Bridge and Highway Tolls: Raising Revenue and Optimizing Capacity

Briefing for the Washington State Transportation Commission
Presented on June 14, 2005

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Washington State Department of Transportation

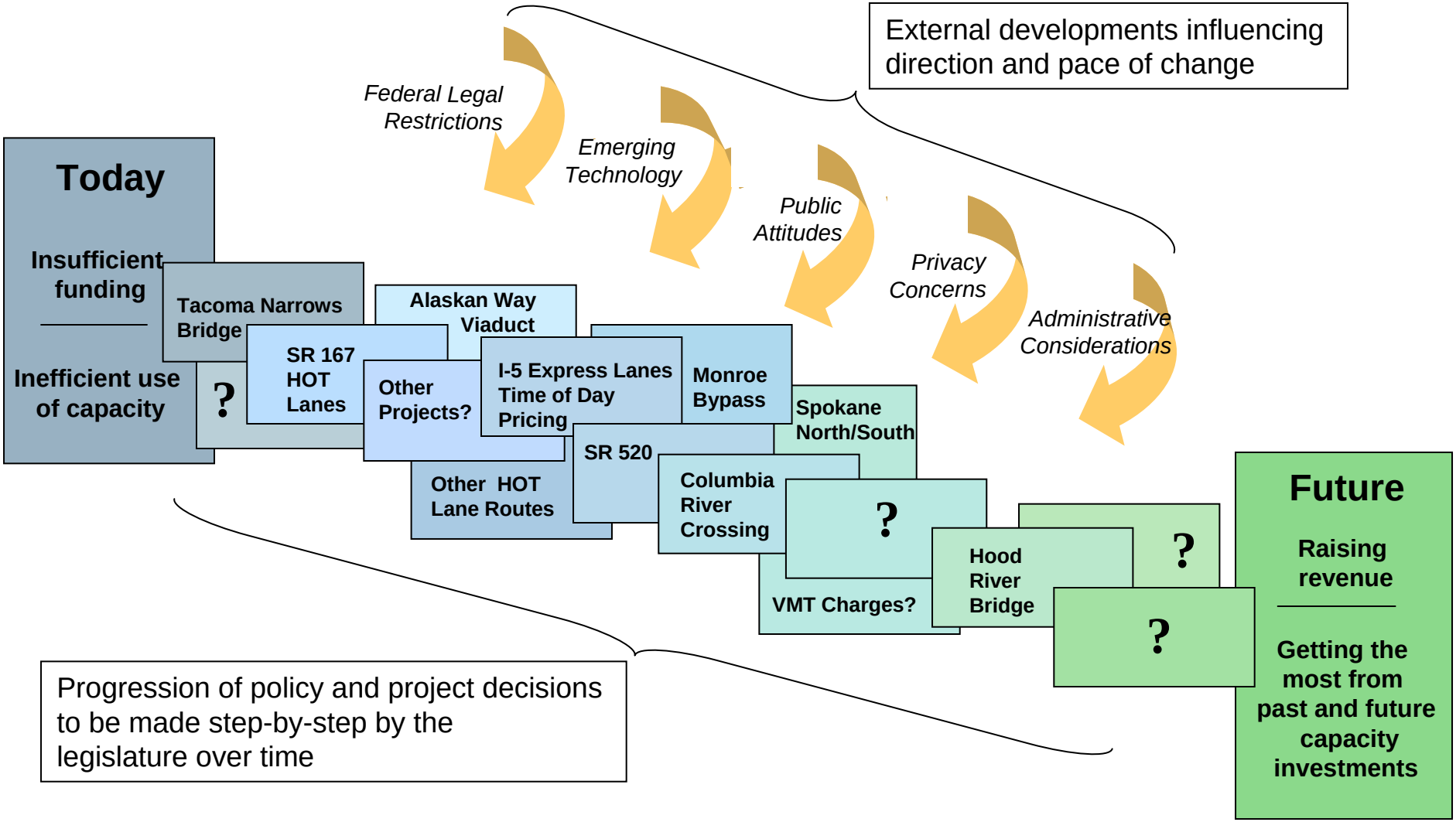
The forthcoming tolling study prompts this presentation.

This study will move us toward a practical step-by-step tolling strategy for our state.

The results of the study will include reports on:

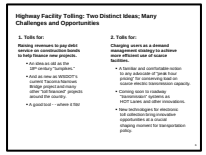
- ✓ *Potential tolling opportunities in the near, mid, and long-term*
- ✓ *Traffic analysis – how tolls will affect roadway use*
- ✓ *Fiscal analysis – assessing fiscal opportunities and strategies*
- ✓ *Technology analysis – technologies for facilities, vehicles and financial systems*
- ✓ *Assessment of social and environmental Impacts*
- ✓ *Legal and regulatory constraints*
- ✓ *Public attitudes – including current experiences elsewhere in the country*
- ✓ *Administrative arrangements – implementing and managing tolled facilities*
- ✓ *Project evaluation and selection – how should projects be considered in a screening process*
- ✓ *The study will also provide an analysis of the following specific topics:*
  - The toll system on the Tacoma Narrows Bridge, including a more uniform and equitable distribution of the financial impact on those paying tolls and explore options for reducing the outstanding debt on the bridge.
  - The use of value pricing by Regional Transportation Improvement Districts to pay for needed transportation facilities within the RTID boundaries.
  - The potential for tolling SR 704 (Cross Base Highway)

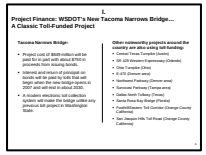
The goal: A decision approach so that as each step is taken, it will fit into further steps if and when they are chosen.

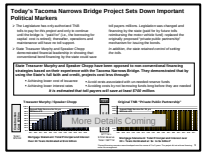


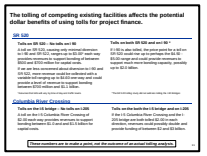
Outline of the presentation.

Tolls for raising revenues and for demand management. *slides 5 - 12*

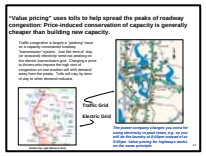


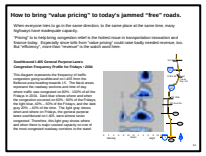


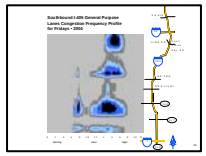


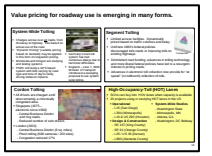


HOT lane pilot project and the importance of keeping lanes moving. *slides 13 -17*

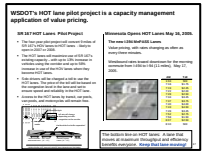


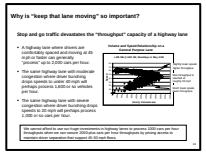


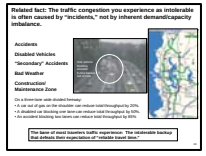




Integrated strategies must all work together. *slides 18 - 20*

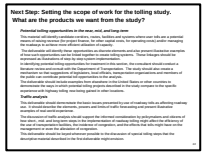


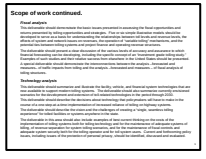


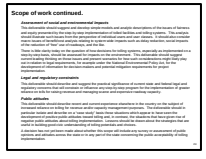


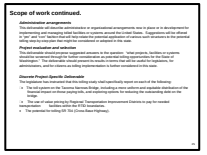
The imminent technology revolution is important. *slides 21 - 22*

Next Step: Setting the scope of work for the tolling study. *slides 23 - 26*

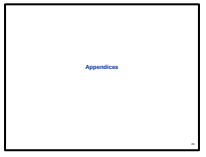


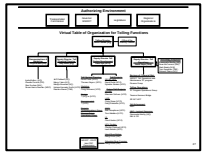






Appendix *slides 27 - 29*





Highway facility tolling: Two distinct ideas; many variations and combinations.

1. Tolls for:

Raising revenues to pay debt service on construction bonds to help finance new projects.

- An idea as old as the 18th century "turnpikes."
- And as new as WSDOT's current Tacoma Narrows Bridge project and many other toll financed projects around the country.
- A good tool - - where it fits!

2. Tolls for:

Charging users as a demand management strategy to achieve more efficient use of scarce facilities.

- A comfortable notion to any advocate of "peak hour pricing" for conserving load on scarce electric transmission capacity.
- Coming now to roadway transmission systems in the form of HOT Lanes and other value pricing innovations.
- New technologies for electronic toll collection bring fresh opportunities at a crucial shaping moment for transportation policy.

Project finance: WSDOT's new Tacoma Narrows Bridge… a classic toll-funded project.

Tacoma Narrows Bridge:

- Project cost of $849 million will be paid for in part with about $711 in proceeds from issuing bonds.
- Interest and return of principal on bonds will be paid by tolls that will begin when the new bridge opens in 2007 and will end in about 2030.
- A modern electronic toll collection system will make the bridge unlike any previous toll project in Washington State.

Other noteworthy projects around the country are also using toll-funding:

- Central Texas Turnpike (Austin)
- SR 429 Western Expressway (Orlando)
- Ohio Turnpike (Ohio)
- E-470 (Denver area)
- Northwest Parkway (Denver area)
- Suncoast Parkway (Tampa area)
- Dallas North Tollway (Texas)
- Santa Rosa Bay Bridge (Florida)
- Foothill/Eastern Toll Corridor (Orange County California)
- San Joaquin Hills Toll Road (Orange County California)

Tolling for project finance has a long and respectable history.

Washington State

Bridge	Toll Collected	Toll *	Initial Toll Converted to 2005 Inflation Adjusted Dollars
Longview (SR 433) *(Built in 1930, Purchased in 1947)*	1930 - 1965	$1.00	$23.02
Lacey V. Murrow Memorial Bridge (I-90) *(First Lake Washington Bridge)*	1940 - 1949	$0.50	$6.86
Tacoma Narrows Bridge (SR 16) *(First Bridge)*	1940 - collapsed	$1.10	$15.10
Agate Pass Toll Bridge (SR 305)	1950 - 1951	$0.50	$3.99
Tacoma Narrows Bridge (SR 16) *(Second Bridge)*	1950 - 1965	$1.00	$8.77
Fox Island Bridge (SR 303)	1954 - 1965	$0.75	$5.36
Port Washington Narrows Bridge (SR 303)	1958 - 1972	$0.20	$1.33
Spokane River Bridges (SR 2 / SR 395)	1958 - 1990	$0.50	$2.66
Vancouver/Portland Bridge (I-5)	1960 - 1966	$0.40	$2.60
Hood Canal Bridge (SR 104)	1961 - 1979	$2.60	$16.71
Biggs Rapids Bridge (US 97) *(Sam Hill Memorial Bridge)*	1962 - 1975	$2.00	$12.73
Evergreen Point Bridge (SR 520) *(Second Lake Washington Bridge)*	1963 - 1979	$0.70	$4.40
Vernita Toll Bridge (SR 24)	1965 - 1976	$1.50	$9.15
Hood Canal Bridge (SR 104) *(Rebuilt)*	1982 - 1985	$4.00	$9.96
*New Tacoma Narrows Bridge (SR 16) (Third Bridge) ****	*planned for 2007*	*NA*	*$3.00*

* Toll fees shown are round trip charges for a vehicle and driver only.

Elsewhere

- New Jersey / PA Turnpike (1952)
- San Francisco-Oakland Bay Bridge (1936)
- Florida Sunshine Skyway Bridge (1954)
- New York / New Jersey George Washington Bridge (1931)
- New York / New Jersey Holland Tunnel (1927)
- Kansas Turnpike (1956)
- Maine Turnpike (1947)
- Massachusetts Turnpike (1957)
- Ohio Turnpike (1955)
- Oklahoma Turnpike System: Turner Turnpike (1953), Will Rogers Turnpike (1957), and H.E. Bailey Turnpike (1964)

The Tacoma Narrows Bridge project has set down important political markers.

- The Legislature has only authorized TNB tolls to pay for *this project* and only to continue until the bridge is "paid for" (i.e., the borrowing for capital cost is retired); thereafter, operations and maintenance will have no toll support.
- State Treasurer Murphy, Speaker Chopp and others demonstrated financial acumen in showing that conventional bond financing by the state could save hundreds of millions of dollars for toll payers. Legislation was changed and financing by the state (paid for by future tolls reimbursing the motor vehicle fund) replaced the originally proposed "private public partnership" mechanism for issuing the bonds.

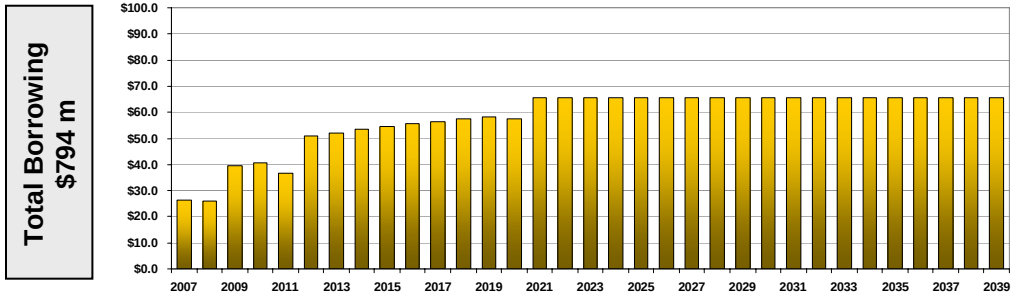
In addition, the state retained control of setting the tolls.

The financing approach taken by the legislature for the Tacoma Narrows Bridge demonstrated that using the State's full faith and credit, project finance costs could be dramatically reduced by:

- Achieving lower cost of issuance
- Achieving lower interest rates
- Avoiding costs associated with un-needed reserve funds
- Avoiding costs by not borrowing funds long before they are needed

It is estimated that toll-payers will save at least $336 million.

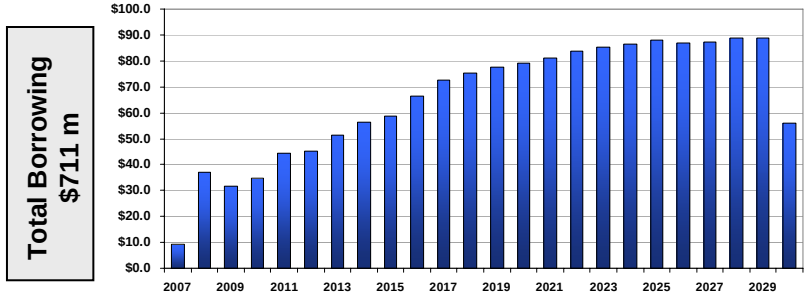
Original TNB "Private Public Partnership"



Mortgage Statement: Total Principal and Interest Over 34 Years Estimated at $1.908 billion*

*United Infrastructure Washington (UIW) Preliminary Financing Plan dated January 25, 2001.

Conventional State Bond Financing**



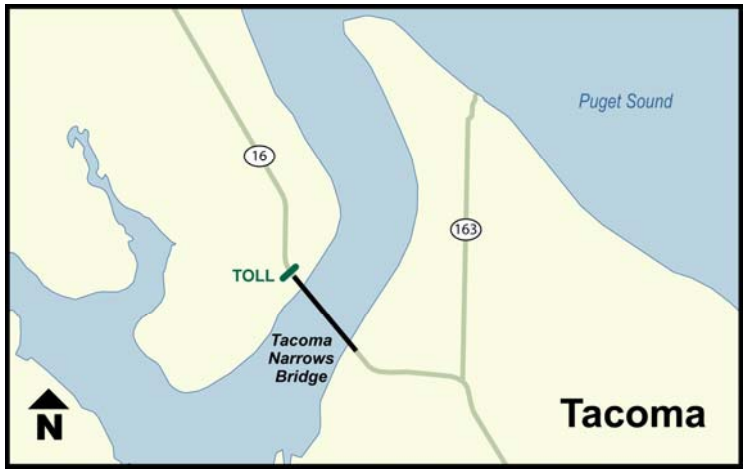
Mortgage Statement: Total Principal and Interest Over 24 Years Estimated at $1.572 billion

**Seattle Northwest Securities, assumptions as of May 10, 2005 (interest rates as of 5/10/2005 + 50 BP with CABs issues 7-9).

The problem with tolls for project financing: "What toll will the traffic bear?" An age-old economics question of the "price point."

- Bridges and tunnels have a high "price point" so long as there is no convenient alternative route.
- Facilities with nearby alternative routes may have much lower "price points" because customers' choice of another route will erode toll revenue potential. Also price-driven use of the alternative routes will leave the toll facility underused and the alternative routes will be jammed. *Not good!*

Frequent jargon words in the tolling feasibility discussion are: "Traffic Diversion" and "Demand Elasticity"



Tacoma Narrows Bridge Crossing
"Drive-arounds" are long and inconvenient.

Alaskan Way Viaduct: "Drive-arounds" are many and convenient. "Traffic Diversion" opportunities hold down the toll level that will yield the maximum revenue.

Two projects show the practical importance of the traffic diversion issue.

The potential for raising revenue from tolls for a new SR 520 bridge and a new I-5 Columbia River Crossing depends on how this issue is addressed.

- Will I-205 and I-90 be "free" diversion routes? Or should those routes also be tolled as part of the "system crossings"?
- What predictions of driver behavior should be built into the toll traffic and financial forecasts, with or without I-205 or I-90 tolling?

Tolling "existing facilities" like I-205 or I-90 *("we've already paid for them!")* is a major hot button issue at local, state, and national levels even for people who say "its time to go for tolls."

- **Most transportation policy wonks believe that nearby existing facilities must be tolled in clear-cut cases like the Lake Washington and Columbia River crossings. Otherwise, the revenue value of tolling will bemuch reduced. Also, "network systems" must eventually be value-priced to achieve efficient highway use. This is discussed later.**

  But everyone recognizes the huge political/public attitude obstacles to these approaches.

- **Indeed, in a major setback for toll-based approaches, the U.S. Senate has recently ruled out virtually all tolling of "existing interstates" in a proviso included in TEA-21 reauthorization. This issue is now in the Conference Committee.**

I-5 Columbia River Crossing: I-205 is a feasible alternative crossing.

SR 520 Bridge: I-90 is a feasible alternative crossing.

The tolling of competing existing facilities affects the potential dollar benefits of using tolls for project finance.

SR 520

Tolls on SR 520 – No tolls on I 90

A toll on SR 520, causing only minimal diversion to I-90 and SR 522, ranges up to $3.00* each way provides revenues to support bonding of between $500 and $700 million for capital costs.

If we are less concerned about diversion to I-90 and SR 522, more revenue could be collected with a variable toll ranging up to $4.60 one-way and could provide a level of revenue to support bonding between $700 million and $1.1 billion.

*Assumes that tolls will vary by time of day and traffic levels.

Tolls on both SR 520 and on I 90 *

If I-90 is also tolled, the price point for a toll on SR 520 could rise up to perhaps the $4.50 - $5.00 range and could provide revenues to support much more bonding capacity, possibly up to $2.0 billion.

*The SR 520 tolling study did not address tolling the I-90 Bridges

Columbia River Crossing

Tolls on the I-5 bridge – No tolls on I-205

A toll on the I-5 Columbia River Crossing of $2.00 each way provides revenues to support bonding between $1.0 and and $1.5 billion for capital costs.

Tolls on the both the I-5 bridge and on I-205

If the I-5 Columbia River Crossing and the I-205 bridge are both tolled $2.00 in each direction, revenues could possibly double and provide funding of between $2 and $3 billion.

These numbers are to make a point, not the outcome of an actual tolling analysis.

Another big problem: For today's mega-projects achievable tolling revenues will probably pay only a portion of the project capital costs.

Washington State Projects

SR 520
Project estimates: Approximately $3.1 billion

Toll scenarios suggest about $500 million to $1.1 billion could be financed from tolls.

I-5 Columbia River Crossing

Project estimates: Still under development but anticipated to be in the billions.

Very preliminary analysis suggests about $1.0 to $1.5 billion could be financed from tolls.

Alaskan Way Viaduct
Project estimates: Up to approximately $4.4 billion

Early analysis of tolling the core section of the Viaduct suggests only $5 to $10 million in annual revenues could be raised, offering little after paying for tolling operations to support bonds to pay for construction costs.

National Examples

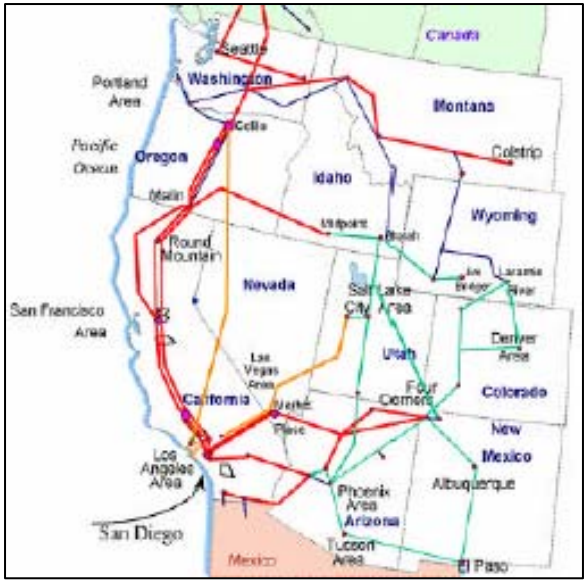
New Jersey Atlantic City/Brigantine Connector
Total project cost - $330 million
- $125 million from toll bonds,
- $ 65 million from casino parking fees
- $ 95 million from NJDOT
- $110 million from the Mirage Casino

I-81- Virginia (Star Public Private Proposal)
Total projected cost - $9.9 billion
- $169 million plus VDOT projects transfer
- Toll backed bonds and TIFIA loans
- Big federal earmarks (unauthorized)
- Anticipated shortfall - $1.9 billion

President George Bush Turnpike (NTTA) – Texas
Total project cost - $530 million
- $ 39 million Right Of Way donations
- $ 30 million NTTA fund balance
- $ 35 million TxDOT loan
- $426 million NTTA Bonds

“Value pricing” uses tolls to help spread the peaks of roadway congestion: Price-induced conservation of capacity is generally cheaper than building new capacity.

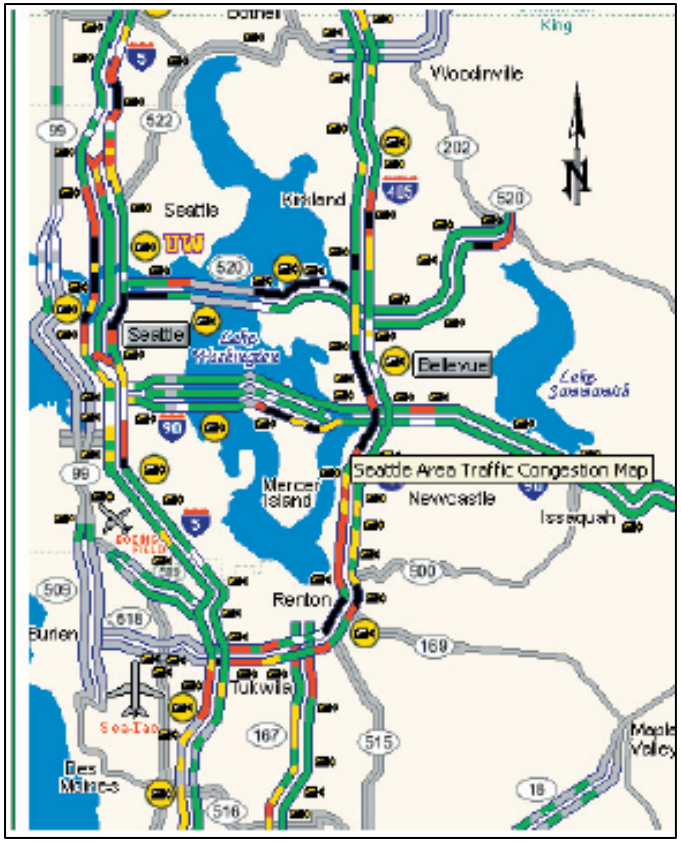
Traffic congestion is largely a “peaking” issue on a capacity constrained roadway “transmission” system. Just like time-of -day (or seasonal) electricity send-out peaking on the electric transmission grid. Charging a price to drivers who impose the high cost of congestion on one another will shift demand away from the peaks. Tolls will vary by time-of-day or other demand indicator.



Seattle City Light (Western Grid)

Traffic Grid

Electric Grid



The power company charges you extra for using electricity in peak times, e.g. so you will do the laundry at 8:00pm instead of at 5:00pm. Value pricing for highways works on the same principle.

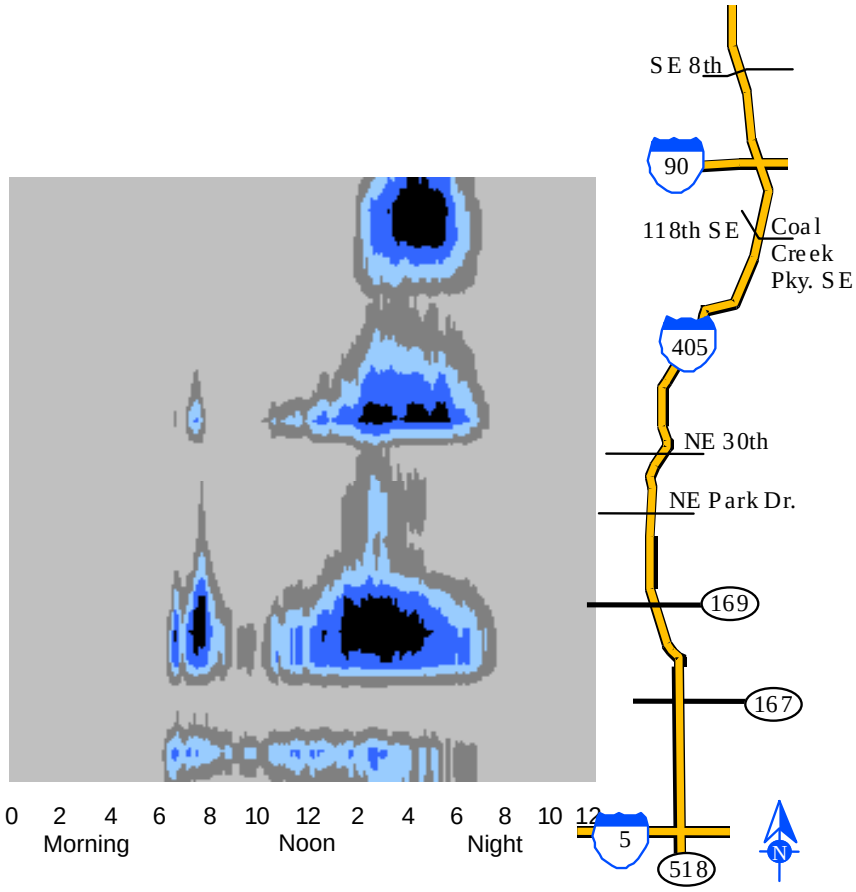
How to bring “value pricing” to today’s jammed “free” roads.

When everyone tries to go in the same direction, to the same place at the same time, many highways have inadequate capacity.

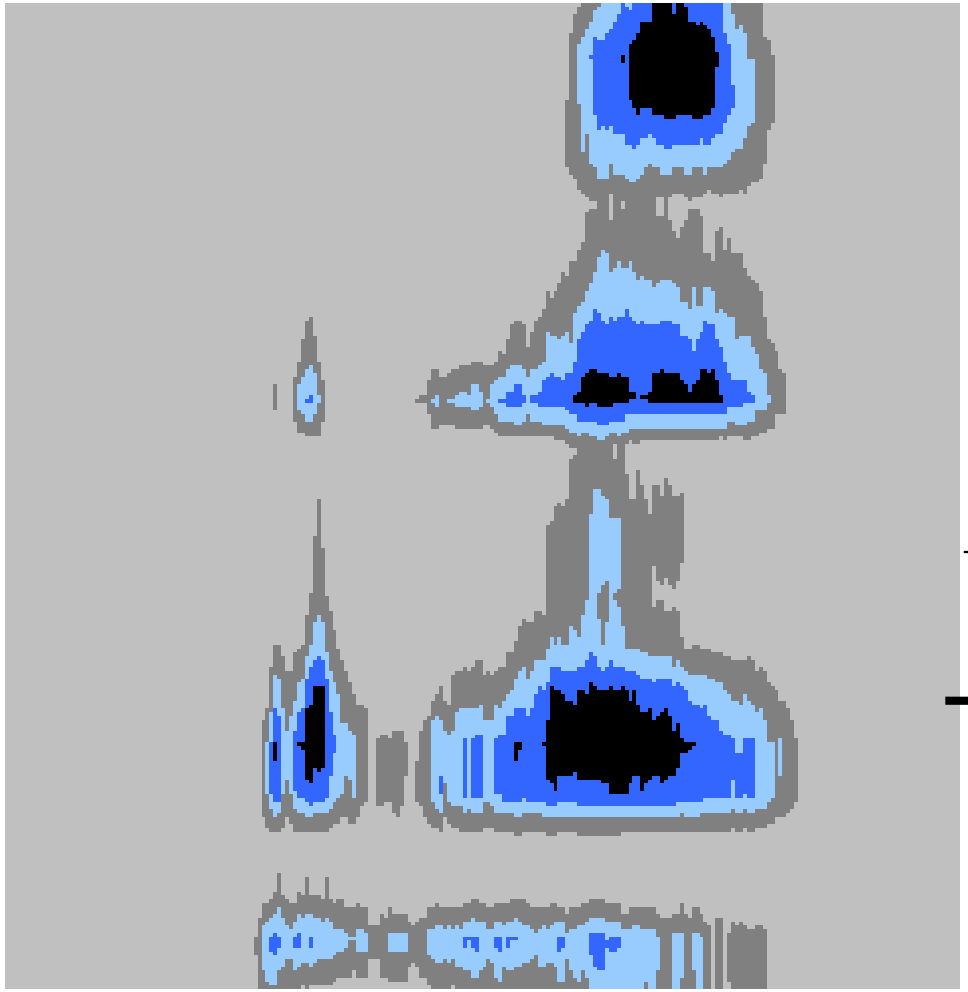
“Pricing” to to help bring congestion relief is the hottest issue in transportation innovation and finance today. Especially since tolls from “value pricing” could raise badly needed revenue, too. But “efficiency”, more than “revenue” is the watch word here.

Southbound I-405 General Purpose Lanes
Congestion Frequency Profile for Fridays • 2004

This diagram represents the frequency of traffic congestion going southbound on I-405 from the Bellevue area heading towards I-5. The black areas represent the roadway sections and time of day where traffic was congested on 80% - 100% of all the Fridays in 2004. Dark blue shows where and when the congestion occurred on 60% - 80% of the Fridays; the light blue, 40% – 60% of the Fridays; and the dark gray 20% – 40% of the time. The light gray shows when and where on Fridays, the general purpose lanes southbound on I-405, were almost never congested. Therefore, this light gray shows where and when there is major unused capacity on one of the most congested roadway corridors in the state!.



Southbound I-405 General Purpose Lanes Congestion Frequency Profile for Fridays • 2004



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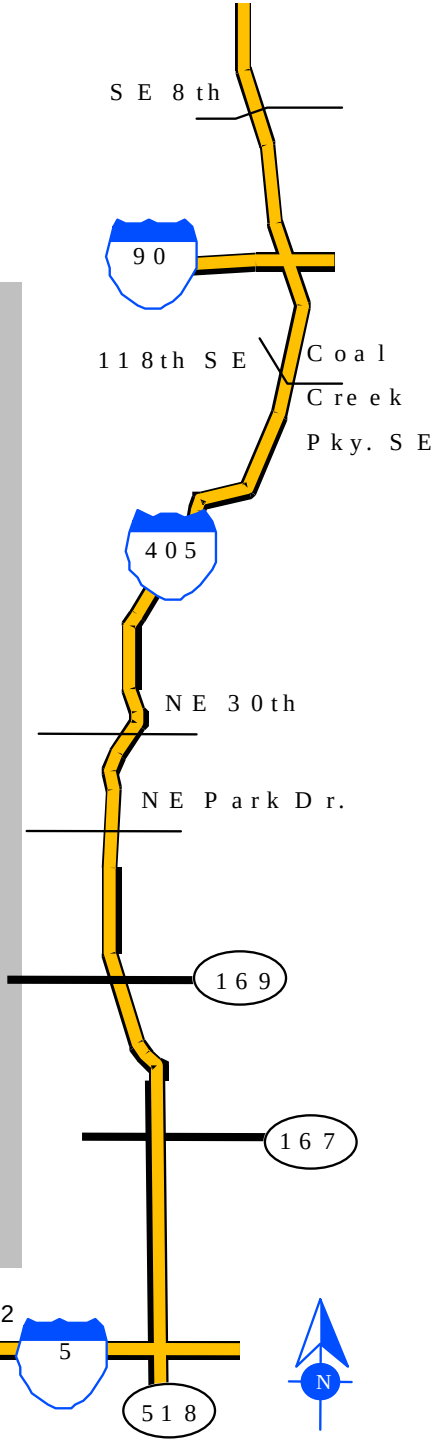
Morning Noon Night



Value pricing for roadway use is emerging in many forms.

System-Wide Tolling

- Charges accrue over all roads, from driveway to highway. Fee based on actual use of the road.
- "Dynamic Pricing" (variable pricing based on demand) may be applied in this form of congestion pricing.
- Minnesota and Oregon are studying and testing systems.
- PSRC will study a GPS based system with tolls varying by road type and time of day to study driving behavior impacts.

- Germany's truck toll system has had numerous delays due to technical difficulties.
- UK – June 7, 2005 Minister of Transport announced a sweeping proposal to use nation wide system tolling.

Segment Tolling

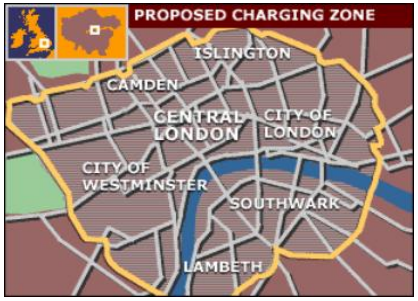
- Limited access facilities. Dynamically priced based on traffic volumes and delay.
- Until late 1980's federal policies discouraged tolls roads or imposing tolls on existing highways.

Transponder

- Diminished road funding, advances in tolling technology, and more liberal federal policies have led to a resurgent interest in pricing roads.
- Advances in electronic toll collection now provide for "at speed" (no tollbooth) collection of tolls.

Cordon Tolling

- All drivers are charged a toll when entering a chronically congested area.
- Singapore (1975 – electronic since 1998)
  - Central Business District and ring roads.
  - Reduced number of solo drivers.
- London (2003)
  - Central Business District (8 sq. miles)
  - Photo tolling (688 cameras / 203 sites)
  - Congestion reduced 17%



High-Occupancy-Toll (HOT) Lanes

- SOVs can buy into HOV lanes when capacity is available
- 20 projects using or studying HOT lanes in the US
  - **Operational**
    - I-15 (San Diego)
    - I-394 (Minneapolis)
    - I-10 & US 290 (Houston)
  - **Design & Construction**
    - SR 167 (King County)
    - SR 91 (Orange County)
    - I-25 / US 36 (Denver)
    - I-880 (Alameda County)
  - **System-Wide Studies**
    - Washington State
    - Minneapolis, MN
    - Atlanta, GA
    - Washington, DC Beltway

However, almost no one believes that value pricing and other demand management tools can substitute completely for the most critically needed new highway capacity projects.

- "Bottlenecks and chokepoint" projects have wide appeal.
- "Freight Mobility" creates compelling political and economic arguments for roadway capacity projects.
- Job and population growth have left many routes without road capacity.

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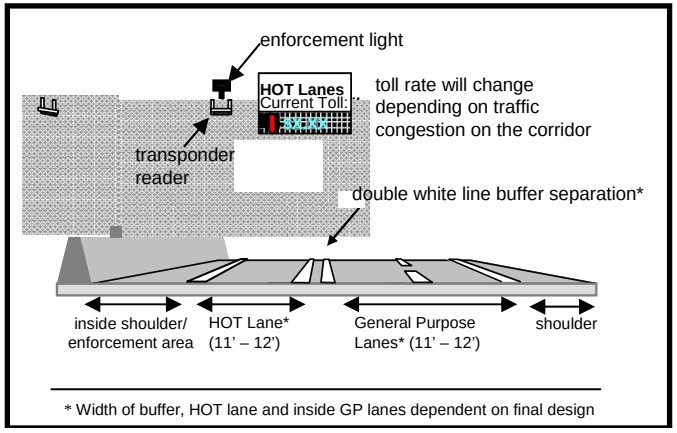
Conservative and liberal economists agree we should begin to use value pricing for roadways. But:

- Radical change of mind-set for the *"drive where I want, when I want"* vision of American automobility culture.
- Public resistance: "I already paid for this road."
- Trucking industry is highly suspicious of this new "taxing" approach that may be subject to discriminatory application.

WSDOT's HOT lane pilot project is a capacity management application of value pricing.

SR 167 HOT Lanes Pilot Project

- The four-year pilot project will convert 9 miles of SR 167's HOV lanes to HOT lanes - likely to open in 2007 or 2008.
- The HOT lanes will maximize use of SR 167's existing capacity – with up to 13% increase in vehicles using the corridor and up to 56% increase in use of the HOV lanes when they become HOT lanes.
- Solo drivers will be charged a toll to use the HOT lanes. The price of the toll will be based on the congestion level in the lane and set to ensure speed and reliability in the HOT lane.
- Access to the HOT lanes by transit, car pools, van pools, and motorcycles will remain free.



Minnesota Opened HOT Lanes May 16, 2005.

The new I-394 MnPASS Lanes

Value pricing, with rates changing as often as every three minutes.

Westbound rates toward downtown for the morning commute from I-494 to I-94 (11 miles), May 17, 2005.

AM	Toll
1:04	50¢
7:16	$1.75
7:19	$2.25
7:22	$2.00
7:28	$2.50
7:34	$3.25
7:37	$3.75
7:40	$4.00
7:43	$4.50
7:49	$3.25
7:52	$2.75
7:58	$1.50
8:07	$2.50
8:10	50¢

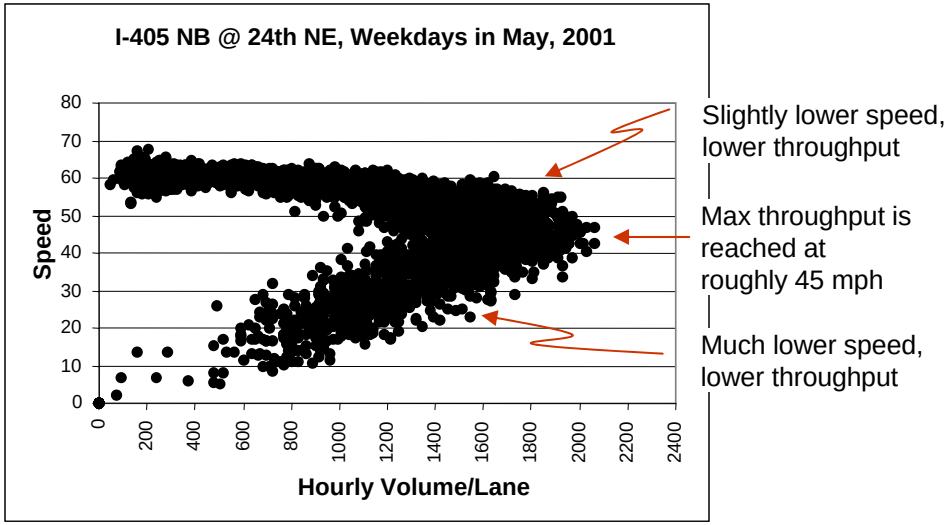
The bottom line on HOT lanes: A lane that moves at maximum throughput and efficiency benefits *everyone*. **Keep that lane moving!**

Why is “keep that lane moving” so important?

Stop and go traffic devastates the “throughput” capacity of a highway lane

- A highway lane where drivers are comfortably spaced and moving at 45 mph or faster can generally “process” up to 2,000 cars per hour.
- The same highway lane with moderate congestion where driver bunching drops speeds to under 40 mph will perhaps process 1,600 or so vehicles per hour.
- The same highway lane with severe congestion where driver bunching drops speeds to 20 mph will perhaps process 1,000 or so cars per hour.

Volume and Speed Relationship on a General Purpose Lane



We cannot afford to use our huge investments in highway lanes to process 1000 cars per hour throughputs when we can secure 2000-plus cars per hour throughputs by pricing access to maintain driver separation that support 45-50 mph flows.

Related fact: The traffic congestion you experience as intolerable is often caused by "incidents," not by inherent demand/capacity imbalance.

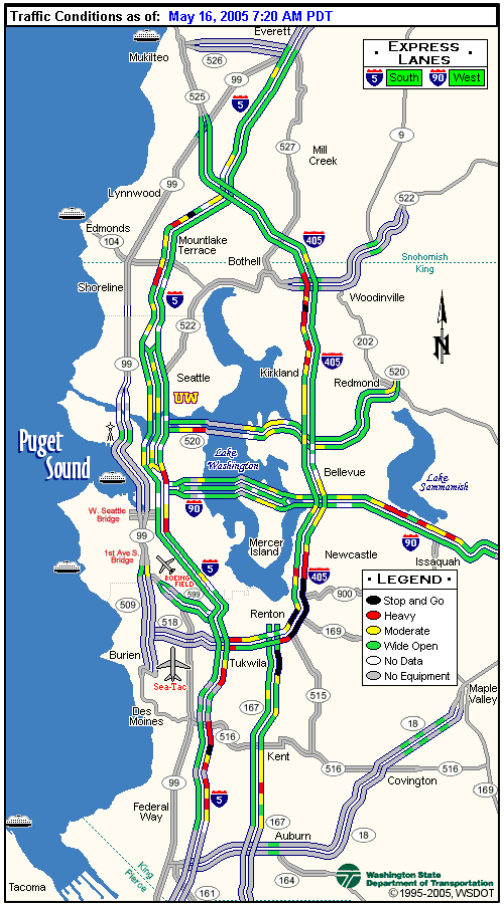
Accidents

Disabled Vehicles

"Secondary" Accidents

Bad Weather

Construction/ Maintenance Zone



On a three-lane wide divided freeway:

- A car out of gas on the shoulder can reduce total throughput by 20%.
- A disabled car blocking one lane can reduce total throughput by 50%.
- An accident blocking two lanes can reduce total throughput by 85%

The bane of most travelers traffic experience: The intolerable backup that defeats their expectation of "reliable travel time."

Interlocking strategies are essential.

Efficiency management of the highway itself

- Incident Response
- Ramp Meters
- Traffic Management Centers
- Traffic Signal Synchronization
- Motorist Information Systems/511
- CVISN – Truck weigh-in-motion

WSDOT's incident response helps keep traffic moving

Demand reduction strategies fewer "drive alone" trips

- Transit
- Vanpools
- Other "Demand Management" Strategies

Pricing strategies to encourage efficient use

- HOV Lanes (good)
- HOT Lanes (better)
- System Tolling (best? or impossible?)

"… with money tight and traffic growing worse, HOT lanes are now widely viewed as one of the most feasible, affordable ways to better manage, if not ease, traffic congestion in the short term while generating money for long-term relief."

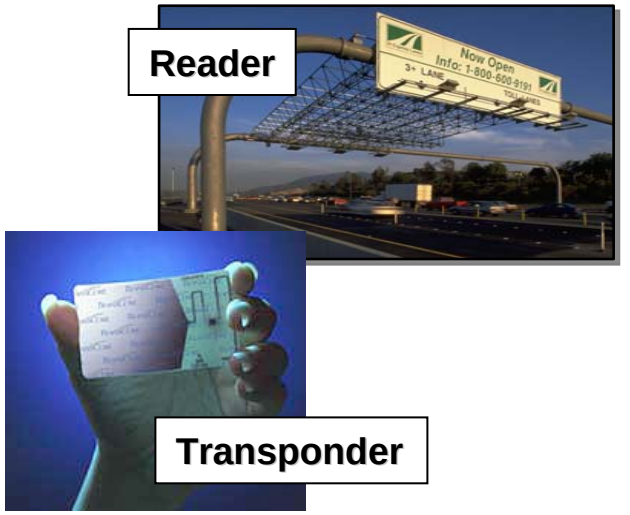
Washington Post, December 29, 2003

"Value Pricing" must be integrated with the entire range of system approaches to improve transportation system performance and efficiency.

Thinking Ahead: The imminent technology revolution for vehicles and highways – tolling and other applications.

Transportation Technology Systems Today

- Motorist Information Signs
- Message Boards
- Traveler Information – Web, 511, radio / TV
- Enhanced Freight Mobility
- Hazardous Material Tracking
- Secured Cargo Shipment



And Technology Systems Tomorrow (very soon)

- Smart Cars
- Smart Roads
- Integrated Tolling Systems
- Multi State Tolling/Transponder Integration

Who will invest in the new Technology?

- Transportation Providers
- Private Sector
- Public

"Brave New World" Issues

- Customer Acceptance
- Privacy
- Administrative Cost and Fiscal Arrangements
- Enforcement and Liability Issues

Next Step: Setting the scope of work for the tolling study. What are the products we want from the study?

Potential statewide tolling opportunities in the near, mid, and long-term

This material will identify candidate corridors, routes, facilities and systems where user tolls are a potential means of raising revenue (for project finance, for other capital costs, for operating costs) and/or managing the roadways to achieve more efficient utilization of capacity.

The deliverable will identify these opportunities as discrete elements and also present illustrative examples of how such opportunities can be linked together to create tolling systems. These linkages should be expressed as illustrations of step-by-step system implementation.

In identifying potential tolling opportunities for treatment in this section, the consultant should conduct a literature review and consult with the Department of Transportation. The study should also create a mechanism so that suggestions of legislators, local officials, transportation organizations and members of the public can contribute potential toll opportunities to the analysis.

The deliverable should include examples from elsewhere in the United States or other countries to demonstrate the ways in which potential tolling projects described in the study compare to the specific experience with highway tolling now being gained in other locations.

Traffic analysis

This deliverable should demonstrate the basic issues presented by use of roadway tolls as affecting roadway use. It should describe the elements, powers and limits of traffic forecasting and present illustrative examples of real-world experience.

The discussion of traffic analysis should support the informed consideration by policymakers and citizens of how short-, mid- and long-term steps in the implementation of roadway tolling might affect the efficiency of the use of transportation facilities, the incidence of congestion, and the effects that tolls might have on the management or even the alleviation of congestion.

This deliverable should be keyed wherever possible to the discussion of special tolling steps that the descriptive material described in the first deliverable might envision.

Scope of work continued…

Fiscal analysis

This deliverable should demonstrate the basic issues presented in assessing the fiscal opportunities and returns presented by tolling opportunities and strategies. Five or six simple illustrative models should be developed to serve as a basis for understanding the relationships between toll levels and revenue levels, the effects of system and network issues on revenues, the operation of "variable tolling" mechanisms, and the potential ties between tolling systems and project finance and operating revenue structures.

The deliverable should present a clear discussion of the various levels of accuracy and assurance to which financial forecasting can be developing, including the specific concept of an "investment grade tolling study." Examples of such studies and their relative success from elsewhere in the United States should be presented.

A special deliverable should demonstrate the interconnections between the analysis –forecasted and measures– of traffic impacts from tolling and the analysis –forecasted and measures – of fiscal analysis of tolling structures.

Technology analysis

This deliverable should summarize and illustrate the facility, vehicle, and financial system technologies that are now available to support modern tolling systems. The deliverable should also summarize currently envisioned scenarios for the development and extension of toll-related technologies in the period through 2030.

This deliverable should describe the decisions about technology that policymakers will have to make in the course of a one-step-at-a-time implementation of increased reliance of tolling on highway systems.

The deliverable should describe the vision and the challenges of creating a "single, seamless tolling experience" for tolled facilities or systems anywhere in the state.

The deliverable in this area should also include examples of best current thinking on the costs of the implementation of tolling systems both for tolling technology and for the maintenance of adequate systems of billing, of revenue separation for system tolling scenarios, and for the maintenance of fiscal controls and adequate system security both for the tolling operator and for toll system users. Current and forthcoming policy issues, including issues of the protection of personal privacy, should be identified, discussed and evaluated.

Scope of work continued…

Assessment of social and environmental Impacts

This deliverable should suggest and develop simple models and analytic descriptions of the issues of fairness and equity presented by the step-by-step implementation of tolled facilities and tolling systems. This analysis should illustrate such issues from the perspective of individual users and user classes. It should also consider macro issues of benefit/cost analysis relating to system wide impacts such as delay reduction, social impacts of the reduction of "free" use of roadways, and the like.

There is little clarity today on the question of how decisions for tolling systems, especially as implemented on a step-by-step basis, should be assessed for impacts on the environment. This deliverable should suggest current leading thinking on those issues and present scenarios for how such considerations might likely play out in relation to legal requirements, for example under the National Environmental Policy Act, for the development of information for decision-makers and potential mitigation requirements for project implementation.

Legal and regulatory constraints

This deliverable should describe and suggest the practical significance of current state and federal legal and regulatory concerns that will constrain or influence any step-by-step program for the implementation of greater reliance on tolls for raising revenue and managing scarce and expensive roadway capacity.

Public attitudes

This deliverable should describe recent and current experience elsewhere in the country on the subject of increased reliance on tolling for revenue and/or capacity management purposes. The deliverable should in particular isolate and describe on a "case study" basis those situations which appear to have seen the development of positive public attitudes toward tolling and, in contrast, the situations that have given rise of negative public attitudes about tolling implementation. Lessons should be drawn about the strategies that are useful in building good civic understanding of tolling potentials and choices.

A decision has not yet been made about whether this scope will include any survey or assessment of public opinions and attitudes across the state or in any part of the state concerning the public acceptability of tolling implementation.

Scope of work continued…

Administrative arrangements

This deliverable will describe administrative or organizational arrangements now in place or in development for implementing and managing tolled facilities or systems around the United States. Suggestions will be offered in "pro" and "con" fashion that will help relate the potential application of various such structures to the potential telling step-by-step plan that might be considered or adopted in this state.

Project evaluation and selection

This deliverable should propose suggested answers to the question: "what projects, facilities or systems should be screened through for further consideration as potential tolling opportunities for the State of Washington." The deliverable should present its results in terms that will be useful for legislators, for administrators, and for citizens as tolling implementation is further considered in this state.

Discrete Project-Specific Deliverable

The legislature has instructed that this tolling study shall specifically report on each of the following:

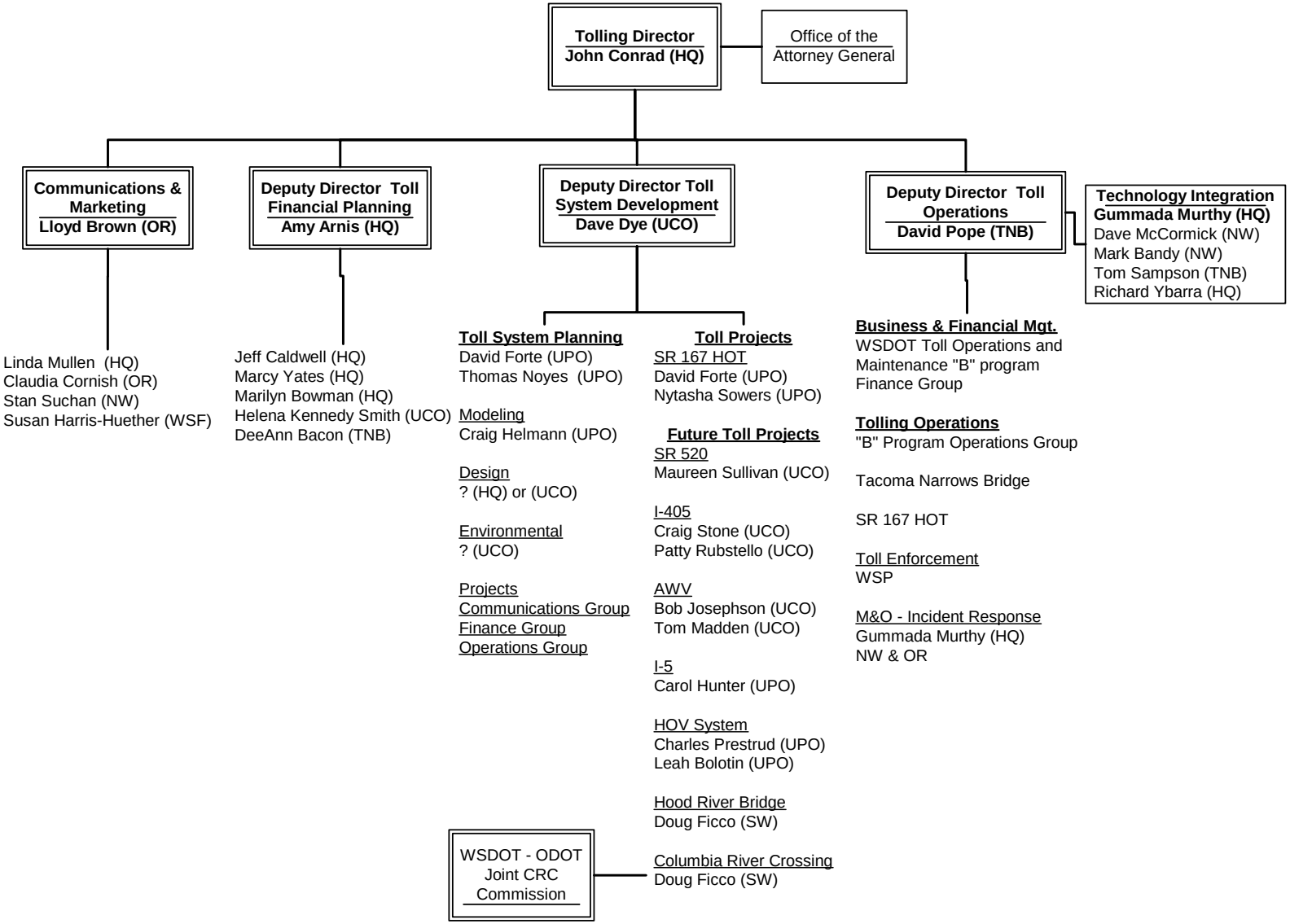
- The toll system on the Tacoma Narrows Bridge, including a more uniform and equitable distribution of the financial impact on those paying tolls, and exploring options for reducing the outstanding debt on the bridge.
- The use of value pricing by Regional Transportation Improvement Districts to pay for needed transportation facilities within the RTID boundaries.
- The potential for tolling SR 704 (Cross Base Highway).

Appendices

Authorizing Environment

Transportation Commission | Governor WSDOT | Legislature | Regional Organizations

Virtual Table of Organization for Tolling Functions



Thinking further ahead: "What happens after the gas tax?"

Long-Term Viability of Gas Tax as the Primary Source of Transportation Revenue

- Improving fuel economy compromises the growth in gas tax revenue
- Gas taxes applied to gallons of fuel
- Revenues do not rise with inflation
- Resistance by lawmakers to raise taxes (at least until recently in Washington State)

This issue is being thought about across the country

The state of Oregon has researched and is now proceeding in a demonstration project to replace fuel tax with a Vehicle Miles Tax.

Oregon's Mileage Fee Concept:

- Per mileage charge
- Mileage is collected electronically at gas stations
- Payment is made at gas stations

"The days of the gas tax as the primary funding source are numbered. The spread of hybrids, and alternative fuel vehicles combined with a political disinclination to raise tax rates mean that a new source of revenue is needed. In the immediate future this means greater reliance on tolls, but longer-term (10 to 15 years) there is likely to be new distance charges."

Ed Reagan, of Wilbur Smith