



California Transportation Commission (CTC)

**FINANCIAL ANALYSIS OF PUBLIC
PARTNERSHIP HIGH OCCUPANCY TOLL
(HOT) LANE PROJECT PROPOSALS**

FINDINGS

July 9, 2008

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Overview

This draft report summarizes the main findings of System Metrics Group, Inc. in association with Jeffrey A. Parker & Associates and Aldaron, Inc. (the “Consultant Team”) in evaluating the eligibility, from the standpoint of financial feasibility, of the application filed by the Los Angeles County Metropolitan Transportation Authority (LACMTA) in seeking legislative authority to convert existing High-Occupancy Vehicle Lanes (“HOV Lanes”) into High-Occupancy Toll Lanes (“HOT Lanes”) along Interstate 110 (Harbor Transitway), Interstate 210, Interstate 10 and State Route 60. LACMTA’s application was filed in accordance with Assembly Bill (AB) 1467 and California Transportation Commission (CTC) HOT Lane guidelines promulgated pursuant to AB1467. The CTC guidelines specify numerous eligibility criteria, one of which is “Financial Feasibility.”

LACMTA’s application contains preliminary forecasts that must be viewed as being subject to refinement during later stages of project development. Accordingly, our finding of financial feasibility is based on a level of due diligence that is appropriate and possible given the technical analyses that have been performed to-date.

Based on the submitted data, the LACMTA’s HOV-to-HOT conversion project appears to be financially feasible. The Project does not entail any new lane construction, which keeps initial capital costs under \$120m¹. The largest yearly cost for the Project comes from Operations and Maintenance expenses, which vary between 22% and 28% of annual revenues over the 2010-2049 period². Operating subsidies to the complementary mass transit system expansions/enhancements are expected to account for a further 11% to 20% per annum of the HOT lane revenues. The HOT lane Project is preliminarily forecast by LACMTA to generate significant excess cash flows, averaging \$107m in net revenues per year (2010 dollars), which in part could be used to support capital investments in the complimentary mass transit. Finally, LACMTA indicates that it intends to use funding from a USDOT Congestion Pricing grant to support the Project’s capital costs.

This report is comprised of five sections:

1. Review of Application Completeness;
2. Assessment of Project Objectives;
3. Review of Financial Plan and Model;
4. Findings and Conclusions
5. Appendix

¹ This figure does not take into account the capital expenditure associated with the new transit service enhancements that may be necessary to achieve stated operational and congestion relief goals..

² The Appendix the end of this report summarizes the projected costs and revenues for the HOV-to-HOT lane conversion. To assure consistency, for this feasibility analysis, all cost and revenue estimates in the application were converted to \$2010 using an inflation assumption of 3%. This leads to slightly more favorable results than those shown in Table 3 (p.26) of the application.

1. Review of Application Completeness

The Consultant Team screened the applicant's proposal and determined that the financial-related elements required under Sections D1 – 11, of AB 1467 were submitted. A review of each element follows in the sections 2 through 4.

Under AB 1467, each proposal must contain the following elements:

<p>D 1: Provide information relative to the project financial plan and feasibility.</p>	<p>Application Part D; Appendix B, Cost and revenue Estimates; Appendix G, Project Study report.</p>
<p>D 2: Document a financial plan and financial guarantees which will allow for access to the necessary capital to finance the facility.</p>	<p>Appendix B, Cost and revenue Estimates.</p> <p>At this time no financial guarantees are anticipated to be required for the project.</p>
<p>D 3: Provide evidence of the proposer's ability and commitment to provide sufficient equity in the project as well as the ability to obtain the other necessary financing.</p>	<p>LACMTA indicates in its application that it intends to use funding from a USDOT Congestion Pricing grant for the Project's capital costs.</p> <p>To obtain Federal funding the local partners must certify that they have secured \$110m in local funds for the HOV to HOT conversions by no later than September 30, 2008. In application for eligibility the LACMTA indicates that these funds will come from local budgetary sources or toll revenue bonds. Based on the preliminary information provided, the HOT lane revenues will provide sufficient bonding capacity to raise the \$110m required under the federal application.</p>
<p>D 4: Explain how shortfalls will be funded if revenues do not meet projections.</p>	<p>Revenues are substantially greater than costs attributable to HOT lanes. Project is expected to generate enough revenues for HOT conversion and HOT lanes O&M even if revenues do not meet projections.</p>
<p>D 5: Explain how the financial plan demonstrates a reasonable basis for funding project development and operations.</p>	<p>Appendix B, Cost and revenue Estimates.</p>
<p>D 6: If, applicable, describe the nature and amount of the</p>	<p>To qualify for the USDOT congestion relief grant, the proposer must demonstrate the availability of some</p>

proposer’s financial contribution to the project.	\$110m by September 2008.
D 7: Describe how the estimated cost of the facility is reasonable in relation to the cost of similar projects through a cost/benefit analysis.	Table 5, B/C Calculations; Appendix F, B/C input sheets. Appendix D (Table 9) – Express lane comparisons.
D 8: Provide an analysis of the projected rate of return and life cycle cost estimate of the proposed project and/or facility.	Table 5, B/C Calculations; Appendix F, B/C input sheets.
D 9: Explain how the financial information submitted is sufficient to determine the financial capability to fulfill the obligations described in the project application.	Application Part D; Appendix B, Cost and revenue Estimates; Appendix G, Project Study report.
D 10: Identify the proposed ownership arrangements for each phase of the project and indicate assumptions on legal liabilities and responsibilities during each phase of the project.	Application Part D explains the roles of LACMTA and California Department of Transport District 7.
D 11: Describe the extent that adequate and transparent procurement policies have been adopted to maximize competitive bidding opportunities for potential contractors and suppliers.	Procurement to be done “in accordance with state and local requirements”.

2. Assessment of Project Objectives

LACMTA is seeking legislative approval to convert existing HOV Lanes into HOT Lanes along the I-10, I-110, I-210 and SR-60 corridors. The Project is to be developed in two stages:

- Phase one, to be completed by 2010, consists of converting HOV to HOT lanes on I-10 from Alameda St/Union Station to I605 (28 lane miles), I-110 from 182nd/Artesia Transit center to Adams Blvd (33 lane miles), and I-210 from I-210/SR 134 to I605 (24 lane miles).
- Phase two, to be completed by 2012, would convert HOV to HOT lanes on I-10 from SR 57 to the San Bernardino County Line (12 lane miles), I-10 from I-605 to SR 57 (in design, 18 lane miles), I-210 from I-605 to the San Bernardino County Line (30 lane miles), SR 60 from Brea Canyon to the San Bernardino County Line (16 lane miles), and SR 60 from I-605 to the Brea canyon (under construction, 22 lane miles).

The HOV-to-HOT lane conversion is to be accompanied by a mass transit improvement program, designed to ensure that functional capacity along the targeted corridors is not reduced. The transit expansion includes extra bus, rail and van transfer services, as well as improved parking for commuters. The LACMTA plans to fund the capital expenditure for the transit expansion from a \$233m USDOT congestion pricing grant, while any gaps in operations and maintenance funding for the additional services are to be covered from HOT revenue subsidies. In addition, the HOT lanes are forecast by LACMTA to have significant net revenues. This feasibility report reviews some of the requirements for the LACMTA to obtain Federal grant funding, but in-depth evaluation of the USDOT application and its prospects are not within the scope of these findings.

2.1 Project Rationale

The Project is part of a broad three pronged approach to alleviate congestion in the Los Angeles Metropolitan Area by changing commuter behavior, using active traffic management technologies and enhancing local mass transit services³. Tolling existing HOV lanes is expected to contribute to these objectives in a number of ways:

- Encourage more commuters to carpool;
- Raise additional revenues which can be used to cross subsidize additional public transport on the corridor;

³ To achieve the broader goals of traffic relief LACMTA will collaborate with the California Department of Transportation District 7 (“The Department”), the City of Los Angeles, the County of Los Angeles, the Southern California Association of Governments (SCAG), the San Gabriel Valley Council of Governments, the South Bay Cities Council of Governments, the Southern California Regional Rail Authority, Foothill Transit, the City of Torrance (Torrance Transit), the City of Gardena (Gardena Municipal Bus Lines) and the California Partners for Advanced transit and Highways (PATH) of UC Berkley.

- Ensure the existing HOV-2 lanes do not get overly congested. Maintaining traffic free flow is important for operating effective bus and / or van pool services along the corridor.

2.2 Operational Dependencies

The Los Angeles Express Lane application recognizes that its contents reflect planning stage projections and conclusions. The application states that there is a need for, and the intent to conduct detailed operational analysis before full implementation. Therefore, the financial eligibility discussions in this report may change if data presented in the application change after further analysis. However, it is not expected that such changes would alter the overall conclusions of the report.

Overall corridor performance depends on many of the projections defined in the application. Mixed flow, Express lane, and corridor arterial performance depend to a large extent on the ability to attract the projected new transit riders, operational management of ingress and egress traffic into and out of Express lanes, and payment verification and enforcement.

Metro and Caltrans recognize these potential challenges and do not intend to diminish overall corridor performance. The agencies have therefore embarked on a study with the assistance of outside consultants to develop a detailed Concept of Operations report to address corridor performance challenges. The agencies will rely on extensive modeling, including travel demand modeling for mode split projections and traffic diversion and the use of operations-sensitive micro-simulation models to add the needed operational details for the Express Lane implementation.

2.3 Benefit / Cost Analysis

The current B/C ratio of 7.7 seems to justify the project, but no in depth evaluation can be performed given the limited information in the LACMTA application.

3. Review of Financial Plan and Model

A cost and revenue estimate (Appendix B), was submitted as proof of financial feasibility. The level of detail in Appendix B is reflective of the preliminary stage of the Project.

The LACMTA plans to finance the capital expenditure for the project upfront from Federal and local sources/project debt. The Project is then self-funding, and expected to generate excess cash in every year of operation.

3.1 Financial Model Assumptions

A. Funding Sources

Toll revenues are expected to be the main source of funding for the Project. For existing segments traffic forecasts were derived from historic HOV ridership data. For the two segments of I-10 and SR 60 on which construction is not complete (I-10 from I-605 to SR 57 and SR 60 from I-605 to the Brea canyon), data from the operational I-10 and SR 60 HOV lanes was used.

The main traffic and revenue assumptions of the forecasting model are:

- a) Traffic changes from HOV to HOT lanes conversion:
 - i. Total traffic, compared to current HOV lane levels is assumed to rise by 33%.
 - ii. Number of HOV 2 vehicles will decrease by 16%, reflecting the response to the toll rates.
 - iii. Number of HOV 3, HOV 4, Transit, Exempt and Hybrid vehicles will stay the same.
 - iv. Single occupant vehicles represent 25% of the total HOT lane traffic.
 - v. If volumes for a segment exceed 1800 vehicles per lane per hour, the number of SOV's is assumed to be lower to keep lanes at 1800 vehicles.
 - vi. Violators assumed to be 10% of traffic.
- b) Toll rates:
 - i. Single occupant vehicles (SOVs) would pay \$0.35 per mile on weekdays and \$0.15 on weekends.
 - ii. HOV-2's were assumed to pay 35% of the SOV rates (\$0.123 and \$0.053 per mile on weekdays and weekends, respectively).
 - iii. Hybrids were assumed to pay 15% of the SOV rates (\$0.053 and \$0.023 per mile on weekdays and weekends, respectively).
 - iv. HOV-3's were assumed to pay 15% of the SOV rates on parts of the corridor and ride free on others
 - v. All other vehicle types were assumed to ride free.
 - vi. Zero revenues factored in for violators.
- c) Revenue growth: 0.55% per year in real terms.

While LACMTA models a toll structure charging HOV-2's 35% of the single occupancy vehicle rate, the HOV-2 charge may have to be increased to comply with Federal requirements (see below). Higher HOV-2 tolls and a higher escalation rate for all tolls will likely result in increased revenues⁴.

There are a number of other risk factors relating to some traffic assumptions made by LACMTA. Some of these will be more fully addressed as LACMTA moves forward with a more robust forecasting effort. The work plan proposal submitted by LACMTA's

⁴ The precise effect of raising HOV-2 fees cannot be predicted without access to the full LACMTA traffic model. However, the sensitivity run provided in the LACMTA application Appendix B page xxxiv seems to indicate that raising tolls for HOV-2s will increase total revenues.

technical consultant ⁵ stated that “Experience has often demonstrated that managed lane projects—particularly HOT lanes providing HOV vehicles free access—generate lower cash flows than some project proponents had initially anticipated,⁶” and that LACMTA’s traffic and revenue forecasting model does not provide for value of time/willingness to pay trip segmentation, and further states that “the following two features, essential for congestion pricing studies, are missing from the existing regional models. We therefore include among our short-term model enhancements: Travel time/generalized cost equilibration...[and]... [p]eak spreading and time-of-day choice. Further it notes that “SCAG’s model exhibits a better highway validation than Metro’s⁷”. The preliminary traffic and revenue forecast also does not appear to contemplate a ramp-up period. It also indicates that if hybrids are not tolled, revenues will be decreased by only 1.2%⁸ which may be aggressive given if current demand for such vehicles grows.

The acceptable range for maintaining free flow conditions (Level of Service “C”) is, according to Caltrans, between 1,100 to 1,600 vehicles per lane per hour. The 1,800⁹ ceiling assumed for the Project is likely too high to maintain the required LOS-C rating in the HOT lanes. LACMTA does indicate that reducing the lane capacity to 16500 vphpl would only lower revenues by 4-7%. Assuming similar revenue elasticity, reducing capacity to the observed maximum usage of 1,400 vphpl on neighboring SR-91, revenues on the LACMTA lanes may be some 10-18% lower than that forecast in the base case. On the other hand, while reductions of capacity may adversely affect congestion, a full traffic and revenue study could reveal that such increased congestion actually increases or leaves constant the revenue depending on the demand elasticity identified¹⁰. Similarly, if shifts to other modes and to off-peak travel result in significant congestion relief, the revenue will be negatively affected, given demand pricing. Conversely, if revenues are insufficient to support all of the transit improvements anticipated, congestion pricing revenues will likely grow, further underscoring the feasibility of the HOT lanes themselves.

LACMTA has indicated that these risk factors appropriately will be more fully explored as LACMTA’s technical analysis and Federal application progress. Given the significant net revenues that were preliminarily forecast and the relatively low capital and operating costs of the HOT Lanes themselves, this level of uncertainty does not impact our feasibility finding, as indicated in section 2.2 of this report.

Federal Funding. On April 25, 2008 the US Department of Transport (DOT) designated Los Angeles, CA, as a Congestion Reduction Demonstration (“CRD”) Partner, following an agreement signed by the Department and its Los Angeles Partner Agencies: the

⁵ Parson Brinkerhoff, LA Metro Project Work Plan

⁶ Ibid, p. G-36

⁷ Ibid, p. G-49

⁸ LACMTA application, p. xxxiii.

⁹ Ibid, p. xxx.

¹⁰ Congestion pricing studies on other projects such as I-595 in Florida have found that the revenue maximizing traffic scenario often arises from traffic levels below maximum throughput.

California Department of Transportation ("CALTRANS") and the Los Angeles County Metropolitan Transportation Authority ("Metro")¹¹.

In its application, LACMTA indicated that it intends to fund 80% of the Project with the USDOT Congestion Pricing grant. The US DOT Grant amounts to \$233m, tied to a series of conditions outlined in the MOU between the USDOT and the partner agencies. These elements of risk with respect to Federal funding for transit capital improvements should be noted. The main requirements made by USDOT are:

- Two projects must be implemented in the LA metro region: the HOV to HOT conversion, and a complementary set of **mass transit improvements**¹². The mass transit projects could include bus fleet acquisitions, park-and-ride facility improvements, or other transit-related activities. It should be noted that there do not seem to be clear deadlines or operational targets for the mass transit expansion program.
- Section 4(b) of the MOU states: “The HOT Lanes shall be in revenue operation by not later than December 31, 2010, unless otherwise agreed by the Department and the Partner Agencies. In the event of a **delay in implementation** of any HOT Lane due to circumstances *beyond the control of the Partner Agencies*, the Department may negotiate an extended completion date or exercise any of its remedies under the Grant Agreements.” [Emphasis added.] In the event this deadline is missed AND USDOT declines to renegotiate this provision, LACMTA and its partners would need to provide up to \$213.6 million in State and local funding to fund the required transit capital improvements. Whether and how LACMTA and its partners could provide such funding is beyond the scope of this feasibility assessment.
- Similarly, 4(c)(i)(a.) of the MOU states: “all **legal authority** necessary to implement the Conversion (as defined), including, without limitation, legal authority to implement congestion pricing, has been duly adopted, which authority shall be duly adopted *not later than October 15, 2008*.” [Emphasis added.] Presumably, one such authority required will be affirmative action by the California Legislature prior to the date specified. As is the case of the Section 4(b) deadline, should that deadline be missed and should USDOT decline to extend it, LACMTA and its partners would need to decide whether and how to proceed.
- The Partner agencies must certify that they have secured **\$110m in local funds** for the HOV to HOT conversions by no later than September 30, 2008.
- No **vehicles with two or fewer occupants, including hybrids**, may be exempt from tolls or charged lower tolls than single-occupant, non-hybrid vehicles when traveling in the HOT lanes of any of the converted facilities.

¹¹ <http://www.crd.dot.gov/agreements/la.htm>

¹² It should be noted that this feasibility analysis, conducted on behalf of CTC, is focused solely on the feasibility of the HOT lanes.

The USDOT requires that local authorities provide the funding for the capital expenditure of the HOV to HOT lane conversions, leaving the grant to be used primarily for the mass transit improvements. Some inconsistencies exist between the Federal funding memorandum and the Assembly Bill 1467 application. The most important difference is that the toll structure modeled in LACMTA's AB 1467 application shows HOV-2's would pay 35% of the SOV rate (see paragraph 2.1 b. ii. above). This is incongruent with the US DOT agreement, which requires HOV-2's and hybrids be charged the same rate as SOV's.

To resolve these toll structure differences the LACMTA has two options: change the details of the CTC application, or attempt to renegotiate the terms of its memorandum with the USDOT, which LACMTA has indicated remains a possibility. If the LACMTA decides to charge a single fare to SOVs, HOV-2's and hybrids, this could have an impact on the HOT lane revenues. With the information provided in the LACMTA AB 1467 application it is not possible to determine exactly how a single fare structure would impact revenues.

State and Local Funding is expected to cover the remainder of the Project's costs. No details are provided on the specific source of these funds. However, based on the project's current cost and revenues estimates, toll revenues bonds issued by the local authorities should be sufficient to cover all capital cost for the HOV-to-HOT lane conversion.

B. Costs

This section reviews all costs associated with the HOV-to-HOT conversion, and secondarily with the operations and management expenses required from the complementary transit services expansion assumed by the LACMTA, as the latter are not formally part of the HOT lanes themselves. Capital costs for the transit expansion were not provided by LACMTA in its report, and are assumed to be financed separately, perhaps from the USDOT congestion pricing grant.

Initial Capital Expenditure. The current initial capital cost assumptions are outlined in Attachment B hereto. The current projections for the Project Capital Expenditure are \$44.3 m for Operating Segment One and \$74.8 m for Operating Segment Two. These costs are indicative of a system that relies purely on electronic tolls collection and makes no use of tolling booths.

The CapEx figures were obtained by looking at the costs of equipment and its installation in similar tolling location types on I-15 and other managed lanes facilities. These figures for each location type were then escalated at an annual rate of 3%. Separate lump sum costs were added for 3rd party software and hardware costs, customer service centers. Engineering and design costs, a 10% Consultant Program Oversight and Management

fee, 3% Administrative costs for each of Caltrans and LACMTA and a 30% total contingency cost were also included in the final CapEx figures.

Operation & Management and Rehabilitation & Renewal Expenditures. Attachment B hereto outlines the projected Operating costs for the Project. The O&M costs were forecast by HNTB for a purely electronic toll collection system calibrated using data from I-15. Project O&M estimates are limited to: toll operation and management, utility and insurance costs, and California Highway patrol HOT lane enforcement. All other costs are assumed to be the responsibility of other parties and separate from the Project.

Subsidies to Transit. The LACMTA application contains estimates for the necessary subsidies in three years: 2010, 2015 and 2020. Each estimate is based on estimated transit ridership increases, combined with cost and cost recovery data reported by local transit agencies. In 2010 the estimated total subsidy is \$17m. LACMTA assumes ridership (and thus the required subsidy) will increase at 2% per year.

Scheduling. The proposed project schedule is provided in Attachment A of the application. LACMTA currently intends to finalize Phase One of the Project by 2010, and Phase Two by 2012.

Indexation. A summary of the cost escalation rates that LACMTA uses in Appendix B is shown as Table 2 below (Caltrans’ recently adopted standard assumptions are also provided as a reference).

Table 2: Summary of Cost Escalation Assumptions

Escalator	LACMTA Base Case	Caltrans
Operations & Management	3%	3%
Rehabilitation & Resurfacing	N/A*	5%
Right-of-Way (“RoW”) acquisition	N/A**	20%
Capital expenditure w/o RoW	3%	5%

* LACMTA provides figures in \$2008.

** None projected.

C. Project Organization & Responsibilities

LACMTA will appoint a Project Director and have, with the assistance of The Department, ultimate responsibility for the Project. Engineering plans, technical and/or performance specifications, environmental approval, and will be the responsibility of the

Department. Responsibility for procurement documents and the final construction contract will be shared.

3.2 Financial Model Testing

LACMTA's application includes two sensitivity runs in Appendix B, page xxxiv:

- a. It is estimated that if HOV-2's were charged 50% of the SOV rates (up from 35%) and Hybrids and HOV-3's were charged 33% of the SOV rates (up from 15%), revenues would rise by some 20-25% using the existing LACMTA model.
- b. If the assumed capacity of the Express Lanes is reduced from 1800 vphpl to 1650 vphpl, revenues would decrease by 4-7%.

As stated above, CalTrans currently places the maximum traffic levels for maintaining free flow between 1100 vphpl and 1600 vphpl. The corridors targeted by the LACMTA conversion project may operate at the lower end of that range, as they involve roads with a high density of entries and exits, and merging in and out of traffic could reduce lane capacity.

Table three summarizes the cost and revenue estimates provided by LACMTA, excluding capital costs for additional mass transit services, assumed to be financed separately from funds such as the DOT congestion pricing grant. To address some of the traffic estimate concerns expressed above, Table 3 includes a "stress" case with 25% lower toll receipts and 25% higher costs. Under both the base case and the stress case scenario the Project is financially feasible and generates significant excess revenues. Note that this analysis represents a basic, preliminary financial test and is not intended to indicate leveraging capacity of future toll revenues which would be subject to debt service coverage ratio requirements and numerous other considerations.

Table 3: Summary of Project Costs and Revenues, \$2010¹³

Funding Surplus Estimates: Base and Stress Cases <i>(Rough Estimates Based on Data Provided by LACMTA in Appendix B of the Application*)</i>			
<u>Revenue and Expense Estimates (\$2010)</u>	<u>Base Case Run</u>	<u>Stress Case**</u>	<u>Stress Case Run</u>
Toll Revenues thru 2049, less:	\$ 6,875,504,564.00	75%	\$ 5,156,628,423.00
HOT Operating & Maintenance and Equipment Replacement Expenses	\$ (1,555,258,182.00)	125%	\$ (1,944,072,727.50)
HOT Capital Expenditures	\$ (119,180,000.00)	125%	\$ (148,975,000.00)
Additional Transit O&M Expenses	\$ (1,028,350,226.66)	125%	\$ (1,285,437,783.33)
Rough Estimate of Surplus NPV	\$ 4,172,716,155.34		\$ 1,778,142,912.17

* Revenue totals are derived from Appendix B, Table 6. Costs come from Appendix B, page xxviii. It should be noted that the table excludes capital costs associated with mass transit expansion, as well as any Federal Funds that may be obtained by LACMTA

** Shows percentages applied to revenue and expense amounts used in the base case run provided by LACMTA in Appendix B.

4. Findings and Conclusions

This report finds that, based on the materials provided to CTC by the applicant, the conversion of HOV into HOT lanes in the LA metropolitan area is feasible from a financial perspective.

A number of risk factors are noted in our report. In particular, the LACMTA assumes the availability of Federal funds for expanding mass transit services. These funds have not yet been committed to the Project, although it is our understanding from LACMTA that such commitment is anticipated, assuming of course that all conditions contained in the MOU with USDOT are satisfied. Furthermore, the LACMTA's analysis of the Project costs and revenues, while appropriate for this early stage of planning, is preliminary and could change as the Project moves forward. LACMTA has also not provided supporting information on transit capital cost estimates and analysis of such estimates is outside the scope of this report. However, while such transit enhancements are a key factor in the congestion relief aspects of the Project, any inability to implement them will not affect the financial feasibility of the project (and in fact may positively affect revenues as well as reduce operating costs). We find, based on the information provided, that the Project appears to generate significant excess revenues even in a low revenue / high cost stress case scenario, indicating that risk factors identified are likely not large enough to compromise the Project's financial feasibility.

¹³ For this feasibility analysis, all cost and revenue estimates in the application were converted to \$2010 using an inflation assumption of 3%.

5. Appendix

Project Cash Flows, \$2010*

Year	Toll revenues, \$2010 (Appendix B, pp XXXV)	Toll OpEx and R&R, \$2010 (Appendix B, pp XXVIII)	Equipment replacement, \$2010 (Appendix B, pp XXVIII)	Transit subsidies \$2010, at 2% annual escalation (Table 4, pp 27)	Net revenues after Transit Subsidies, \$2010	Total Expenses as % of HOT Revenues, \$2010
2010	\$ 85,816,553.00	\$ 21,727,232.00	\$ -	\$ 17,025,107.00	\$ 47,064,214.00	45%
2011	\$ 86,289,256.00	\$ 21,727,232.00	\$ -	\$ 17,365,609.14	\$ 47,196,414.86	45%
2012	\$ 159,070,320.00	\$ 35,211,271.00	\$ -	\$ 17,712,921.32	\$ 106,146,127.68	33%
2013	\$ 159,946,626.00	\$ 35,211,271.00	\$ -	\$ 18,067,179.75	\$ 106,668,175.25	33%
2014	\$ 160,827,558.00	\$ 35,423,451.00	\$ -	\$ 18,428,523.34	\$ 106,975,583.66	33%
2015	\$ 161,713,444.00	\$ 35,741,721.00	\$ -	\$ 18,797,093.81	\$ 107,174,629.19	34%
2016	\$ 162,604,209.00	\$ 35,741,721.00	\$ -	\$ 19,173,035.69	\$ 107,689,452.31	34%
2017	\$ 163,499,880.00	\$ 36,059,991.00	\$ -	\$ 19,556,496.40	\$ 107,883,392.60	34%
2018	\$ 164,400,486.00	\$ 36,166,081.00	\$ -	\$ 19,947,626.33	\$ 108,286,778.67	34%
2019	\$ 165,306,052.00	\$ 36,484,351.00	\$ -	\$ 20,346,578.86	\$ 108,475,122.14	34%
2020	\$ 166,216,606.00	\$ 36,590,441.00	\$ 9,123,740.00	\$ 20,753,510.43	\$ 99,748,914.57	40%
2021	\$ 167,132,176.00	\$ 36,802,621.00	\$ -	\$ 21,168,580.64	\$ 109,160,974.36	35%
2022	\$ 168,052,789.00	\$ 37,014,801.00	\$ -	\$ 21,591,952.25	\$ 109,446,035.75	35%
2023	\$ 168,978,473.00	\$ 37,333,071.00	\$ -	\$ 22,023,791.30	\$ 109,621,610.70	35%
2024	\$ 169,909,256.00	\$ 37,333,071.00	\$ -	\$ 22,464,267.13	\$ 110,111,917.87	35%
2025	\$ 170,845,166.00	\$ 37,439,161.00	\$ -	\$ 22,913,552.47	\$ 110,492,452.53	35%
2026	\$ 171,786,231.00	\$ 37,757,431.00	\$ -	\$ 23,371,823.52	\$ 110,656,976.48	36%
2027	\$ 172,732,480.00	\$ 38,075,701.00	\$ 9,123,740.00	\$ 23,839,259.99	\$ 101,693,779.01	41%
2028	\$ 173,683,942.00	\$ 38,181,791.00	\$ -	\$ 24,316,045.19	\$ 111,186,105.81	36%
2029	\$ 174,640,644.00	\$ 38,606,151.00	\$ -	\$ 24,802,366.09	\$ 111,232,126.91	36%
2030	\$ 175,602,616.00	\$ 38,606,151.00	\$ -	\$ 25,298,413.41	\$ 111,698,051.59	36%
2031	\$ 176,569,886.00	\$ 38,924,421.00	\$ -	\$ 25,804,381.68	\$ 111,841,083.32	37%
2032	\$ 177,542,485.00	\$ 39,030,511.00	\$ -	\$ 26,320,469.31	\$ 112,191,504.69	37%
2033	\$ 178,520,441.00	\$ 39,136,601.00	\$ -	\$ 26,846,878.70	\$ 112,536,961.30	37%
2034	\$ 179,503,784.00	\$ 39,454,871.00	\$ 9,123,740.00	\$ 27,383,816.28	\$ 103,541,356.72	42%
2035	\$ 180,492,544.00	\$ 39,773,141.00	\$ -	\$ 27,931,492.60	\$ 112,787,910.40	38%
2036	\$ 181,486,750.00	\$ 39,985,321.00	\$ -	\$ 28,490,122.45	\$ 113,011,306.55	38%
2037	\$ 182,486,432.00	\$ 40,197,501.00	\$ -	\$ 29,059,924.90	\$ 113,229,006.10	38%
2038	\$ 183,491,621.00	\$ 40,409,681.00	\$ -	\$ 29,641,123.40	\$ 113,440,816.60	38%
2039	\$ 184,502,346.00	\$ 40,621,861.00	\$ -	\$ 30,233,945.87	\$ 113,646,539.13	38%
2040	\$ 185,518,639.00	\$ 40,727,951.00	\$ -	\$ 30,838,624.79	\$ 113,952,063.21	39%
2041	\$ 186,540,530.00	\$ 41,046,221.00	\$ 9,123,740.00	\$ 31,455,397.28	\$ 104,915,171.72	44%
2042	\$ 187,568,050.00	\$ 41,152,311.00	\$ -	\$ 32,084,505.23	\$ 114,331,233.77	39%
2043	\$ 188,601,230.00	\$ 41,470,581.00	\$ -	\$ 32,726,195.33	\$ 114,404,453.67	39%
2044	\$ 189,640,101.00	\$ 41,576,671.00	\$ -	\$ 33,380,719.24	\$ 114,682,710.76	40%
2045	\$ 190,684,695.00	\$ 42,001,031.00	\$ -	\$ 34,048,333.62	\$ 114,635,330.38	40%
2046	\$ 191,735,042.00	\$ 42,319,301.00	\$ -	\$ 34,729,300.29	\$ 114,686,440.71	40%
2047	\$ 192,791,175.00	\$ 42,319,301.00	\$ -	\$ 35,423,886.30	\$ 115,047,987.70	40%
2048	\$ 193,853,125.00	\$ 42,531,481.00	\$ -	\$ 36,132,364.03	\$ 115,189,279.97	41%
2049	\$ 194,920,925.00	\$ 42,849,751.00	\$ -	\$ 36,855,011.31	\$ 115,216,162.69	41%
Total	\$ 6,875,504,564.00	\$ 1,518,763,222.00	\$ 36,494,960.00	\$ 1,028,350,226.66	\$ 4,291,896,155.34	-
Yearly Average	\$ 171,887,614.10	\$ 42,849,751.00	-	-	\$ 107,297,403.88	38%

* To assure consistency, for this feasibility analysis, all cost and revenue estimates in the application were converted to \$2010 using an inflation assumption of 3%. This leads to slightly more favorable results than those shown in Table 3 (p.26) of the application.