



Joint Transportation Committee Washington State Legislature

Expert Review Panel
Preliminary Recommendations
July 30, 2009

Expert Review Panel Scope



- Transaction processing costs
- Operations and customer service approaches
- Technology
- Toll enforcement
- WSDOT administration and organization
- Operations and costs on SR 520 in particular

ERP Summary of Activity

An aerial photograph of a multi-lane highway interchange. A large white semi-truck is stopped at a toll booth on the left side of the road. Other vehicles, including a car and a smaller truck, are visible on the highway lanes. The scene is set against a clear sky.

- Review of source data and prior studies
- Review of SR 520 Requests for Proposals
- On-site meeting with WSDOT staff on June 18
- Development of RFP comments and questions for WSDOT staff
- Conference calls/workshops with WSDOT staff on July 16 & July 22

Toll Operations Goals and Strategies



Efficiency – minimize costs through automation and emphasis on pre-paid accounts:

- Provide a high level of customer service
- Provide the services that meet the needs of customers based on frequency of use
- Flexibility to change systems, technology and business rules

Understanding Frequency of Use



Example – Assume a Facility with 100 Trips per Day

Frequency	% Trips	Trips/day	Customers/trip	Customers/yr	% Customers
Daily	30%	30	1	30	0.6%
Once/wk	30%	30	7	210	4.4%
Once/mo	30%	30	30	900	18.8%
Once/yr	10%	10	365	3650	76%
Totals	100%	100	-	4790	100%

Frequency of Use



Based on SR 167 Survey Data

Frequency	% Trips	Trips/day	Customers/trip	Customers/yr	% Customers
More than 4/week	24%	229	1	229	1.4%
2-3/week	18%	169	2.5	423	2.6%
Once/week	11%	100	7	700	4.3%
Once/ 2 wks	11%	105	15	1,575	9.6%
Once/mo	11%	106	30	3,180	19.4%
Less than once/mo	25%	228	45	10,260	62.7%
Totals	100%	937	-	16,367	100%

Transaction Processing Costs



- Costs are more dependent upon business rules than technology
- JTC scope relates to SR 520 in the short term and all ETC applications in the long term
- Today's technology choice can affect long-term transaction costs
- These considerations led to a focus on evaluating the RFPs for SR 520 lane solution and central customer service center

Components of ETC Transaction Cost



Back office

- Open new account (CSC, internet, 3rd party)
- Maintain existing account (statements, contact by type)
- Payment processing (credit card fees)

Roadside

- Equipment, maintenance, OCR

Variables Impacting Transaction Cost



- Number of contacts by type
- Percent of total revenue collected by ETC
- Number of transactions
- Number of transactions per account
- Mixed lanes versus AETC

Selected Processing Cost Data



- Cost Components
 - ETC processing only: 4.5¢/transaction
 - Credit Card fees: 1.5¢/transaction
 - Establish new account: \$6.47- \$8.84
 - Maintain existing acct: \$13.47/account
- Total Target Transaction Processing Cost (with roadside costs included):
 - ETC (transponder): 8-10¢/transaction
 - LPR (pre-paid video): 12-16¢/transaction

Selected Account Data



- New Account - \$6.71
 - Walk up to CSC - \$2.25/Account
 - Email - \$0.53/Account
 - Internet - \$0.66/Account
 - Telephone - \$1.90/Account
- Existing Account - \$2.56
 - Walk up to CSC - \$6.04
 - Email - \$10.10
 - Internet - \$0.48
 - Phone - \$1.80

Transaction Cost Conclusions



- Strategic decisions largely drive ETC transaction processing costs
- No. transactions/account is the most sensitive variable for processing costs
- Channel customer uses is most sensitive variable for new account setup
- Policies and business rules affect cost structure

What is an ETC Framework?



- Generally composed of 4 documents:
 - Policy and business rule statement
 - Technical interoperability specifications (prototype or conceptual system design)
 - Data definition document:
 - Transaction layouts
 - Glossary of terms
 - Security, disaster, and business recovery plan

Operations and Customer Service Approaches



- Vendor operation or WSDOT managed process
- If out sourced, incentives must be developed based on performance that can be measured and that will improve efficiency over time:
 - Equipment availability and reliability
 - Image capture and video processing
 - ETC Transaction accuracy
- Frequency of use determines the type of account and transaction pricing
- Methods of providing service vary significantly on cost
- ETC framework should provide direction on CSC decisions

Recommendations on CSC Operations



- Develop in two phases:
 - SR 520 up and running
 - Ultimate solution implemented later
- Determine frequency of use
- Perform market research
- Establish pricing to affect customer account behavior

RFID Technology Considerations

An aerial photograph of a multi-lane highway toll plaza. Several vehicles, including a large semi-truck and several cars, are positioned at the toll booths. Overhead gantries with various sensors and antennas are visible above the lanes, illustrating the application of RFID technology in transportation.

- Open architecture versus proprietary
- National interoperability 915 MHz/5.9 GHz
- Sticker tag versus active
- International interoperability
- Title 21 standards
- Timing of decision

Technology Recommendations



- WSDOT has made the decision to adapt existing technologies through the implementation of the SR 520 tolling project
- To minimize costs of technology conversion in the future:
 - WSDOT should distribute transponders to customers who use SR 520 frequently
 - Optimize the use of prepaid video accounts
 - Determine pricing differentials for various account types

Toll Enforcement Best Practices

An aerial photograph of a multi-lane toll plaza. Several vehicles, including a large truck and several cars, are positioned at the toll booths. The road surface is light-colored, and the surrounding area appears to be a highway interchange.

- A significant portion of all electronic toll collection systems is in enforcement
- Keep manual reviews of images to a minimum
- Develop business rules and legal processes early
- Consider amnesty programs for violators
- Minimize postage costs

Recommendations



- Use dual OCR engines
- Deploy the most accurate video technology
- Utilize fingerprint technologies to minimize manual review
- Use email and telephone search sites rather than postage
- Allow a grace period for settling violations without penalties

Toll Organizational Considerations



- Operate as a business within the context of public stewardship
- Service or support organization to WSDOT for tolling
- Common skill sets:
 - Toll operations and systems
 - Toll finance and project feasibility
- Importance of organizational structure to Bond Community

Organizational Recommendations



- Focus on toll business functions as opposed to the civil development of a project
- Key functions for the Tolls Division are:
 - **Financial Strategy and Operations** – Financial planning, bond issuance, revenue accounting, project cost accounting
 - **Toll Systems Development & Procurement** – Hardware, software, installation, maintenance, other systems
 - **Toll Operations Management** – Day to operational support, staffing, business rules
- Importance of flexibility
- Outside expertise – Consider the use of a Toll General Engineering Consultant

SR 520 Recommendations



- Don't allow the SR 520 schedule to drive major policy decisions and business rules
- Consider interim solution – implementation of tolls on SR 520 in two phases:
 - Phase 1 – parallel to developing business rules and an ETC framework, implement a simplified SR 520 lane solution
 - Phase 2 – develop the ultimate lane solution based on ETC framework and technology selection

Summary



- Need to develop comprehensive Business Rules that address the long-term needs of WSDOT
- Implement a two-phase solution, providing an opportunity to develop Business Rules and adapt to changing standards
- Overall, need to rely less upon vendors to provide complete solution
- Reduce emphasis on transponder technology to achieve AETC and place more focus on video technology
- Emphasize prepaid accounts and marketing to customer base