
**INDEPENDENT REVIEW OF TOLL OPERATIONS COSTS
FOR THE
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
REPORT OF THE EXPERT REVIEW PANEL
PREPARED FOR THE
JOINT TRANSPORTATION COMMITTEE
OF THE WASHINGTON STATE LEGISLATURE**



EXECUTIVE SUMMARY

SEPTEMBER 9, 2009

Background

The Joint Transportation Committee (JTC) of the Washington Legislature contracted with AECOM to form an expert review panel (ERP) for the purpose of reviewing costs and strategies for Electronic Toll Collection (ETC) in the state of Washington. AECOM brought together five individuals experienced and knowledgeable in the management and operation of toll facilities throughout the country. The ERP scope was to consider the various aspects that might affect transaction processing costs, focusing on the following areas:

- Transaction processing costs
- Operations and customer service
- Technology
- Toll enforcement
- WSDOT administration and organization
- Special emphasis on SR 520 cost projections

Review of Source Data and Prior Studies:

The ERP reviewed a significant amount of source data and prior studies conducted for WSDOT on toll operations and cost projections. A particular emphasis was placed on a review of the outstanding Requests for Proposals (RFPs) for the roadside toll collection system (TCS), and customer service center (CSC) integration for the early tolling of existing SR 520. The ERP's review of these documents included numerous conference calls and workshops with JTC and WSDOT staff and on-site visits. The ERP briefed the JTC on June 18, July 7, and July 30, summarizing progress and findings to date. Although these efforts and briefings focused on a review of the SR 520 RFPs, it was clearly understood that the findings and recommendations pertaining to SR 520 would have long-term impacts on WSDOT's future statewide ETC applications.

The SR 520 Project:

The SR 520 project comes at a transitional time in the tolling industry. Advances in technology have made totally cashless, all electronic tolling a reality. Shortfalls in transportation funding from traditional sources such as motor fuel taxes have led to an interest in tolling and other user-based fees, and have sparked renewed interest in a national interoperability standard for tolling systems. Transportation planners in our nation's urban corridors have recognized the benefit of utilizing tolling to increase capacity through congestion pricing and managed lanes. All of these elements are factors in the planning and deployment of the SR 520 tolling system, which will utilize all electronic toll collections (AETC) and congestion pricing. The SR 520 project will represent one of only a few AETC systems nationally, and the first of its kind in the state of Washington. It is important to understand the challenges inherent in such a unique and "cutting edge" system, and to develop the right business rules and toll system framework to address these challenges.

At the outset of the ERP's work, WSDOT had just issued two RFPs for implementing early tolling on SR 520: one for the roadside TCS and the other for the statewide CSC that would process tolls for all state toll facilities.

WSDOT's original plan was to begin tolling on October 10, 2010, with the goal of placing transponders with as many users as possible (both frequent and infrequent customers). Those customers without transponders would essentially be treated as violators, in an effort to drive them toward transponder accounts. WSDOT envisioned that the statewide CSC would be in place and operating smoothly one month before opening day. In order to do so, the CSC would have to accurately process all toll collections from SR 520, the Tacoma Narrows Bridge, and the SR 167 HOT lanes project.

Key Findings & Recommendations

The ERP's review of the SR 520 RFPs found that these documents contained a number of factors that would likely lead to high bids, a restricted number of vendors submitting bids, increased risk for the state, and other factors that would lead to a more expensive and potentially unsuccessful contracting environment. Key factors among those identified were:

- Incomplete business rules.
- An extremely aggressive schedule.
- Blanket distribution of transponders.
- Too great a reliance on post-pay toll enforcement rather than pre-paid accounts.

Chief among the ERP's findings were two crucial elements, **frequency of use** and **business rule framework**, which must be properly defined and implemented for successful and cost-efficient implementation of AETC. While not as crucial in a mixed toll-paying environment (cash collections and ETC), understanding frequency of use and thoroughly developing business rules can spell the difference between success and failure for an AETC system.

Frequency of Use:

To provide the most cost-efficient toll collection technology, it is important to understand how often various customer groups use the tolled facility. Studies and experience have shown that a small number of frequent customers will generate the largest proportion of toll revenue on any given toll facility, and conversely, a large number of infrequent customers will generate relatively small amounts of toll revenue. Put another way, often 90% of facility customers generate 20% of the revenue. This skewed relationship of trips and customers is not well understood in the industry and yet it is crucial to the successful deployment of AETC systems.

Understanding the frequency of use issue is critical to designing a toll system framework with the least overall cost. A transponder is appropriate and cost-effective for the frequent user; however, it is likely not the least expensive payment option for the customer who uses the facility infrequently (perhaps once a month or a few times a year).

The problem:

WSDOT's initial RFP was premised on the widespread distribution of transponders on the SR 520 project. Both frequent and infrequent customers would use transponders, and those who didn't have transponders would pay the toll after an expensive billing and post-payment plan, or an even more expensive violation enforcement process.

The ERP found that this scheme would drive up the total transaction costs for several reasons:

- It would require a very large investment in a technology (transponders) that will be essentially out-of-date and need to be replaced within a rather short time frame (5–8 years).
- There is a high cost to maintain transponder accounts for infrequent users.
- It would force WSDOT to “chase” the toll owed by infrequent users without transponders through an expensive billing or even more expensive violation enforcement process, including extensive use of the courts.

ERP recommendations

In order to reduce up front and on-going operational costs:

- Infrequent customers should not be “pushed” into transponders accounts. Instead, they should be tolled through video technology—taking a picture of their license plate.
- The focus should be on getting these infrequent customers to sign up for pre-paid or pre-registered accounts to avoid the expensive billing or court enforcement process.

WSDOT’s response to ERP recommendations

They agreed. WSDOT amended the RFP as follows:

- Creation of business rules and an overall framework for the establishment of pre-paid video accounts.
- Emphasis on cost efficiency, with specific reference to the use of automatic license plate recognition (ALPR) and pre-paid video accounts.
- Reduction in the number of transponders planned for purchase and distribution.

Business Rules:

The ERP’s experience is that strategic and business rule decisions have the greatest impact on electronic toll collection transaction processing costs, including the manner in which toll violations are processed, the types of technology chosen, OCR strategies, in house versus outsourcing of various activities, penalty assessment, and numerous other decisions. This is particularly true for AETC systems, where the infrequent customer has no opportunity to pay the toll in cash lanes.

What was the problem with WSDOT’s RFPs?

The ERP found that WSDOT did not originally have a complete and comprehensive set of business rules that would sufficiently address AETC operations. The original RFP documents appeared to place an emphasis on the business rules already in place for the Tacoma Narrows Bridge (TNB) and the SR 167 HOT lanes project. The lack of defined business rules would have either resulted in vendor-dictated rules, or a protracted and potentially expensive process of developing these rules following the award of a contract. In either case, the lack of a fully developed set of rules would have created a climate of uncertainty and risk for the vendor community, leading to potentially higher bids.

With a toll implementation date of October 10, 2010, the ERP believed that WSDOT did not have enough time to develop the needed business rules, and questioned whether the successful CSC vendor would have sufficient time to develop, test, and implement the statewide CSC. In addition, the ERP identified the risk of the current vendor for the TNB not cooperating as needed to meet this aggressive schedule to transfer all TNB transactions to the new statewide CSC.

What was ERP's recommendation to address the problem?

- To provide the time necessary to settle and test the policies and business rules for all toll applications in the future without slowing early tolling on SR 520 and to mitigate for the potentially uncooperative TNB vendor, the ERP suggested a two-phase approach to developing the CSC, and the statewide toll system integration process.
 - First phase: Implement a simplified tolling system with no more than two (and preferably one) vehicle classification and a simplified set of business rules XYZ.
 - Second phase: Implement the multi-classification system originally envisioned in the RFP, with additional pre-paid video account options.
- The ERP felt that the two-phase approach would have the additional benefit of presenting a more reasonable, and less risky, toll implementation schedule to SR 520 vendors, thereby increasing competition and reducing the cost of these vendor contracts.

What was WSDOT's response to the ERP recommendation?

- WSDOT expressed concern that a two-phase solution would not fully account for all revenue, which would in turn impact negatively on public credibility. As an alternative, WSDOT decided to move the tolling commencement date to June 2011, with significant incentives for the successful vendor to have the tolling system in place earlier than this date.
- WSDOT has included language in the CSC RFP requiring vendors to develop interim solutions to permit tolling on SR 520 by the June 2011 date in the event that the existing CSC vendor delays the full migration of data from the existing TNB CSC to the new statewide CSC.
- WSDOT has issued several addenda to the RFPs and has issued a greatly expanded set of business rules, which will do much to clarify the system requirements for the vendor community. It is expected that the business rules will continue to evolve as pricing decisions are made and other strategies are put in place to create an AETC system.

The ERP believes that WSDOT's solution to the two-phase recommendation is an effective one. It will also effectively mitigate the risk of a delayed migration of data (a risk that is often present when transitioning CSC vendors). This should positively impact bid prices and allow vendors to price delivery time and risk to the optimum for their approach.

Conclusion

The ERP and WSDOT have partnered to develop procurement documents for SR 520 that will provide Washington State with an efficient, state-of-the-art toll collection system. The decisions made on SR 520 will not create unwanted legacy costs for the public as WSDOT continues to expand the use of tolling on a statewide basis. This is an important outcome of this study, as technological and policy changes in the tolling industry will continue to drive improvements in the years to come.

A complete list of the ERP recommendations and their disposition by WSDOT is attached.