Colorado High Performance Transportation Enterprise

US 36 Managed Lanes Toll Concession Project

Project Value Analysis

February 2014

CONTENTS

EXECUTIVE SUMMARY

This report describes the rationale, objectives and processes that led to the High Performance Transportation Enterprise Board's ("Board") decision to use a Concession Model public private partnership for the US36 Managed Lanes Project. The report is intended to give a clear sense of how and why the decision was reached to proceed with the Concession Model. The report details how the Board determined it would receive value from the Concession Model under which significant project risks are transferred to the private sector in return for some control contractually granted to the concessionaire.

Project Value is a broad term that captures both quantitative factors such as costs, and qualitative factors such as service quality and public interest. The Project Value Analysis ("PVA") was developed to assist the Board in evaluating and selecting the project delivery model that best met its goals and objectives, appropriately addressed project risks and optimized the use of scarce taxpayer dollars. The PVA quantifies value by comparing the potential cost to HPTE under a range of outcomes upon the occurrence of certain risks under both the traditional Public Model and the Concession Model.

This report is an update of the PVA dated June 2012 ("2012 PVA") and reflects the results of the competitive bidding process leading to the selection of the Concessionaire as well as the financing terms obtained by the Concessionaire at Financial Close. The Board made its decision to proceed with the procurement of US 36 ("Project") as a Concession based in part on the results of the 2012 PVA. At that time the Board decided that the use of the Concession Model provided significant value to HPTE and ultimately the residents of the State of Colorado through the transfer of revenue and other project risks to the concessionaire. The 2012 PVA also indicated that the Concession Model required the lowest amount of upfront funding in order to deliver the Project.

Following a competitive P3 procurement process, on April 5, 2013 the Board selected Plenary Roads Denver ("PRD") as the Preferred Proposer for the Project. This update was prepared to brief the Board on changes to estimated Project Values under both the Concession Model and the Public Model as a result of the P3 Procurement and the negotiated Concession Agreement.

PROJECT BACKGROUND

In February 2012, the High Performance Transportation Enterprise ("HPTE") initiated a two-stage competitive procurement to select a private partner to design, build, finance, operate and maintain the Project (as defined further below). A Request for Qualifications was issued and four teams submitted Statements of Qualifications. The HPTE Board ("Board") shortlisted the three highest ranked teams ("Proposers") as the best qualified and sufficiently capitalized to move into the Request for Proposal stage of the procurement. These teams included Denver Access Partners led by Cintra Infraestructuras S.A., Plenary Roads Denver led by The Plenary Group, and US 36 Development Partners led by Isolux Corsan.

After the shortlist was determined, HPTE staff and advisors prepared a draft Concession Agreement and Request for Proposals ("RFP") and engaged in a series of one-on-one negotiations with Proposers that culminated in the issuance of a final RFP and Concession Agreement on December 14, 2012. On March 1, 2013 binding proposals were received from Plenary Roads Denver and US 36 Development Partners. Evaluation of proposals was conducted during the month of March and on April 5, 2013 the Board announced that Plenary Roads Denver ("PRD") was the Preferred Proposer.

This update to the 2012 PVA reflects changes made to Project scope and numerous other factors, such as changes in interest rates and HOV policy that were considered during the procurement process and therefore results may not be directly comparable to the earlier analysis. In addition to the quantitative component of the PVA, the Board determined that certain qualitative factors were important to the decision process, including the following:

- delivering the Project with the lowest amount of upfront subsidy;
- transferring revenue risk to the concessionaire;
- relieving CDOT of its contingent obligations to the Project under the CDOT O&M Loan Agreement for Phase 1;
- constructing the Phase 2 Managed Lanes and the Phase 2 General Purpose Lanes in an effective and economic way and in accordance with HPTE/CDOT requirements;
- facilitating RTD's Bus Rapid Transit programs in the corridor to Boulder;
- optimizing asset condition over the long term; and
- minimizing inconvenience to the public and maximizing safety of workers and the travelling public.

PROJECT DESCRIPTION

After discussions with Proposers and evaluation of available funding, the base Project scope was redefined to include the following components:

- Construct Phase 2 of the US 36 Corridor:
  - Construct one managed lane in each direction
  - Reconstruct two general purpose lanes in each direction
  - Construct a Divergent Diamond Interchange at McCaslin Boulevard (this scope was not part of the 2012 PVA analysis)
- Operate and maintain (routine and major maintenance):
  - US 36 Managed Lanes
  - US 36 General Purpose Lanes*
  - I-25 Express Lanes
  - I-25 Works Package (this scope was not part of the 2012 PVA analysis)
  - Snow and ice removal on US36 (including both managed lanes and general purpose lanes)
  - Snow and ice removal on I-25 Express Lanes (but not the I-25 general purpose lanes)
- Perform major maintenance:
  - US 36 Managed Lanes
  - I-25 Express Lanes

*Based on the proposal submitted by PRD, the US36 GP Lanes Routine Maintenance will be performed by PRD while major maintenance of the GP Lanes will be CDOT's responsibility.

BASIS FOR COMPETITIVE P3 PROCUREMENT

Best Value Proposal: The P3 procurement was based on selecting the "best value" proposer. Best value was determined by the relative weightings of the evaluation criteria with the financial aspects of the proposal weighted at 65% of the total score and technical proposals at 35%. Of the 65% weighting for the financial components of the proposals, 55% was assigned to the amount of subsidy requested ("HPTE Capital Payment Request"). This weighting reflected HPTE's goal of minimizing the amount of subsidy required for the Project. The remaining 10% of the weighting for the financial proposal was based on the overall feasibility of the Proposer's financial plan including the proposed schedule of events to reach financial close.

General Purpose Lanes Maintenance Proposal: Proposers were also asked to submit a price to perform routine maintenance on the US36 General Purpose Lanes. If the proposed price for this work was less than a benchmark price predetermined by CDOT, but not provided to the proposers, the concessionaire

selected under the best value proposal would receive the fees and perform the work associated with this work. This element of the procurement was not scored as a part of the bid evaluation process.

RISK ALLOCATION SUMMARY

Prior to the P3 procurement, HPTE carefully considered a range of project risks and developed an initial project risk allocation that assigned each project risk to the party best able to cost-effectively manage that risk. As a result of negotiations with shortlisted Proposers during the P3 procurement, minor changes were made to the original risk allocation and the final Concession Agreement reflects the negotiated risk allocation which was acceptable to both HPTE and PRD.

Under the Concession Agreement, PRD is primarily responsible for the risks associated with the following:

- Sufficiency of toll revenues;
- Level of HOV traffic in the managed lanes and the impact on revenue;
- Repayment of the Phase 1 TIFIA Loan and new debt issued to finance Phase 2;
- Toll collection and enforcement;
- Effectiveness and ability to implement the proposed project design;
- Construction costs, schedule, labor availability and geotechnical conditions;
- Price and availability of operations and maintenance resources;
- Snow and ice removal;
- Rehabilitation;
- Handback of the facility with the required residual life; and
- A portion of the costs associated with availability of and changes to the cost of financing through financial close.

Of the risks that will be transferred to PRD, HPTE and the Board considered the most important of these to be revenue risk, debt repayment risk, and long-term operations and maintenance risk. Transfer of these risks was considered to be particularly important given HPTE and CDOT's limited ability to contribute additional funds to the Project in the event revenues are less than estimated, and the TABOR restrictions limiting the use of taxpayer funds for costs such as debt service.

PVA METHODOLOGY

In reaching its decision to use the Concession Model, the Board evaluated the Project several times as project scope, revenues and costs were refined. The PVA includes an analysis of a Base Case which measures the value under both the Public and the Concession models by the amount of upfront subsidy required. The Base Case under the Public Model includes HPTE's P50 traffic and revenue estimates, CDOT cost estimates and traditional tax-exempt bond financing structure. The Concession Model Base Case includes PRD's traffic and revenue estimates, costs and finance plan. The Base Case is not risk adjusted to account for the cost or value of many key project risks retained by HPTE in the Public Model, such as: construction risk, cost overruns and revenue risk. Accordingly, the PVA also includes a range of

sensitivities to test the impact on Project Value of several project risks that would be retained by HPTE under the Public Model.

This PVA report provides the most reasonable assessment of whether the Concession Model better satisfies the Board's goals and objectives and anticipated value because it is based on the actual risk allocation negotiated in the Concession Agreement. However it should be noted that while the Concession Model is based on PRD's proposal, the Public Model is still an estimate based on high level assumptions as described below.

ASSUMPTIONS

This updated PVA incorporates the following assumptions which are the result of changes in the project scope, final terms of the Concession Agreement, revised costs or actual data based on the Preferred Proposer's proposal.

1. Revenue

The Public Model uses the traffic and revenue forecasts prepared by CDM Smith which are consistent with the revenue forecasts HPTE would rely on if it financed the Project itself. These revenue estimates are typically referred to as P50. It is noted that the Public Model traffic and revenue forecasts were updated from those used in the June 2012 PVA to account for the change in the regional HOV policy from HOV 2+ to HOV 3+ beginning in 2017.

The Concession Model is based on the traffic and revenue estimates prepared by the PRD's traffic and revenue consultant. Of note, the Concession Model revenue forecasts were very close to CDM Smith's P50 case for the first 15 years of the operating period which is unusual based on prior precedent transactions and serves to dampen the financing capacity of the Project. While it is common for the private sector to take a more optimistic view of the potential traffic and revenue that may be generated in a project, there are a few possible reasons that this did not occur during the procurement for the Project. Several project-specific characteristics most likely contributed to more conservative forecasts than expected including uncertainty around timing and impact of the HOV policy, the impact of RTD's bus service on the amount of toll-paying traffic in the corridor and the fact that the project is only one Managed Lane in each direction which is uncommon for these types of projects. Additionally, the private sector has generally become more conservative in estimating revenues on managed lanes projects due to changes by the rating agencies in assessing credit quality of managed lanes projects and the residual effects of the global financial crisis.

1. Construction Costs

The Public Model was updated to incorporate the Design-Build price bid by PRD as it is now a more accurate reflection of the prices HPTE would have likely received in a public procurement. As part of the competitive P3 procurement process the project scope changed significantly to include certain improvements that were not included in the initial PVA, such as improvements in the I-25 corridor and a divergent diamond interchange at McCaslin Boulevard. In addition, HPTE is required to pay a stipend of $500,000 to proposers submitting a responsive proposal. As two responsive proposals were submitted, $1.0 million has been included as a cost in the Public Model. This payment would need to be made by

HPTE if it elected to finance the Project using the Public Model approach after the receipt of proposals. Unless noted otherwise the values in the analysis do not include the $850,000 cost of the McCaslin Underpass work for the Public or Concession Model as this work was included in the original project scope.

2. Operations and Maintenance (O&M) Costs

O&M costs for the managed lanes in the Public Model were developed by CDOT. The Public Model was updated to include an ongoing HPTE oversight cost for the Project equal to the HPTE Reimbursement Amount to be paid by the concessionaire, i.e. $375,000 per year inflated. This cost was included in the Public Model to account for costs that would be incurred by HPTE that would not otherwise be captured as on-going project costs.

PRD's price of $675,000 per year for the US36 GP Lanes Routine Maintenance was less than the CDOT Benchmark of $798,900 per year. Therefore the difference of $123,900 per year was added as a cost in the Public Model to account for the higher cost CDOT would incur for GP Lanes maintenance if it performed this work.

3. Toll Collection Costs

Toll collection costs for the Public Model were based on the preliminary pricing provided by E-470 for the Project. While these costs are higher than E-470 is currently charging for the I-25 Express Lanes, they are representative of E-470's actual passthrough costs and do not include any mark-up or profit. PRD assumed that E-470 would provide back office toll collection services so the Concession Model uses the same toll collection costs.

4. Major Maintenance Costs

Major maintenance costs for the Public Model were developed by Jacobs and are the same as those used in the initial PVA.

5. Financing Assumptions

Both models contemplate that the Phase 1 TIFIA loan remains in place without change to the loan repayment schedule. The Public Model financing assumptions, including a Phase 2 TIFIA Loan and tax-exempt bonds, have not changed except to update interest rates to those at the time of Financial Close which are higher now than when the PVA was completed in 2012. The Concession Model includes a subordinate Phase 2 TIFIA Loan, Private Activity Bonds, a subordinate shareholder loan and equity. In addition to customary debt service reserve accounts, the Concession Model also contains several important reserve funds for long term project costs such as major maintenance, ramp up and O&M. The Public Model includes only a debt service reserve account and a major maintenance reserve account.

6. Term of Analysis

The analysis considers the subsidy and net revenues over the 50 year operating term of the Concession Agreement.

7. Net Present Value of the Project

The Project Value Analysis considers the net present value (npv) of both the upfront subsidy as well as the value of "excess" revenues over the period analyzed. The net present value of the Project has been calculated as follows: *Upfront Subsidy + Excess Revenues*

The Concession Agreement requires the concessionaire to share a portion of excess revenues with HPTE in the event actual revenues are higher than the concessionaire's projections.

8. Discount Rates

Consistent with the 2012 PVA, the results for each model are shown on a net present value basis. A discount rate of 14% was used for this update. This rate is slightly higher than the 13% used in the initial PVA but reflects the average equity return expectations bid by proposers. This rate therefore represents the most accurate assessment of the cost of the Project's risks. A discount rate of 5% has been applied to the upfront subsidy requirements and the difference in CDOT General Purpose Lanes Maintenance costs and PRD's GP Lane price. The 5% discount rate approximates HPTE's cost of funds as the subsidy is being paid from state and local resources and is contributed over a relatively short time frame.

SENSITIVITY ANALYSES

1. Revenue Sensitivities

   a. Revenue sensitivities were prepared to illustrate the impact to HPTE if the Public Model revenues (P50) were 25% and 40% lower than projections after the Project has been financed and is open to traffic.

      There is no impact to HPTE if revenues are lower than projections under the Concession Model therefore no downside sensitivities were performed.

   b. Two sensitivities were prepared to estimate the positive benefit to HPTE under the Public Model if revenues were higher than projections after the Project is open to traffic. These sensitivities are: 1) if revenues are 10% higher than projections in the first year of operations and continue to be 10% higher every year throughout the term of the analysis period; and 2) if revenues meet projections for the first five years, exceed projections by 5% for the next five years, and exceed projections by 10% for every year of the remainder of the term of the analysis period.

   c. Sensitivities were also prepared to estimate the positive benefit to HPTE under the Concession Model if revenues are higher than projected in PRD's base case model and revenue sharing is triggered. These are: 1) if revenues are 10% higher than projections throughout the term of the Agreement; and 2) if revenues meet projections for the first five years, exceed projections by 5% for the next five years, and exceed projections by 10% for the remainder of the term of the Agreement.

In determining the impact on HPTE's ability to meet its Project obligations, the revenue sensitivity analysis considers the priority of the use of revenues as required by the rating agencies and lenders (i.e. 1) routine O&M, 2) debt service and 3) major maintenance).

Basis for Revenue Sensitivities

There are a limited number of operating managed lanes projects in the U.S. and information about actual performance against initial projections is not extensive enough to identify a clear pattern of performance. However, the rating agencies have developed an approach to rating managed lanes projects which considers the revenue risk of these types of projects and applies various sensitivities in order to test a project's resilience to underperformance. The downside revenue sensitivities used in the PVA were selected based on information contained in published reports from Moody's[1] and Fitch[2] on managed lanes ("ML projects").

In particular, Moody's notes "that managed lanes projects have a limited history in the US and the demand for them among motorists is highly discretionary….we expect in general managed lanes projects to exhibit a higher degree of revenue volatility compared to traditional toll roads." Fitch notes that "ML projects have sound foundation, but will be more volatile." Further, Fitch's report goes on to say that "…sensitivity testing reveals that a 10% reduction in total corridor volume …results in a more than 25% reduction in ML volume…This sensitivity also results in a 48% reduction in revenue from the base scenario." These comments indicate that due to the sensitive nature of managed lane pricing, small changes in overall corridor traffic volume (e.g. 10% reduction) can have a large impact on ML toll volume (25% reduction) and revenues (48%). Based on this data ML revenue reductions of 25% and 40% were considered appropriate.

Even less information was available about positive project performance and while the upside of a corridor wide traffic increase may be symmetrical with the downside impact (i.e. 10% increase in corridor traffic resulting in 48% increase in ML revenues) there is little evidence to date to support this assertion or that managed lanes projects in general or this project in particular will outperform projections. Therefore the PVA considered a somewhat conservative upside revenue scenario in which Project revenues are increased by 10%.

2. <u>O&M Sensitivities</u>

    a. An updated O&M sensitivity analysis was conducted to determine the impact of potential savings on O&M costs. As noted above, the PRD price for the US36 GP Lanes Routine Maintenance was approximately $123,900 per year or 15% below the CDOT Benchmark cost. This price gives an indication of the savings that may be realized for all O&M costs on the Project under the Concession Model and is in line with the empirical data and O&M sensitivity analysis performed under the 2012 PVA. Therefore the Public Model considered the impact of O&M costs 15% higher than the Concession Model.

[1] Moody's Special Comment: Managed Lanes are HOT! Unique risks and benefits versus traditional tolling. Dated: May 9, 2013.
[2] Fitch Ratings Special Report: Paying for Predictability, U.S. Managed Lanes Projects. Dated: April 2, 2012.

b. An O&M sensitivity was also undertaken to estimate the potential financial exposure to CDOT under the O&M Loan assumed in the Public Model. The CDOT O&M Loan was provided to enhance the credit quality of the Phase 1 financing but placed a contingent liability on CDOT to provide funds for the Project if excess revenues from I-25 were insufficient to pay O&M on Phase 1. The PVA assumes that under the Public Model, CDOT would also provide an O&M Loan to support the funding of Phase 2, thereby increasing its contingent liability risk. A sensitivity was performed on the Public Model to estimate the amount of funding that CDOT may be required to contribute to the Project if excess I-25 revenues only covered 50% of annual O&M costs. Under the Concession Model, CDOT has no liability or risk for providing funds for O&M.

RESULTS

Net Project Value is the net present value of excess revenues less the net present value of the upfront subsidy. Table 1 presents the estimated upfront subsidy requirements under the Base Case for the Concession Model and the Public Model. Table 2 shows total Project Values for the Base Case and the sensitivities described above.

Upfront Subsidy Observations

As shown in Table 1, the npv of the upfront subsidy is ($45.4) million under the Concession Model while the npv of the upfront subsidy is ($60.2) million under the Public Model. Under the Public Model, HPTE would retain all revenues from the Project after paying debt service, operations and maintenance costs. As these revenues are not guaranteed, the discount rate used reflects the potential risk of HPTE receiving the excess revenues as discussed in "Assumptions" above. Under the Concession Model HPTE would not be entitled to receive any project revenues under the Base Case.

Table 1 – Upfront Subsidy Requirements

	Base Case Total Upfront Subsidy in $ (millions)	
	Concession Model(1)	Public Model(1)
Nominal	$(48.8)	$(66.0)
NPV	$(45.4)	$(60.2)

(1) The total subsidy includes $13.5 million from the cities of Louisville and Superior and $1.3 million from Boulder County, but does not include the $850,000 cost of the McCaslin Underpass construction.

Summary of Project Values

Table 2 presents the Base Case Project Values as well as the Project Values resulting from the various sensitivity analyses.

The results indicate that the Concession Model Base Case shows a higher Net Project Value than the Public Model Base Case even when considering the NPV of revenues available to HPTE after all costs and debt service are paid under the Public Model. Further, Project Values change considerably once the sensitivities have been added to the Base Case Project Values. The results of the sensitivity analysis

presented in Table 1 are shown on a standalone basis therefore if more than one sensitivity were combined, Project Values could change significantly.

Project Values are presented on a net present value basis in order to effectively compare the results under each model. Detailed analyses for all sensitivities are included in Appendix A.

Table 2 – Summary of Project Values

Base Case	Concession Model (NPV)	Public Model (NPV)
Net Project Value[1]	($45,400,000)	($47,587,000)
25% Downside Revenue Sensitivity		
25% Downside Revenues[1]	$0	($33,100,000)
Net Project Value	($45,400,000)	($80,687,000)
10% Upside Revenue Sensitivity		
10% Upside Revenues[1]	$2,700,000	$13,300,000
Net Project Value	($42,700,000)	($34,287,000)
O&M Sensitivity		
15% Higher HPTE Managed Lanes O&M Costs[1,2]	$0	($13,200,000)
Net Project Value	($45,400,000)	($60,787,000)
CDOT O&M Contingent Liability Sensitivity		
50% of estimated annual O&M exposure[1, 2]	$0	($14,500,000)
Net Project Value	($45,400,000)	($62,087,000)

1. Net present value at 14% discount rate for revenues and 5% discount rate for the upfront subsidy amounts
2. Includes O&M costs for US36 Phase 1 and US36 Phase 2

Revenue Sensitivity Observations

Revenue forecasts over a 50 year time horizon are only estimates and include an element of risk whether they are "most likely" revenue estimates or otherwise. Given HPTE and CDOT's limited financial resources, the Board was concerned about the potential financial exposure if revenues were less than the estimates supporting the Project financing under both delivery models. The PVA results show that if revenues are 25% below projections, the Project Value under the Public Model decreases from ($47.6) million to ($80.7) million, while the Project Value under the Concession Model remains at ($45.4 million). This sensitivity shows the magnitude of risk associated with revenue projections and project performance.

The revenue upside sensitivity highlights the potential benefits of better than expected project performance and results in a Project Value of ($34.3) million under the Public Model compared to a Project Value of ($42.7) million under the Concession Model.

O&M Sensitivity Observations

Isolating the O&M cost sensitivities indicates that Project Values change significantly. Project Value under the Public Model decreases from ($49.7) million to ($60.8) million if O&M costs are 15% higher than Public Model estimates. Comparing this result with the Concession Model shows that the Concession Model provides a higher value to HPTE.

Lastly, if I-25 excess revenues only covered 50% of annual O&M costs on US 36, CDOT's potential exposure to paying US36 O&M costs would result in a Project Value of ($62.1) million under the Public Model versus a Project Value that remains unchanged at ($45.4) million under the Concession Model.

The sensitivity analysis highlights that Project Values under the Concession Model, when compared to estimated costs of HPTE retaining risks under the Public Model, provides the better value to HPTE, CDOT, and the State through the risk transfers it achieves. As noted above, these results do not quantify the impact to Project Value if two or more of the sensitivities are combined.

CONCLUSIONS

The updated PVA confirms that the Concession Model delivers significant value to the State of Colorado. Not only does the Concession Model reduce the requisite upfront subsidy, it also meets the Board's priorities for the Project including an appropriate allocation of risk between HPTE and PRD, in particular the transfer of revenue, operations and maintenance risks; relieving HPTE of its obligation to repay the Phase 1 TIFIA; eliminating the potential financial risks associated with the CDOT O&M Loan for Phase 1; and realization of the benefits of a performance-based contract such as a more efficient use of financial resources for construction and guaranteed level of long-term maintenance of the Project.

The Project Value results indicate that on a net present value basis the benefit of the Concession Model over the Public Model is $2.2 million. Public Model value is primarily driven by the expectation the HPTE will receive revenues which otherwise would accrue to the concessionaire under the Concession Model. The value of the revenues in the Public Model are approximately $12 million in npv terms (i.e. today's dollars). However, those revenues would likely not be realized for approximately 20 years while HPTE's exposure to potential revenue shortfalls is most likely to occur in the early years of the Project's operation. The $12 million benefit of excess revenues is eliminated once the $14.8 million (npv) higher upfront subsidy for the Public Model is considered.

Additionally, the results of the sensitivity analyses demonstrate that the Concession Model will provide the highest Project Value under each scenario except the revenue upside sensitivity.

Accordingly, the Board concluded that the Concession Model provided significant value to the HPTE by trading protection from a potential revenue shortfall, lower upfront subsidy and $2.2 million higher Project Value versus approximately a $8.4 million higher value for the Public Model, if the project were to exceed projections by 10% annually each year over the project's life. These financial considerations were especially important to the Board given HPTE's limited financial resources.

The Concession Agreement between PRD and HPTE delivers value to the State by providing:

- *Revenue risk transfer that protects taxpayers and the State from underperformance of the Project:* The revenue sensitivity indicates that under the Public Model there would be a shortfall of $130 million (nominal) or $19.7 million (npv) if revenues were 25% lower than projected resulting in insufficient funding for HPTE to make its debt service payments for 17 years.

- *The lowest amount of Upfront Subsidy*: PRD requested an HPTE Capital Payment of $44.1 million (nominal w/o the McCaslin Underpass) while the Public Model indicated an upfront subsidy of $66.0 million which is $17.2 million higher than the available funds. HPTE will realize the benefit of transferring the majority of financing risk as its contribution to the Project is limited to $48.8 million. As of Financial Close, HPTE will provide PRD with an upfront payment of $49.65 million which includes the maximum HPTE Capital Payment of $48.8 million and the McCaslin Underpass of $850,000. Without a cap the HPTE Capital Payment would have been $50.2 million (excluding the McCaslin Underpass payment) due to changes in interest rates and TIFIA requirements. This risk transfer has resulted in an additional $1.4 million in savings to the State under the Concession Model.

- *Elimination of CDOT's contingent liabilities under the CDOT O&M Loan:* PRD does not have the benefit of the CDOT O&M Loan agreement and is assuming all project risks relating to operations and maintenance. Based on the Phase 1 O&M estimates, this contingent liability on average may have been as much as $3 million annually (nominal) over the Term. Additionally, if the Project were delivered under the Public Model, and assuming that CDOT would include Phase 2 under the CDOT O&M Loan, potential exposure under the O&M Loan could be approximately $14.5 million (npv) assuming revenues were insufficient to fund 50% of the total Project O&M.

- *Taxpayer protection from cost overruns during construction*: The Concession Agreement contains a fixed price, date-certain construction contract and HPTE receives liquidated damages in the event PRD does not meet the Full Services Commencement Date Deadline;

- *Taxpayer protection from cost overruns during operations:* PRD is responsible for all operations and maintenance activities and is at risk if these costs increase over the Term.

- *Savings on maintenance costs on the US36 General Purpose Lanes*: PRD's cost proposal to maintain the GP Lanes was $123,900 or approximately 15% lower than CDOT's estimate for the same works.

- *A well-maintained asset*: PRD must meet performance standards set by HPTE on the Project and is subject to penalties if it is not in compliance with those standards, regardless of the facility's revenue performance. A well-maintained asset reduces the total major maintenance costs

through a whole-life approach to developing the project and the avoidance of deferred maintenance. Deferred maintenance can significantly increase long term project costs as more rehabilitation work will be needed the longer the project is under-maintained and the inflationary impacts of deferring those costs.

The Project will bring other qualitative benefits to the State. Such qualitative benefits include more reliable and efficient travel throughout the corridor for passenger cars and RTD buses, improved safety, and improved air quality. Macro economic benefits such as job creation in the short and long term and increased productivity due to reduced travel times will also be derived from the Project. These benefits have not been quantified in this analysis and would be derived under both delivery models however the timing of these benefits depends upon when Phase 2 of the Project could be delivered under each model. Given CDOT's financial constraints it is unlikely the Public Model could deliver the Project on the same schedule as will be achieved by the Concession Model.

APPENDIX A – DETAILED PVA RESULTS

SUMMARY OF PVA RESULTS

The following table shows the Net Project Value under the Base Case as well as the impact on Project Value under each of the sensitivities.

Base Case	Concession Model (NPV)	Public Model (NPV)
Net Project Value	($45,400,000)	($47,587,000

25% Downside Revenue Sensitivity		
25% Downside Revenues[1]	$0	($33,100,000)
Net Project Value	($45,400,000)	($80,687,000)
40% Downside Revenue Sensitivity		
40% Downside Revenues	$0	($53,000,000)
Net Project Value	($45,400,000)	($100,587,000)
10% Upside Revenue Sensitivity		
10% Upside Revenues[1]	$2,700,000	$13,300,000
Net Project Value	($42,700,000)	($34,287,000)
Escalating Upside Revenue Sensitivity		
Escalating Upside Revenues[1]	$1,800,000	$8,100,000
Net Project Value	($45,600,000)	($39,487,000)
O&M Sensitivity		
15% Higher HPTE Managed Lanes O&M Costs[1,2]	$0	($13,200,000)
Net Project Value	($45,400,000)	($60,787,000))
CDOT O&M Contingent Liability Sensitivity		
50% of estimated annual O&M exposure[1,2]	$0	($14,500,000)
Net Project Value	($45,400,000)	($62,087,000)

1. Net present value at 14% discount rate for revenues and 5% discount rate for the upfront subsidy amounts
2. Includes O&M costs for US36 Phase 1 and US36 Phase 2

BASE CASE RESULTS

Upfront Subsidy – Nominal

The HPTE Capital Payment Request was the primary financial metric evaluated under the concession procurement and was an important factor considered in the 2012 PVA and in HPTE's decision to utilize the Concession Model. The results of the updated PVA show the upfront subsidy on a nominal basis (see Table 1) and a Net Present Value basis (see Table 2).

The upfront subsidy is presented in nominal or year-of-expenditure terms in order to provide consistency in comparing the results of each delivery model against the amount of available funding. The results show that the nominal amount of upfront subsidy required under the Public Model is approximately $66.0 million. PRD will be paid an HPTE Capital Payment of $48.8 million, an amount $17.2 million or approximately 26% less than the amount of upfront subsidy required under the Public Model. This represents a significant savings for the Project and when coupled with other risk factors, a key fact supporting the Board's decision to utilize the Concession Model.

Table 1 – Nominal Upfront Subsidy Requirements

Base Case Total Upfront Subsidy in Nominal $ (millions)	
Concession Model[(1)]	Public Model[(1)]
$48.8	$66.0

(1) The total subsidy includes $13.5 million from the cities of Louisville and Superior and $1.3 million from Boulder County.

Total Project Value – Net Present Value

Table 2 presents the PVA results on a net present value basis in order to effectively compare the results of the full Project Value under each model as excess revenues are received over time. Total Project Value is the net present value of excess revenues less the upfront subsidy. Under the Public Model, HPTE would retain all revenues from the Project after paying debt service, operations and maintenance costs. As these revenues are not guaranteed, the discount rate used reflects the potential risk of HPTE receiving the excess revenues as discussed above.

Total Project Value and upfront subsidy are the same number under the Concession Model as the concessionaire has the right to retain revenues from the Project, except to the extent the Project performs better than expected in which case the concessionaire would be required to share a portion of these revenues with HPTE per the Concession Agreement.

As discussed above, the upfront subsidy is shown separately for the Public Model given the importance of the Board's goal for the Project of minimizing the upfront subsidy. The results indicate that while the Project may generate excess revenues for HPTE over time under the Public Model, the lower upfront subsidy required under the Concession Model provides an immediate benefit. Additionally, under the Public Model HPTE would need time to raise the required additional upfront funding needed and therefore it is likely the Project could not be delivered on the same schedule as the Concession Model. The costs associated with later project delivery have not been quantified in this PVA.

Table 2 – Total Project Value

	Concession Model	Public Model		
	Upfront (Subsidy)/ Total Project Value[(1)]	Upfront (Subsidy)[(2)]	NPV of Excess Revenues	Total Project Value[(2)]
Project Value	$(45.4)	$(60.2)	$12.6	$(47.6)

(1) Under the Concession Model the Upfront Subsidy and the Total Project Value are the same as no excess revenues will flow to HPTE during the concession term. This analysis does not consider any revenues that may be available to HPTE under the revenue sharing mechanism of the Concession Agreement. NPV using a 5% discount rate for subsidy amount.

(2) NPV using discount rate of 14% for excess revenues and a 5% discount rate for the upfront subsidy amounts.

The Total Project Value under the Public Model is lower than the Concession Model.

SENSITIVITY ANALYSIS RESULTS

A. Revenue

While Table 2 indicates that the Total Project Value under the Base Case is lower under the Public Model, revenue forecasts over a 50 year time horizon are only estimates and include an element of risk whether they are "most likely" revenue estimates or otherwise. Given HPTE and CDOT's limited financial resources, the Board was concerned about the potential financial exposure if revenues were less than the estimates supporting the Project financing under both delivery models. The PVA analyzes the potential impact to HPTE and CDOT in terms of additional funding that may be required to support the Project under two downside revenue cases as well as the greater benefits that may accrue under two better than expected revenue outcomes.

There is a limited number of operating managed lanes projects in the U.S. and information about actual performance against initial projections is not extensive enough to identify a clear pattern of performance. However, the rating agencies have developed an approach to rating managed lanes projects which considers the revenue risk of these types of projects and applies various sensitivities in order to test a project's resilience to underperformance. The downside revenue sensitivities used in the PVA were selected based on information contained in published reports from Moody's[3] and Fitch[4] on managed lanes ("ML projects").

In particular, Moody's notes "that managed lanes projects have a limited history in the US and the demand for them among motorists is highly discretionary….we expect in general managed lanes projects to exhibit a higher degree of revenue volatility compared to traditional toll roads." Fitch notes that "ML projects have sound foundation, but will be more volatile." Further, Fitch's report goes on to say that "…sensitivity testing reveals that a 10% reduction in total corridor volume…results in a more than 25% reduction in ML volume…This sensitivity also results in a 48% reduction in revenue from the base scenario." These comments indicate that due to the sensitive nature of managed lane pricing, small changes in overall corridor traffic volume (e.g. 10% reduction) can have a large impact on ML toll volume (25% reduction) and revenues (48%). Based on this data ML revenue reductions of 25% and 40% were considered appropriate.

Even less information was available about positive project performance and while the upside of a corridor wide traffic increase may be symmetrical with the downside impact (i.e. 10% increase in corridor traffic resulting in 48% increase in ML revenues) there is little evidence to date to support this assertion or that managed lanes projects in general or this project in particular will outperform projections. Therefore the PVA considered a somewhat conservative upside revenue scenario in which Project revenues are increased by 10%.

Downside Revenue Sensitivity: The downside revenue sensitivity analysis considered 25% and 40% reductions in the Public Model revenues (P50) revenue during the operating period. The results demonstrate that in both cases there are periods where revenues are insufficient to pay operations and

[3] Moody's Special Comment: Managed Lanes are HOT! Unique risks and benefits versus traditional tolling. Dated: May 9, 2013.
[4] FitchRatings Special Report: Paying for Predictability, U.S. Managed Lanes Projects. Dated: April 2, 2012.

maintenance, debt service and major maintenance. In such circumstances HPTE or CDOT will need to consider allocating other funds to cover these unanticipated costs.

Debt service reserve funds would cover debt service obligations however debt service reserve funds are typically only sufficient to cover one year of debt service. Under the Concession Model, a concessionaire has the obligation to undertake major maintenance activities to ensure it meets the performance standards of the Concession Agreement and could contribute additional equity if the project revenues were lower than anticipated. Deferring major maintenance may also result in higher routine maintenance costs and in significantly higher costs for these repairs in the future. While the Public Sector has some discretion to defer major maintenance activities this analysis did not quantify the impact of such a deferral.

Table 3 shows that in the Base Case (i.e. Public Model with no risk adjustments) if revenues were 25% and 40% below projections there would be a shortfall that would result in insufficient funding for routine operations and maintenance as well as debt service and major maintenance.

In the first scenario (25% downside), the revenue shortfall would be approximately $130.3 million, comprising $4.6 million for O&M, $26.6 million for debt service and deferred deposits to the major maintenance reserve account of approximately $99.1 million. Deferred deposits to the major maintenance reserve account means that necessary major maintenance will not be completed as scheduled. Some of this shortfall may be recovered in later years and is reflected in the Total Project Value calculation.

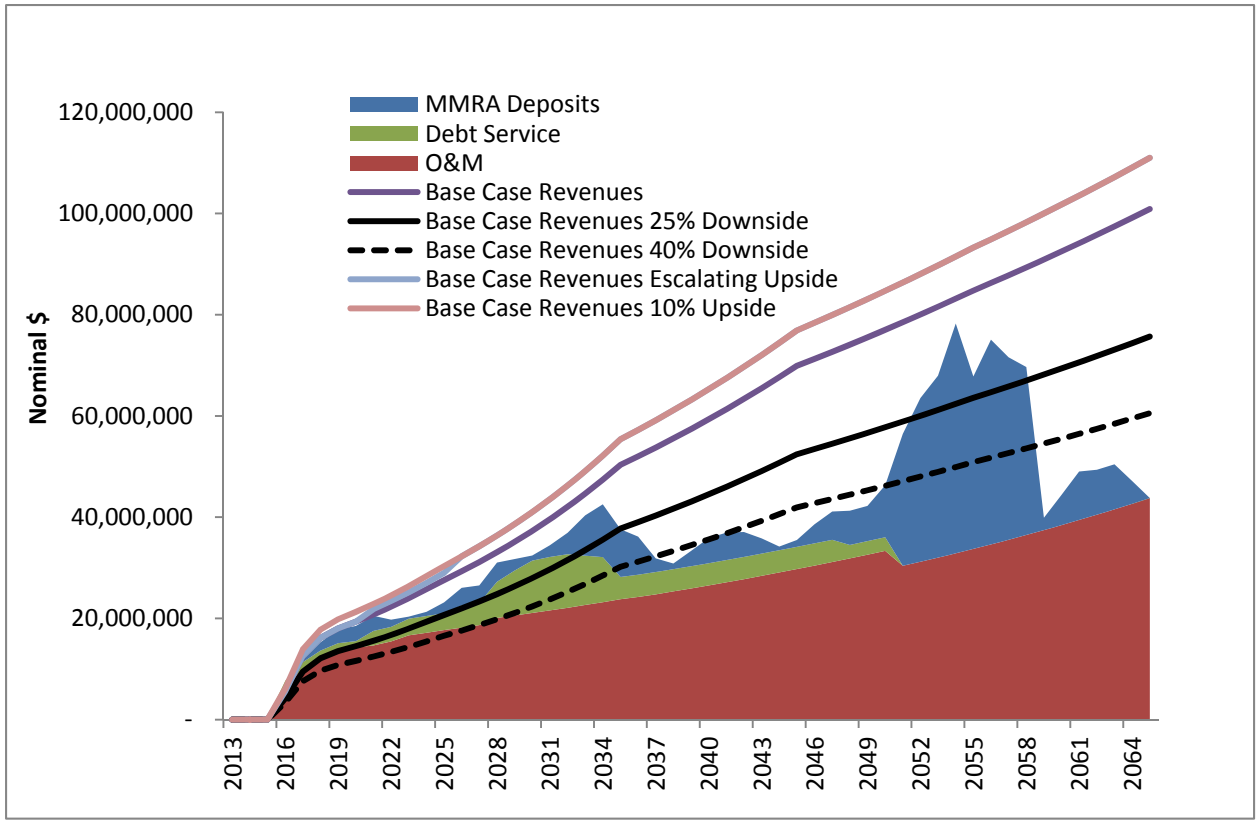
If revenues are 40% lower than estimated, the total shortfall would be approximately $321.3 million, consisting of approximately $25.5 million of O&M, $80.7 million of debt service and $215.1 million of deferred deposits to the major maintenance reserve account.

Table 3 – Public Model Revenue Sensitivities

	O&M Service Shortfall			Debt Service Shortfall			Major Maintenance Shortfall			Total Shortfall		
$ Million	Nominal	NPV @ 5%	NPV @ 14%	Nominal	NPV @ 5%	NPV @ 14%	Nominal	NPV @ 5%	NPV @ 14%	Nominal	NPV @ 5%	NPV @ 14%
Base Case	-	-	-	-	-	-	-	-	-	-	-	-
25% Downside	(4.6)	(4.0)	(3.2)	(26.6)	(15.3)	(6.9)	(99.1)	(31.6)	(9.6)	(130.3)	(50.9)	(19.7)
40% Downside	(25.5)	(18.5)	(11.3)	(80.7)	(40.3)	(14.2)	(215.1)	(50.6)	(11.0)	(321.3)	(109.3)	(36.5)

Figure 1 shows that under the 25% downside scenario the Project can pay all routine operations and maintenance by 2020 but does not regain a positive cash flow position until 2035, while under the 40% downside scenario, there would be a revenue shortfall until 2037.

Figure 1 – Public Model Revenue Sensitivities



Public Model Upside Revenue Sensitivity: The upside revenue sensitivity considered two upside scenarios. The first scenario demonstrates the impact to HPTE if revenues were 10% higher than the base case for the entire term. The second scenario considered escalating revenues in which revenue is assumed to remain at the base case level for five years, show an increase of 5% over base case revenues for each of the next 5 years and then revenues are assumed to be 10% higher than base case revenues until the end of the term (Escalating Upside case).

Table 4 shows that on a net present value basis HPTE may realize approximately $8 - 13 million in additional Project Value under the two upside sensitivity scenarios. These revenues are the incremental revenues that would be generated in excess of the Public Model revenue estimates (P50).

Table 4 – Public Model Upside Revenue Sensitivities

Upside Revenue Sensitivities $ (millions)		
Public Model	Add'l Revenue Nominal*	Add'l Revenue PV @14%*
10% Upside	$290.0	$13.3
Escalating Upside	$276.9	$8.1

*Does not include the effect of any TIFIA prepayments which would be paid prior to revenue sharing with HPTE.

Concession Model Upside Revenue Sensitivity: Under the terms of the Concession Agreement, HPTE will share in excess revenues once PRD achieves its Initial Equity IRR. The Concession Model upside revenue sensitivity considered the same scenarios that were applied to the Public Model upside sensitivity analysis. The first scenario assumes that revenues are 10% above PRD's base case estimates from day one of operations. The second case tests the impact of escalating growth, i.e. revenues equal PRD's base case revenues for the first five years of the operating period, revenues are 5% higher than the base case revenues for the next five years and are 10% higher than base case revenues for the remainder of the term of the agreement.

Table 5 shows the potential revenue that may be received by HPTE under each of the two sensitivities during the term of the Concession Agreement and the year in which revenue sharing would begin. Under each sensitivity scenario HPTE would not benefit from revenue sharing until the Project is reasonably mature, i.e. 18 - 21 years after the Project opens to traffic and therefore on a net present value basis the sharing amounts are relatively small. Additionally the revenue share amounts would be paid periodically over the remaining term of the agreement.

Table 5 – Concession Model Upside Revenue Sensitivities

Upside Revenue Sensitivities $ (millions)			
Concession Model	Add'l Revenue Nominal*	Add'l Revenue NPV @14%*	Year of 1st Payment*
10% revenue increase above Base Case	$375.3	$2.7	2033
Escalating revenue increase above Base Case	$281.7	$1.8	2036

*Does not include the effect of any TIFIA prepayments which would be paid prior to revenue sharing with HPTE.

B. Operations and Maintenance

As noted in the 2012 PVA, there is a significant amount of empirical evidence to suggest that the public sector will receive value through reduced O&M costs under the Concession Model. For example, savings ranging from 22.5% - 25% have been experienced when these activities have been outsourced. As noted above, the PRD price of $675,000 for the US36 GP Lanes Routine Maintenance was approximately $123,900 per year or 15% below the CDOT Benchmark cost of $798,900. While this pricing was for the General Purpose Lanes, it is reasonable for HPTE to expect to receive a similar level of savings in the cost of operating and maintaining the Managed Lanes. This sensitivity results in a reduction in Project Value of approximately $13.2 million.

The second O&M sensitivity considers the potential risk of CDOT having to advance funds under the CDOT O&M Loan. The results show that if CDOT had to pay for 50% of the O&M costs on the Project (including both Phase 1 and Phase 2), the Project Value under the Public Model would be ($62.1) million compared to ($45.4) million under the Concession Model.