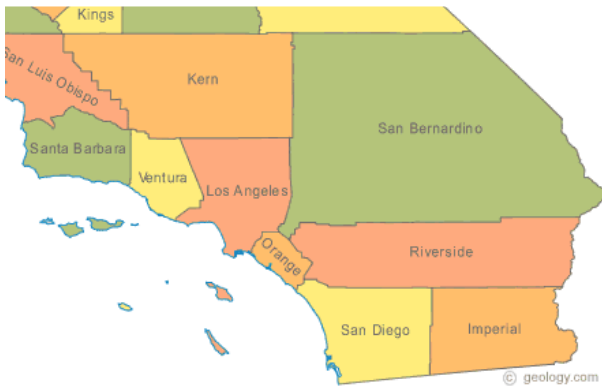


Fig 2 .A section of the California County Map  
Source: [geology.com/state-map/maps/california-](http://geology.com/state-map/maps/california-)



Fig 3 SR 91 Express Lanes- Source: Orange County



Figure 4: SR 91 Express Lanes image. Source: Orange County Transportation Authority

### **Innovations**

This project is the world's first fully automated toll road utilizing electronic transponders to collect tolls. As mentioned above the SR-91 qualified for implementation under AB 680 due to the local transportations agency's inability (Orange County Transportation Agency (OCTA)) to fund the project within a short time frame. At the time research exposed that if public funds were to be used to fund the project, it would take an additional 5 years longer than if a private partner was involved.(Sullivan 2000) Subsequently OCTA entered into an agreement with a private consortium CPTC (California Private Transportation Consortium) which was an SPV created by Level 3 Communications, Inc., Compagnie Financiere et Industrielle des Autoroutes (Cofiroute to build the Express Toll Lanes as an express toll facility using a PPP (Boarnet & Dimento,

2004). The facilities debt financing was provided by a group of commercial banks and institutional lenders including Citicorp USA, Banque National de Paris, Societe Generale, Deutsche Bank and CIGNA Investments.

The agreement between OCTA and the California Private Transportation Consortium (CPTC) was reached in 1990. CPTC now had the mandate to procure the SR 91 road expansion as four privately financed express lanes adjacent to the existing highway. The project delivery was structured as a DBFO-style PPP; CPTC funded the initial cost of the project and assumed the risk of construction cost overruns and potential revenue shortfalls if usage on the new facility did not meet expectations (Siemiatycki 2007). Within the agreement CPTC's return on investment was capped at 17% with no set limits on toll levels. Subsequently CPTC met its contractual obligations while simultaneously keeping within its \$126million budget and on December 27, 1995 the ten mile express toll lanes opened as scheduled.

For the first time in the United States a transportation project of such caliber was implemented; the toll level varied throughout the day in accordance to the predetermined schedule with the objective to maintain free flowing traffic on the express lanes at all times. Tolls were set at between \$0.25 and \$2.50 depending on the travel direction and time of day and escalated (what escalated? Define. Should it be: the price escalated...) over the following years (Sullivan, 2000). Only high occupancy vehicles were allowed un-stipend travel. Initial reviews of the variable-toll express lane project were largely positive. (Siemiatycki 2007). However it was contended that travel times fell on both the toll and general purpose lanes despite rising traffic in the corridor, and the number of vehicles with three or more occupants increased 40% on all SR 91 lanes (Sullivan 2000); no negative impact was determined on transit ridership, which accounted for just 1% of all trips in the corridor (Sullivan 2000).

### ***Conflicts and Weaknesses***

Notable weaknesses of the express toll lanes related to its distributional and environmental impact to the general public. These effects were largely increased by the private partner's concern for profitability. One criticism was that the new facility had increased vehicle miles traveled by 8% and emissions by 18% by 1998 compared to a scenario adding no new highway capacity (Sullivan 2008). In addition the express toll lanes only served a disproportionately affluent clientele with more than half the users having annual household incomes over \$60,000.

Conflicts between the OCTA and CPTC began to emerge in 1998. CPTC began charging high-occupancy vehicles 50% of the reported toll, a decision which the company's general manager found necessary for assistance in sufficing the CPTC's operation expenses and receiving reasonable return on the investment. Additionally increased congestion on the lanes, growing safety concerns and demands for new roads from the public, led the Caltrans to consider the option of expanding the SR 91 to add capacity. In response the CPTC invoked a confidential non-competition clause in the contract which prevented Caltrans from designing or financing additional general purpose lanes within a 1.5mile "absolute protection zone" around the SR 91 (Price, 2001). Further attempts to resolve the conflict proved futile and CPTC filed

legal action against Caltrans in March 1999 for damages resulting from the threat to the consortiums future earnings. During the settlement, it was clarified that the non competition clause was in place to protect the commercial viability of the SR 91 project and the consortiums financial investment. Another legal challenge, filed by the OCTA and the state legislature to nullify the non competition clause failed (Price 2001). Finally in 2003, when it became apparent that the consortium desired to sell the facility, the OCTA purchased it for \$207 million (Boarnet and Dimento, 2004). After the purchase the Chief Operating officer of the Caltrans stated that buying back the express toll lanes cost the government less than if it had constructed and managed the facility from the beginning (Government Accountability Office 2008). Despite the project's criticisms and weaknesses of the express toll lanes the public displayed rather high levels of support; the project also received a total of ten major industrial and governmental awards for engineering innovations and project finance (Parrish 1997; Boarnet & Dimento 2004).

Since taking ownership of the facility OCTA has managed to keep toll revenues flowing from the facility through innovative policies including toll reduction. A 2009 customer satisfaction survey by the IWR Group Inc. indicated an improvement in overall satisfaction scores, higher performance scores, and an increase in respondents indicating they have no complaints about the 91 Express Lanes or OCTA (91 Express Lanes Customer Satisfaction Survey 2009). The survey also indicates that the customers would support proposed expansions of the express lanes to reduce congestion.

### **PPPs in the Context of the California Legislature**

Following the somewhat controversially yet successful experience with SR 91 PPP the California legislature passed new enabling legislation in May 2006. As with its earlier law, the new California law did not provide broad authorization for PPPs, but rather limited authority for certain pilot projects. The new law permits the development of four projects as PPPs, two in southern California and two in northern California. Each of the authorized PPPs must be for a project that improves the movement of goods in California. Commercial vehicles may be tolled, but non-commercial vehicles may not be tolled. Toll rates must be fixed in the concession agreement and increases must be approved by Caltrans following a public hearing. Concession agreements must be submitted to the State legislature for approval and at least one public hearing must be conducted before the legislature provides approval.

California's new legislation also provides specific rules with respect to competing facilities. Non-compete provisions, which prevent the construction of any transportation alternatives that would compete with the toll facility, are prohibited. A concession agreement may entitle a concessionaire to compensation for lost toll revenue if a competing facility is constructed. However this provision would not apply if a competing facility is part of a regional transportation plan, is a safety project, is an improvement providing only incidental increases in capacity, is a

HOV lane project, or is a project located outside the boundaries of the PPP project, as defined in the concession agreement.

The provisions of this new legislation are aimed at addressing the conflicts encountered during the first experience with the DBFO style PPP and any future PPPs by aiming to protect the overall public interest and enhancing public participation during the decision making process especially in regard to large transportation infrastructure which have a significant impact on the public life. These three goals all reflect, to a greater extent, the aspirations of any planning process. The SR 91 project thus sets the stage for an analysis of the following advantages and risks associated with Public Private Partnerships.

### **Advantages of P3s**

*Tapping new money for infrastructure:* The OCTA as a public agency realized that it lacked the funds to finance the Express lanes project and therefore sought a private partner to deliver the facility. The private partner financed the project 100%. Similarly financing is a major problem facing transport infrastructure in sub-Saharan Africa (John Mbwana 1997). This is mainly due to the limited capacity of local markets to finance infrastructure projects. Thus When considering the delivery of transportation infrastructure, developing countries ought to critically consider PPPs as an alternative avenue.

*Cost savings:* According to the FHWA 2004 report, PPPs can save anywhere from 6 to 40 percent of the cost of construction and significantly limit the potential for cost overruns through innovative contracting. In addition, because cost savings benefit the private partner, and because the private partner is responsible for cost overruns through fixed-price contracts, the private partner has direct incentives to limit costs. By raising private capital rather than public debt, PPPs can also ease public debt burdens and release public funds for other purposes. For instance the Express lanes project was delivered on time and within budget of the estimated by the private partner. Had the OCTA undertaken construction of the project, it is estimated that it would have taken five more years to complete with a budget overrun.

*PPPs can spur innovation:* The innovative variable toll system employed on the Express lanes has resulted in significant time and cost savings not only for the OCTA but for the users as well. For developing countries, one of the major problems facing government agencies is lack of innovation within the human resource. Employing PPPs to work together with government agencies might help spur innovative ideas.

*PPPs can shorten project delivery by several years:* By providing access to immediately available private sources of capital, PPPs can accelerate the construction of projects that might otherwise be delayed for years or not be built at all. In addition, the same efficiencies that produce cost savings often enable PPP projects to be constructed faster than traditional projects. This was the case with the SR 91 Express lanes.

*Transfer of supply and risk demand to the private sector:* Traditionally, virtually all of the risk associated with the design, construction, financing, operation and maintenance of a transportation project is borne by the public sector. This is especially so in developing countries where the government agency funds 100% of the project. PPPs allow for a significant portion of the project risk to be transferred to the private sector, reducing taxpayer costs. Proper allocation of project risks to the parties (public or private) that are best able to manage the risks can result in lower overall risk for the project, reduced project costs and accelerated project delivery. Proper risk allocation can also increase the public sector's ability to manage a large number of projects simultaneously. In the case of the Express lanes the CPTC assumed 100% risk while the local government agency (OCTA) did not make any payments to cover initial losses. However OCTA assumed risk after buying out CPTC when the partnership was dissolved.

### **Risks associated with PPPs**

*Lack of accountability to the public especially during the planning process:* It has been contended that the PPP model of project delivery disrupts open access to information thus limiting accountability in decision making or meaningful citizen participation (Illsley 2003; Innes & Booher, 2004). A study regarding three PPPs across the world: the SR 91 Express Toll Lanes in California, the Croydon Tram link in UK, and the Cross City Tunnel in Sydney found that in all the three cases "standard" public meetings were held, opportunities were provided for written comment and public inquiries were conducted to fulfill statutory requirements (Siemiatycki 2009). However all three cases included public input but the input was limited by participants withholding key contractual details, including non competition clauses, toll rate escalation schedules and concession payments. In developing countries government intervention has been noted as one of the obstacles to private sector involvement in provision of transportation infrastructure (Ngowi 2005).

*The dilemma of whether public-public partnerships will provide the same benefits as PPPs without the risks.* Proponents of public-public partnerships argue that public-public partnerships are less expensive than PPPs because they can be fully financed with tax-exempt debt, which is cheaper than taxable debt raised by the private sector and because public benefit corporations do not make equity investments which are repaid at a higher rate of return than debt. In addition, they argue that the other risks created by PPPs, such as monopolistic pricing, are avoided. This is true in that a given amount of tax-exempt debt may be cheaper than an identical amount of private debt and equity. However in the long term PPPs become less expensive as a means of transportation infrastructure delivery if the time factor is considered. This is because; in the case of PPPs the private operator is bound by a time constraint to deliver the project on time. As was the case of the SR 91 Express Toll Lanes, when the government bought them back from the concessionaire, one government official remarked that buying back the express toll lanes cost government less than if it had constructed and operated the facility from the beginning (Government Accountability Office 2008).

*Toll facilities maybe too expensive if they are operated by the private sector.* This risk is associated with toll rates, collection, pricing and regulation. In cases where the contractual terms are not clear on how to price, who collects and regulates toll, conflicts may arise resulting in rising costs of operations. Thus concession agreements for toll facilities should provide that the private operator may not raise toll rates above certain amounts. The agreement should also provide that failure by the private operator to comply with toll rate provisions may leads to control of the facility and the right to collect tolls reverting to the public authority. In addition, if the operator raises toll levels too high, the public may avoid using the facility, forcing the operator to make the facility more affordable. The private operator's revenue is directly dependent on the affordability of the facility. In the case of SR 91 innovative toll variability ensured that the facility is affordable to many users and when the OCTA took over, it reduced the toll fee.

*PPPs limit the public sector's ability to construct competing facilities next to a privately operated toll facility.* In certain jurisdictions, including California and Texas, the legislation authorizing PPPs provides guidance with respect to the construction of new facilities in the vicinity of the privately operated toll facility, but in most jurisdictions the public sector's ability to construct new, competing facilities is negotiated as part of the concession agreement. The new legislation in California mandates state flexibility to provide competing roads as long as compensation is provided to the concessionaire (with certain exceptions where compensation is not provided). By assuming the risk that it will need to construct competing facilities, the public sector retains the right to construct these facilities and also realizes better value from the concession. If the private partner had to assume this risk the value of the concession, and any related payments made by the private partner, would be reduced.

*PPPs may interfere with system wide planning:* This involves the unsolicited proposals that allow the private sectors to initiate the PPP process for particular projects by proposing that a state or local authority procure projects such as PPPs. Alternatively, PPPs procurement process can be initiated by the state or local authority soliciting proposals from the private sector. While states have very different attitudes towards unsolicited proposals, the public sector should be comfortable that unsolicited proposals will not frustrate planning processes because the decision whether or not to consider unsolicited proposals is made by the public sector, in its sole discretion. Unsolicited proposals provide an opportunity for public agencies to supplement traditional planning processes with private sector concepts for how best to improve transportation systems.

### ***Preliminary Evaluation Criteria of PPPs.***

The discussion of advantages and risks that are associated with P3s thus creates the basis for the formulation of a preliminary set of criteria to be used in evaluating PPPs within transportation sectors:



**Table 1 : Preliminary Criteria for evaluating PPPs.**

No.	Criteria	Description	Rating	
			Yes	No.
1	Potential to generate new capital for infrastructure	The PPP model recognizes the fact that many public agencies adequate funds for provision of transportation infrastructure  The PPP model has the potential to provide heavily indebted or fiscally conservative governments with opportunities for private sector financing thus allowing them to construct new infrastructure projects earlier than if they funded them using public money.		
2	Potential to undermine the overall comprehensive planning process	The PPP model recognizes the influence borne by private sector finance on the selection and design of individual projects (Taylor 2008) and addresses such influence in the interests of the public.		
3	Potential to Spur Innovation at project level	The P3 model recognizes that the motivation for bundling project design, construction, long term operation and financing into a single PPP is to encourage ongoing innovation, aimed at enhancing project benefits and lifecycle. The aggressive competition between firms to win the concession and the winner's desire to make profits over an extended time can be incentives to spur innovation.		
4	Relevant Community involvement through consultation and participation	The P3 model recognizes that meaning community consultation is critical to making public planning accountable, raising citizen support for the project and improving policy outcomes of specific initiatives (Flyvberg et la,2003:inness & Booher 2004).		
5	P3 is within budget, meets traffic forecasts and delivers anticipated community benefits	Success of transportation infrastructure is measured by whether they are delivered on time within budget and whether they achieve their traffic forecasts and performance specifications.		
6	Risks are transferred to the private sector partner	The P3 model recognizes that demand and supply risks are transferred from the public agency to the private investor. The standard measure of success for an infrastructure project is primarily whether cost escalations or revenue shortfalls occur, however a successful P3 project should also focus on identifying which partner is responsible for covering the costs when an unexpected event does occur again(Quiggin,2004).		
7	The P3s Contract Terms Constrain Future Options	The P3 model anticipates future planning initiatives and changing conditions, thus it allows flexibility to accommodate these.		
8	Potential to realize Value for Money (VFM)	VFM for the public sector is defined as realizing the lowest out-turn cost over the whole life of the contract. (Grout (1997), In order to demonstrate VFM, it is first necessary to develop a Public Sector Comparator (PSC) which is generally based		

		on a similar historic publicly funded project that would serve as a benchmark for the PFI bid.		
9	Potential for conflicts between partners affecting the project success.	P3 model should have a clear conflict resolution mechanism. To successfully deliver public works through PPPs (Jacobsen and Choi, 2008) identify the following factors as key: open communication and trust, willingness to compromise and collaborate and respect.		

## Planning Implications

The immediate inclination for planners is to support project delivery and finance models that facilitate the provision of socially beneficial infrastructure, although in practice such decisions are made by the government in power at the time. Perhaps the area of concern for planners is whether the delivery model selected will adversely impact regional planning priorities and project designs. In the long term planners must be aware of the overall objectives of the key players whose decisions affect the project delivery. This will include the private partner, the political class and the public. In addition awareness should be sought of the issues covered in the contractual agreement and the impact of such issues on future planning initiatives. For instance adopting noncompetition clauses and formalizing relationships between the public and private sector with contracts may have significant impacts on future spatial and infrastructure planning, limiting government flexibility to respond to changing conditions and public feedback about facility management (Siemaitycki, 2009).

One of the lessons from the SR 91 Toll Express Lanes in California highlighted included conflicts in planning objectives that demonstrated that in DBFO P3 arrangements, maximizing private returns was sometimes but not always congruent with government social or environmental policy. The non competition clause in the agreement for instance prevented government from constructing popular new highway capacity that was likely to increase emissions, while also preventing local officials from continuing to discount tolls for high occupancy vehicles, a policy that was likely to be socially and environmentally beneficial (OCTA, 2008). For the public sector partners, inclusion of restrictive contractual terms not only constrains future planning, but may also be a source of tension in the relationship between the private and public partners and with the citizenry. Overall if PPPs are not carefully designed new tension points may be created, particularly because they limit government flexibility to respond to changing conditions overtime.

## Conclusions and recommendations

From a planning perspective, while PPPs present an alternative way for governments to access capital and deliver public infrastructure without raising local taxes, they also present unique challenges when it comes to overall integration within regional comprehensive plans and public accountability associated with preparation of such plans. These challenges arise in the form of conflicting interests that may lead to disputes between the private developer whose objective is to maximize on profits and realize a reasonable return on their investment and the public agency whose overall objective is the general welfare.

Such conflicts are bound to affect the delivery or cause total collapse of the project, therefore planners ought to be aware of and anticipate such conflicts. Anticipation may include inserting comprehensive dispute resolution mechanisms within the contractual agreement on how to resolve such disputes. The Government Accountability office (2008) recommends that highway public-private partnerships could benefit from more consistent, rigorous assessments of the merits of PPPs projects before they are begin. This assessment should extend beyond assessing value for money to consider the effects of using PPPs approach on the flexibility of current and future planning, transparency and citizen engagement and the equity and environmental impacts of toll rates. Secondly planners should develop strategies that preserve government flexibility to plan for future community needs without violating the terms of the contract. On a broader perspective it is imperative that planners find ways of incorporating PPPs strategies in the overall comprehensive plans. That way the tensions and conflicts that arise during the procurement process of PPPs may be greatly minimized as the implementation of the PPPs will be part and parcel of the comprehensive plans' goals.

Planners must find ways and develop strategies for improving the quality of community engagement and ongoing public participation in decision making with the intention of building trust between stakeholders and resolving conflicts before they become intractable (Innes & Booher, 2004) Finally public agencies should collect and disseminate data on the outcomes of large transportation infrastructure projects as a way to support learning from past experiences. PPPs are becoming increasingly more popular around the world, hence developing a data base that compiles both the financial and nonfinancial information on project management essential for identifying the weaknesses and strengths of delivering large infrastructure projects through PPPs

For developing countries the lingering, question remains whether or not PPPs are ideal or practical, especially in delivery of large transportation infrastructure However, based on acquired research, this study suggests a strong case for a new approach to PPPs in which policy makers in developing countries ought not to ignore. PPPs, especially those in transportation, have certain distinct characteristics that are similar. Based on past implementations, acquired research and gathered information, these characteristics strongly appear to hold the key necessities for successful PPPs; including: risk allocation, risk evaluation risk management, and guiding legislation. Across the board stakeholders in both developed and developing countries are faced with these issues whenever considering entrance into PPPs. Nonetheless previous case studies in developed nations have indicated that where the above factors were anticipated, carefully thought of and executed in a timely manner, PPPs tend to have had a higher rate of success than in cases where these factors were not adequately addressed. As developing countries ponder on the best way to deliver sustainable public transport infrastructure while simultaneously gaining value for money, it is imperative to be aware that success of future PPPs will largely depend on among other factors, a critical analysis of the above dimensions of PPPs.

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