END GRID LOCK NOW

Executive Board
Regional Transportation Investment District
May 1, 2003

Submitted by: F. Kemper Freeman, Jr.

Let's get Washington moving again…

A real solution to congestion must…

Include a network of roads that work for everyone

and

Improve mobility while reducing congestion below today's level.

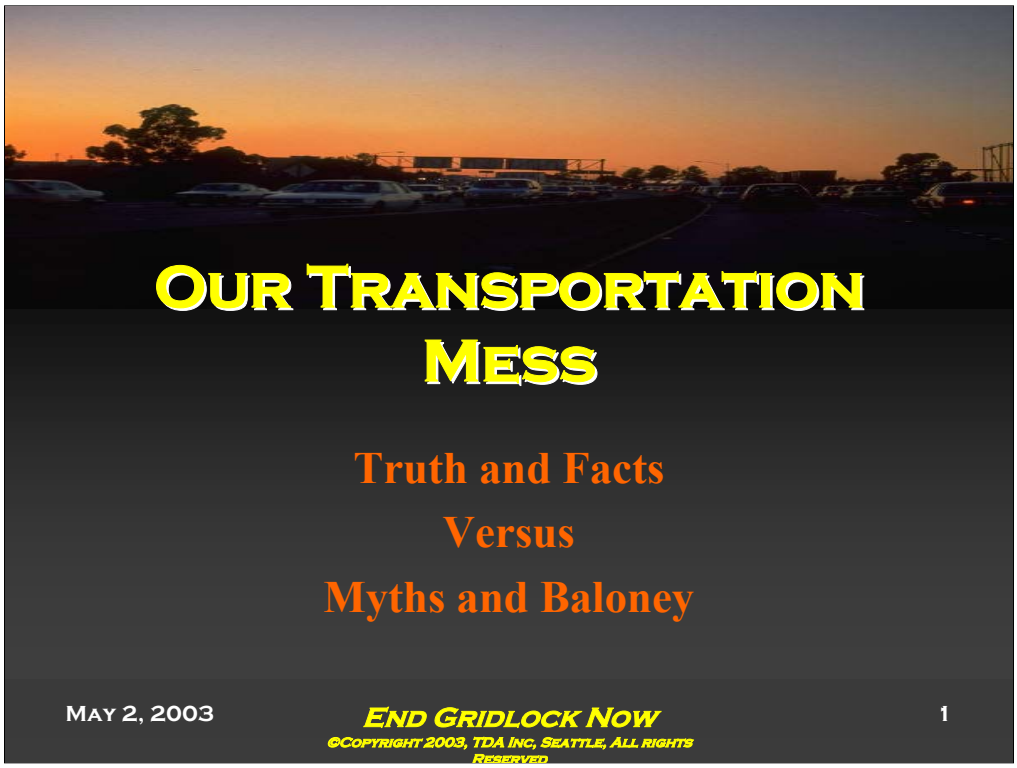
27 projects targeted by need, not politics.

End Gridlock Now…

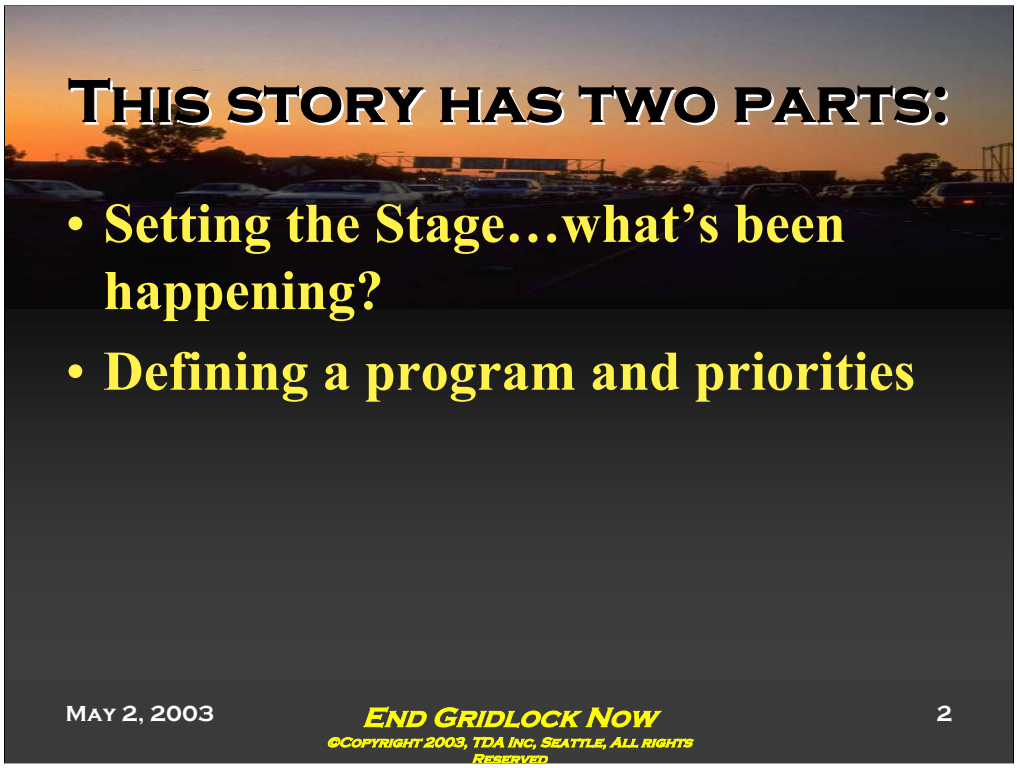
- ✓ **actually reduces congestion** by 36% from 2002 levels by creating new road capacity to reduce current congestion, and accommodate the 3 million additional daily trips expected by 2020.
- ✓ **is good for the economy**. By reducing transportation costs, improving gas mileage, increasing freight mobility, improving productivity, and making this area more attractive for business and jobs. The cost of continued congestion is greater than the cost of all 27 EGN projects combined.
- ✓ **is good for the environment**. Congestion is the single largest source of pollution. Reducing congestion will improve air quality.
- ✓ **will make transit more rider friendly** by reducing transit times and making the system more reliable as an alternative to a car.

END GRIDLOCK NOW

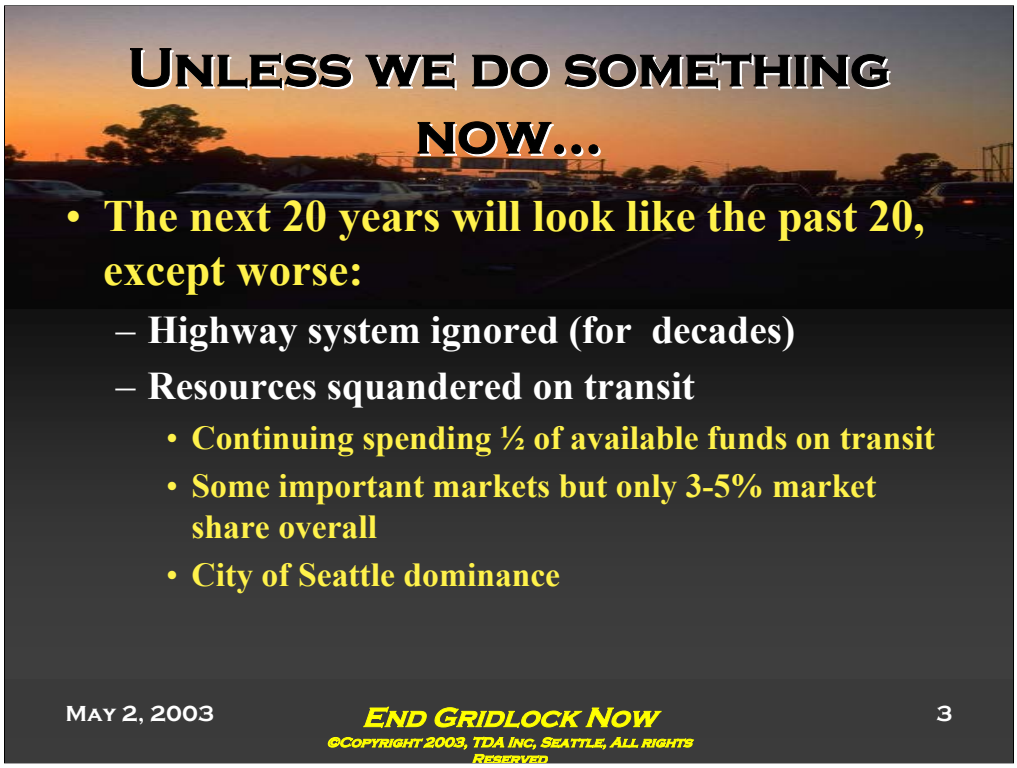
5/1/03-KDC



Our regional transportation system is in shambles and most of our efforts to correct this have been based on myth and misconception. Our goal is to expose the problems and recommend a solution.

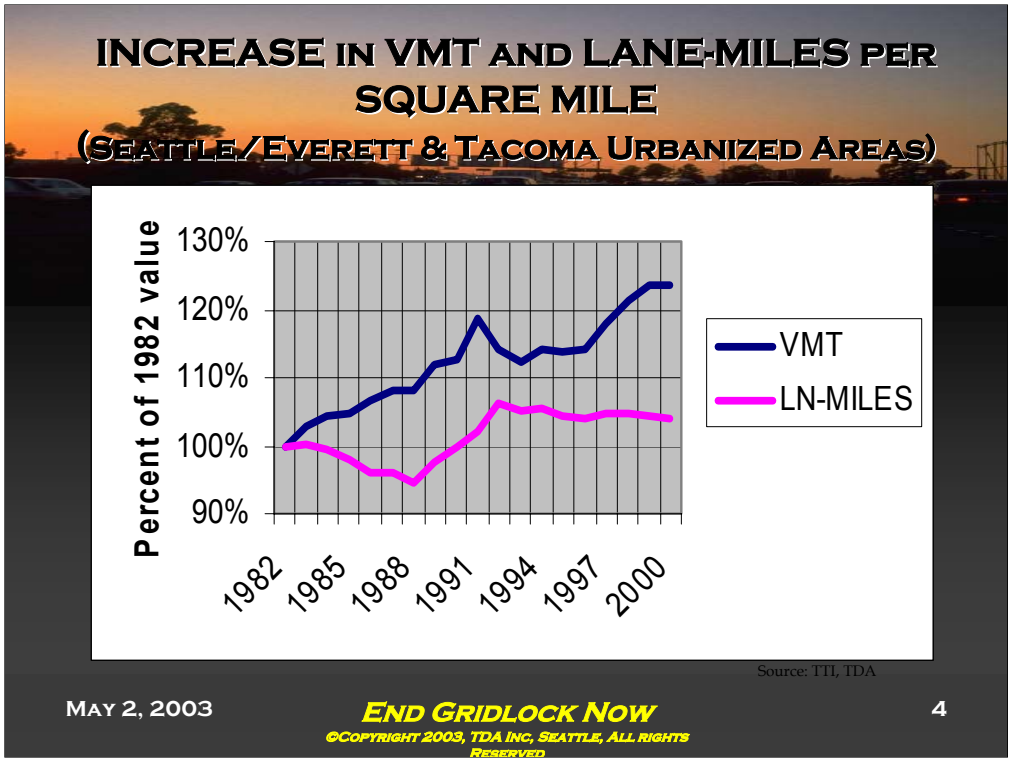


The first part of this presentation summarizes what has been happening to our transportation system over the past few decades. The second describes a corrective program, and identifies priorities.



Our transportation mess shouldn't really be a surprise. We have largely ignored our highway system since about 1970 and devoted half of our funding on a failed experiment to meet our transportation needs with public transit and ridesharing. Subsequent slides will show that:

- transit is a small contributor to our regional travel needs
- the small contribution of transit is concentrated in the City of Seattle, with very little use in the remainder of the region.
- transit's share of the travel market has been in continuing decline.

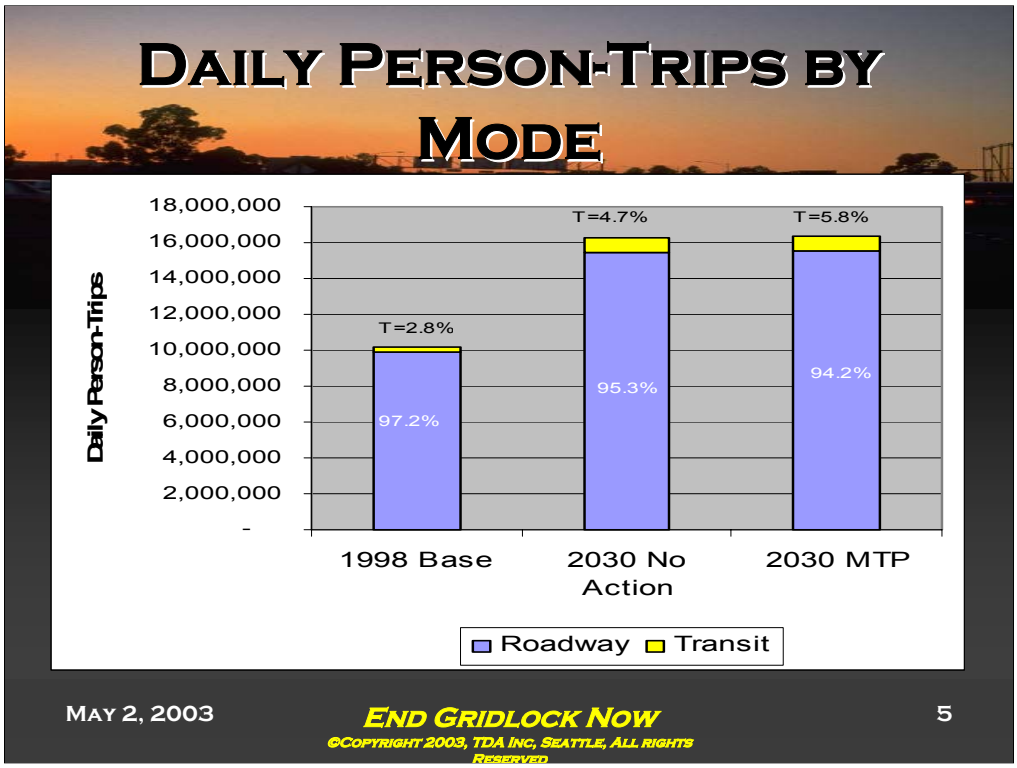


This chart illustrates the point that our roadway system hasn't kept up with the growth in travel demand. It compares lane-miles with vehicle miles traveled (VMT) for the freeways/expressways and principal arterials in the Seattle/Everett & Tacoma urbanized areas.

By Bureau of the Census definitions, the size of the urbanized areas change from year-to-year. Between 1982 and 2000, the Seattle/Everett and Tacoma urbanized areas grew from 900 square miles to 1,225 square miles. The drop in lane-miles/square-mile between 1983 and 1988 was the result of adding land area with limited road networks to the urbanized areas.

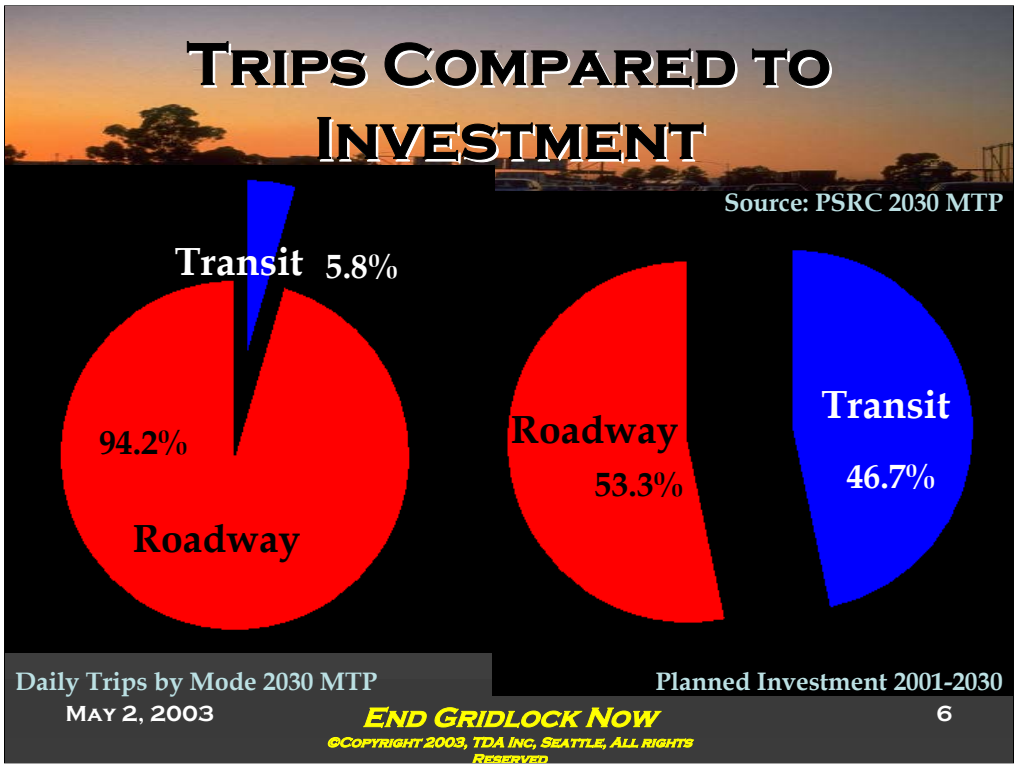
Between 1982 and 1996 VMT increased by about 62%. In the same period, lane-miles increased by only 21%.*

*This neglect of our street and highway system goes back to about 1970, but comparable data were not available for years prior to 1982.



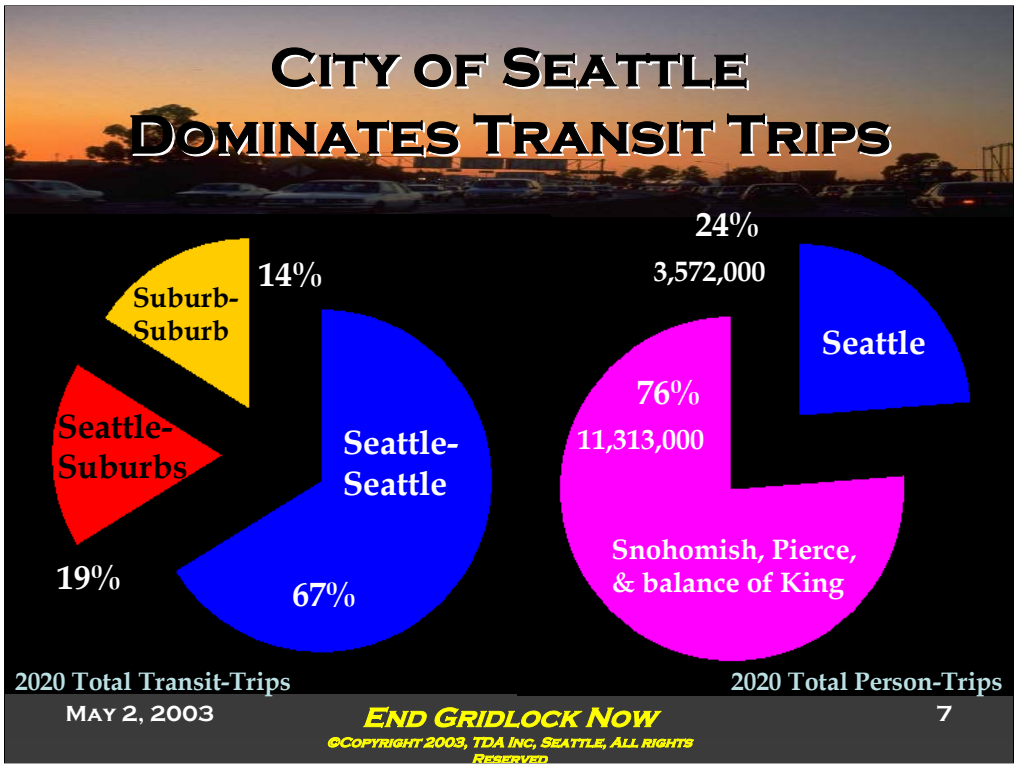
This compares transit travel with private vehicular travel on our street and highway system, based on PSRC information from Destination 2030 (PSRC, May 2001). The first bar shows a 1998 existing condition with 2.8% of the region's daily trips made by transit. By 2030, PSRC projects that this will grow to 4.7% with no further action, except to continue existing programs. The adopted 2030 Metropolitan Transportation Plan (MTP) includes another 100 miles of rail, a "second phase" of the disastrous Sound Transit program. It is particularly puzzling that this element of the plan was adopted without any analysis of the benefits compared to the costs. PSRC's projected 1.1% increase in transit use over "no action":

- is counter to long-established trends of decline in transit's market share, both locally and nationally.
- would make an insignificant contribution to the region's traffic congestion



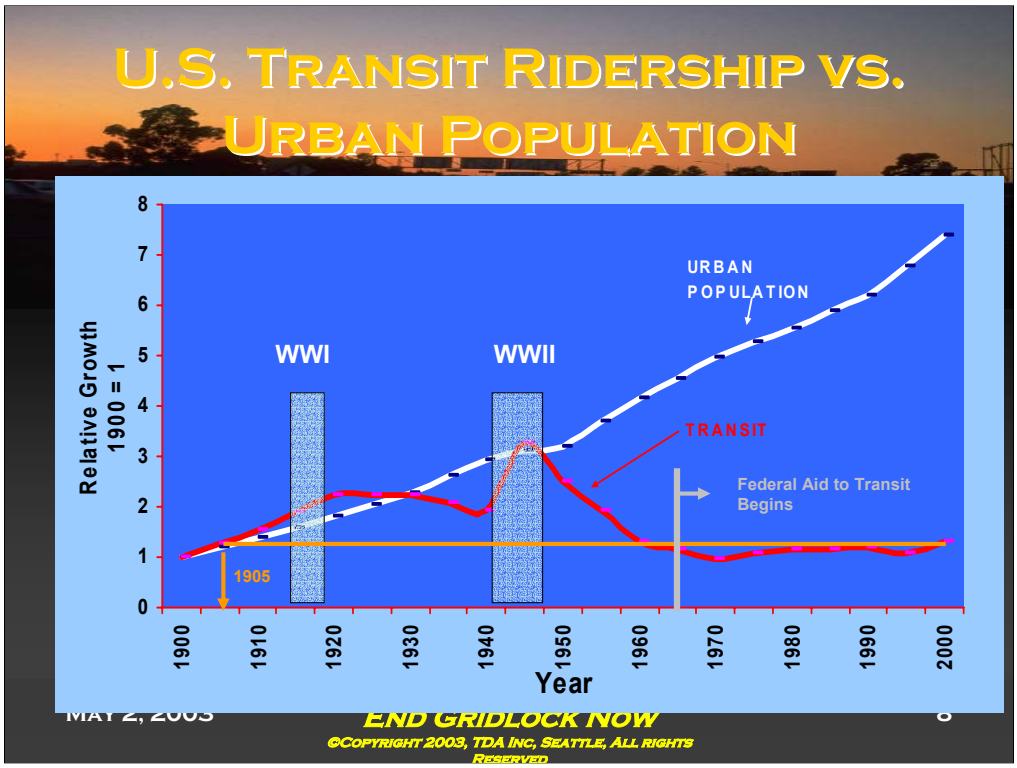
This pie-chart on the left shows the relative market shares for transit and for roadway travel for 2030. The chart on the right shows the planned distribution of investment through 2030. Transit advocates continue to cry for a “balanced approach to transportation”. Spending nearly half of available funds on the projected 5.8% of trips by is by no stretch of imagination “balanced”. Balance would be better represented by spending 5% to 10% of funds on transit.

Chart is based on Table 7 of Adopted Destination 2030, PSRC, and Table 8-21, adopted Destination 2030, Appendix 8



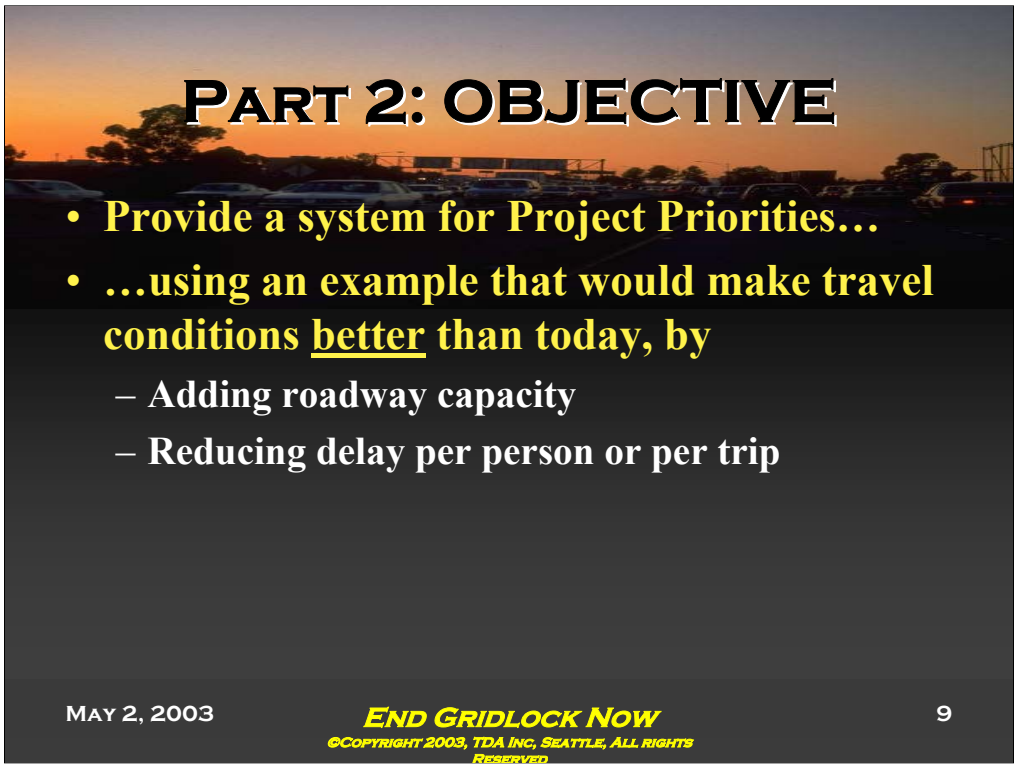
These charts show projected conditions in 2020, based on PSRC projections. The chart on the left shows that 2/3 of all regional transit trips both begin and end within the City of Seattle. Another 19% either start or end in the City of Seattle. That means that only 14% of transit trips are suburb-to-suburb (80% of the regional population is in the suburbs). For comparison, the chart on the right shows that 3/4ths of all person-trips are in the suburbs.

This is adapted from Jim Mac Isaac's Oct 5, 2000, comments on 2001 Draft MTP EIS, charts 3 and 4.



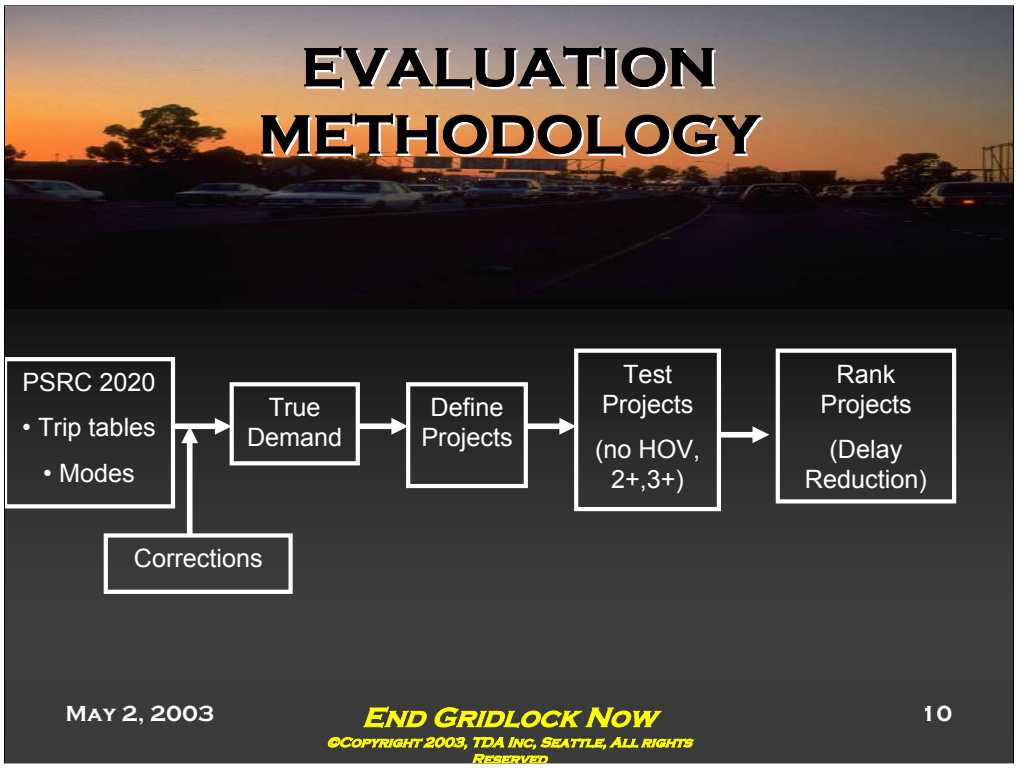
This shows the growth of U.S. transit ridership compared to the growth of urban population for the period between 1900 and 2000. The gas rationing in World War II contributed to a large increase in transit ridership (and in carpooling). While the urban population of the U.S. has increased by about 8 times since 1900, transit ridership in 2000 was about the same as the total in 1905. In 1900, the average urban resident made 240 transit trips per year. By 2000, this had declined to 42 transit trips per year per urban person. This amounts to about 3.5% of the 1,200 trips the average urban resident makes per year.

Federal aid to transit began with the 1964 housing act. The billions of dollars that have been invested may be credited with halting the decline in the number of riders. However, transit's share of the urban travel market has continued to decline as urban population continues to increase.



To illustrate the system for setting project priorities, this presentation uses an example set of projects. These projects were selected with the objective of making 2020 travel conditions better than today by:

- Adding roadway capacity to serve both existing deficiencies and future growth in demand, and
- Reducing total regional delay and delay per trip

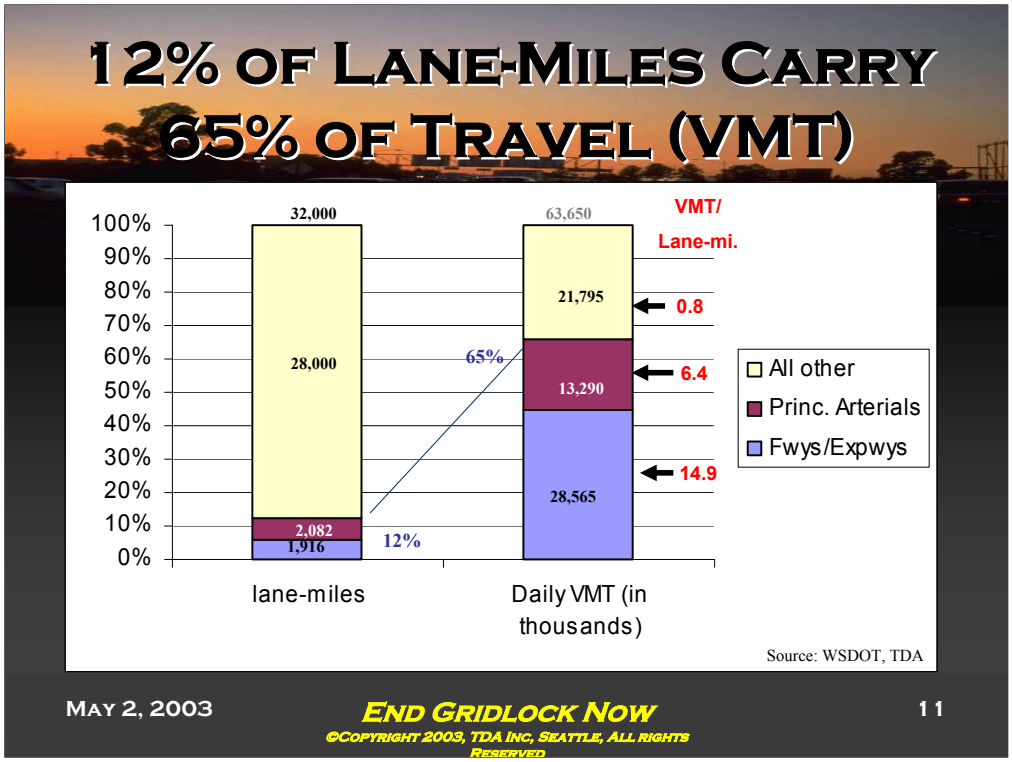


The process started with the PSRC travel model, using its 2020 trip tables. These trip tables show the number of trips between all origin/destination pairs, by mode of travel. Modes of travel (auto, transit, for example) were not changed. To maintain comparability among alternative projects, these trip tables were not allowed to change. Corrections were made to the model to use more realistic free-flow speeds, to correct errors in a few roadway links (lengths and speeds, for example), and to improve the relationship between traffic volumes and the resulting speed of traffic flow.

The first model run removed capacity constraints on the roadway network. This provided an estimate of **"true demand" showing where people wanted to be**, not the routes forced by limitations of capacity on key links of the network. This showed, for example, that if trips could follow their desired route, I-5 through central Seattle would need 2 to 3 lanes of additional capacity in each direction. It also showed that **few trips wanted to be on the Alaskan Way Viaduct; trips on the Viaduct are there because of capacity limitations on I-5**. This "true demand" run was the basis for identifying a total of 27 roadway improvement projects. These will be identified on later slides.

These 27 projects were added to the model's roadway network (which already included PSRC's 2020 MTP improvements). They were then tested under three different high occupancy vehicle (HOV) assumptions: allowing all traffic to use the HOV lanes, defining HOV as 2+ persons per vehicle, and defining HOV as 3+ persons. Because of PSRC's high projections of HOV volumes in 2020, the case allowing all traffic to use the lanes did not work well. After correcting for some traffic lost in the occupancy conversion process, the differences between 2+ and 3+ were small.

Finally, projects were ranked by the extent each reduced regional delay. This was done by comparing the vehicle hours of travel for all trips using any portion of each project with the vehicle hours that would have been incurred if these same trips traveled under conditions of the 1998 network.



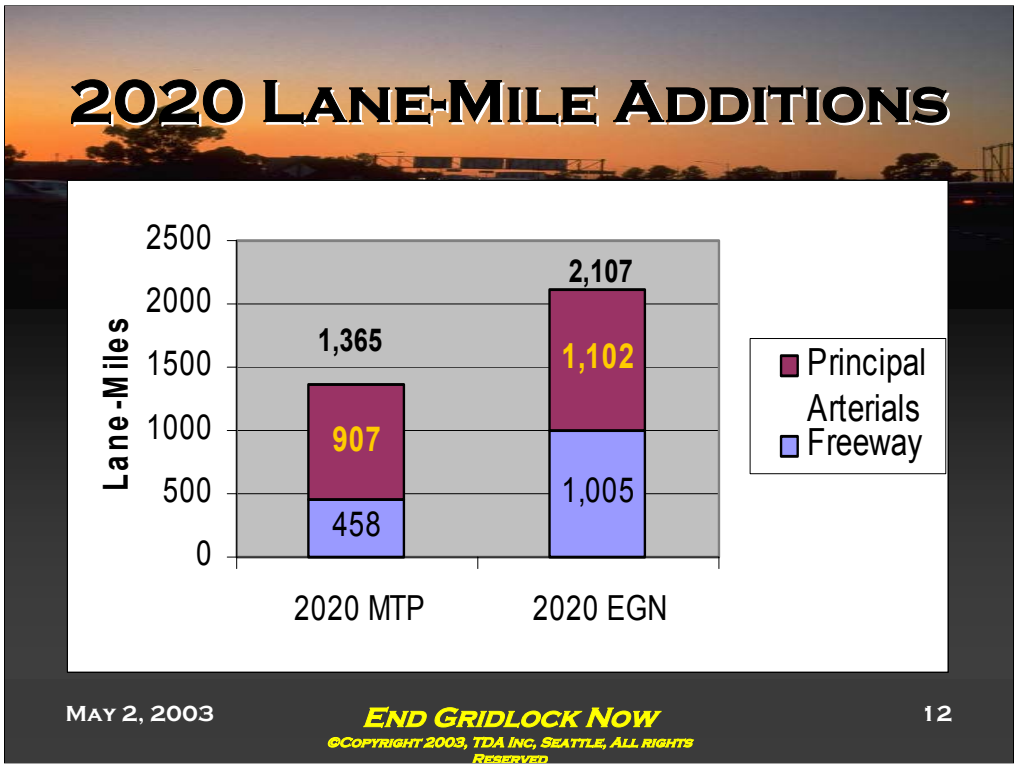
In the three-county area, there are a total of about 32,000 lane-miles of all types of roadways. These include local streets, collectors, principal arterials, and freeways/expressways. The latter categories, freeways/expressways and principal arterials, comprise only 12% of our total lane-miles.

The bar to the right shows vehicle miles traveled (VMT) for the three categories of roads (a car traveling one mile is one VMT).

As the comparison shows, travel on freeways/expressways and principal arterials is out of proportion with their share of the lane-miles. Specifically, these 12% of the lane-miles carry about 65% of the daily VMT. It is for this reason that End Gridlock Now focuses on additions to the freeways, expressways and principal arterials. No additions to the local street system are proposed in End Gridlock Now. In fact, this EGN program will reduce traffic on local streets now using those streets because of congested conditions on the freeways.

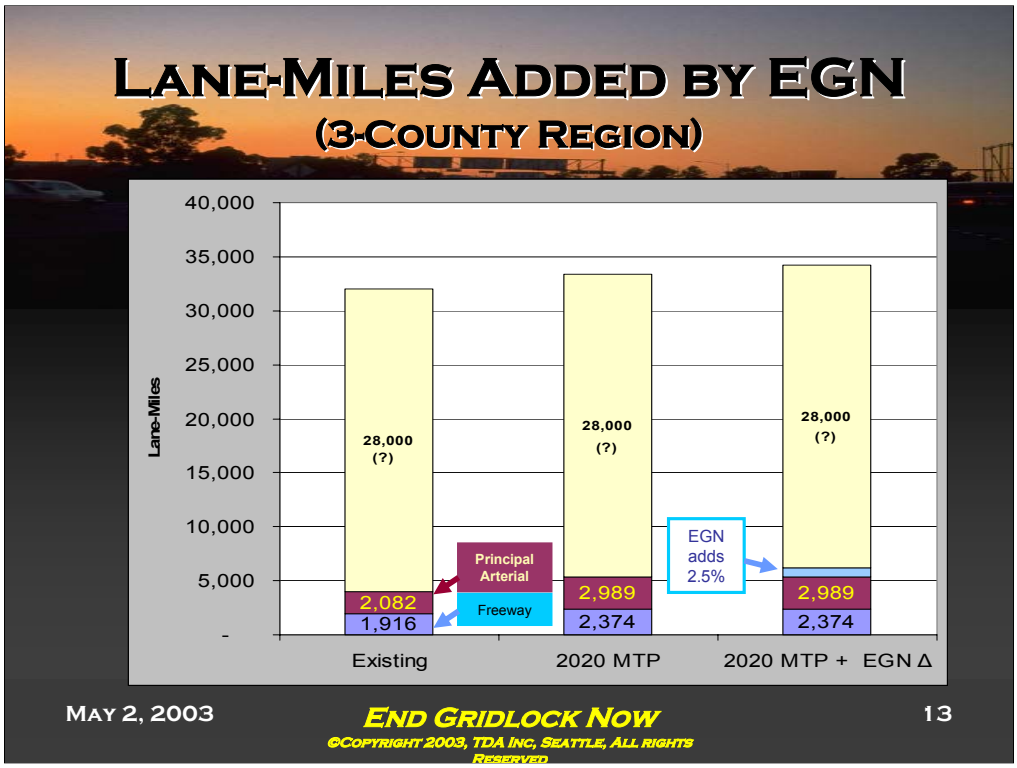
The figures to the right of the VMT bar show the relative "travel productivity" of each roadway class. It shows, for example, that freeway lanes are more than twice as productive as principal arterials and nearly 20 times as productive as a lane-mile of the "All Other" category.

In 1982, 72% of daily travel was on our freeways and principal arterials. The decline from 72% to 65% is another indicator of the increased use of local streets because of the congestion on the freeways and principal arterials.



The 27 projects added about 2,100 lane-miles to the 2002 regional network (currently there are about 32,000 lane miles in the 3 county region). The total is about 55% more than were included in PSRC's Metropolitan Transportation Plan (MTP) for 2020. More important is a 120% increase in freeway lane-miles compared to the MTP, because of the high productivity of freeway lanes.

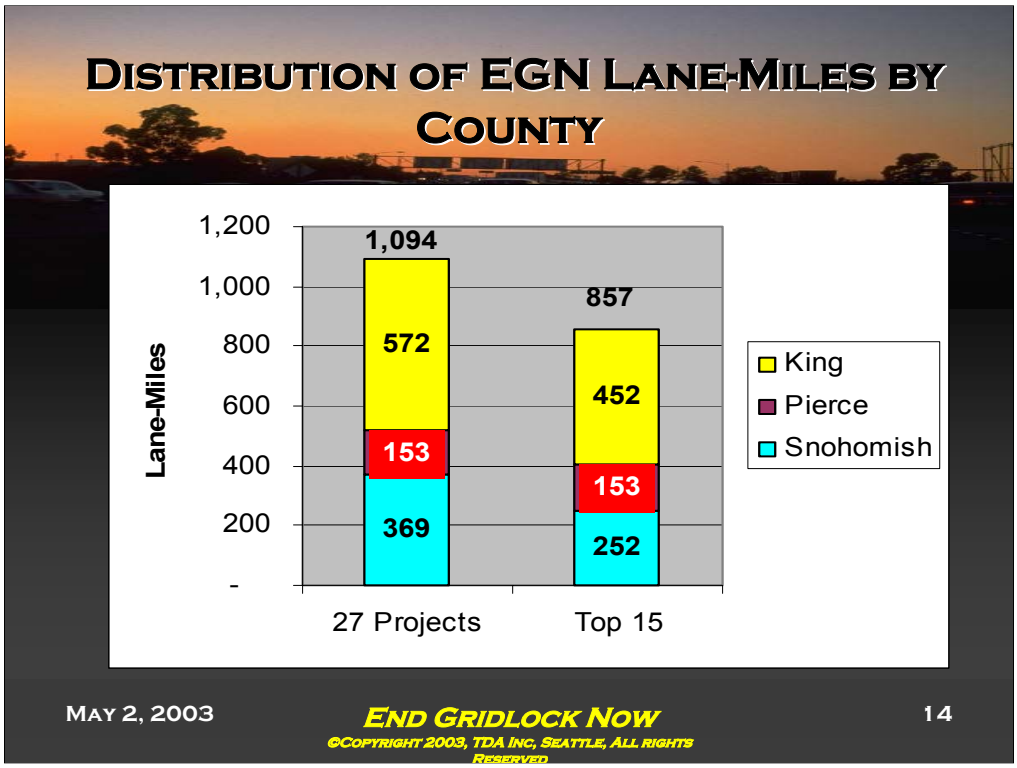
The 27 listed projects were selected based solely on the 2020 deficiencies, as indicated by the "true demand" run of the PSRC model. This was done without political considerations.



This shows how the adopted Metropolitan Transportation Plan (MTP) and EGN change the regional lane-mile totals. The 2020 MTP adds 1,365 lanes miles, or about 4% to the 3-county total. (The total shown for Principal Arterials for the 2020 MTP assumes that all of PSRC's category of "other roads" are all principal arterials. Some may, in fact, fall in the chart's "All Other" category.)

The EGN 27 projects would add another 740 lane miles (mostly freeway) or 2.5% to the 3-county total.

As the urbanized area grows, there will probably be some growth in the "All Other" category to provide local streets for newly developed sites. However, we have no estimate for that growth.

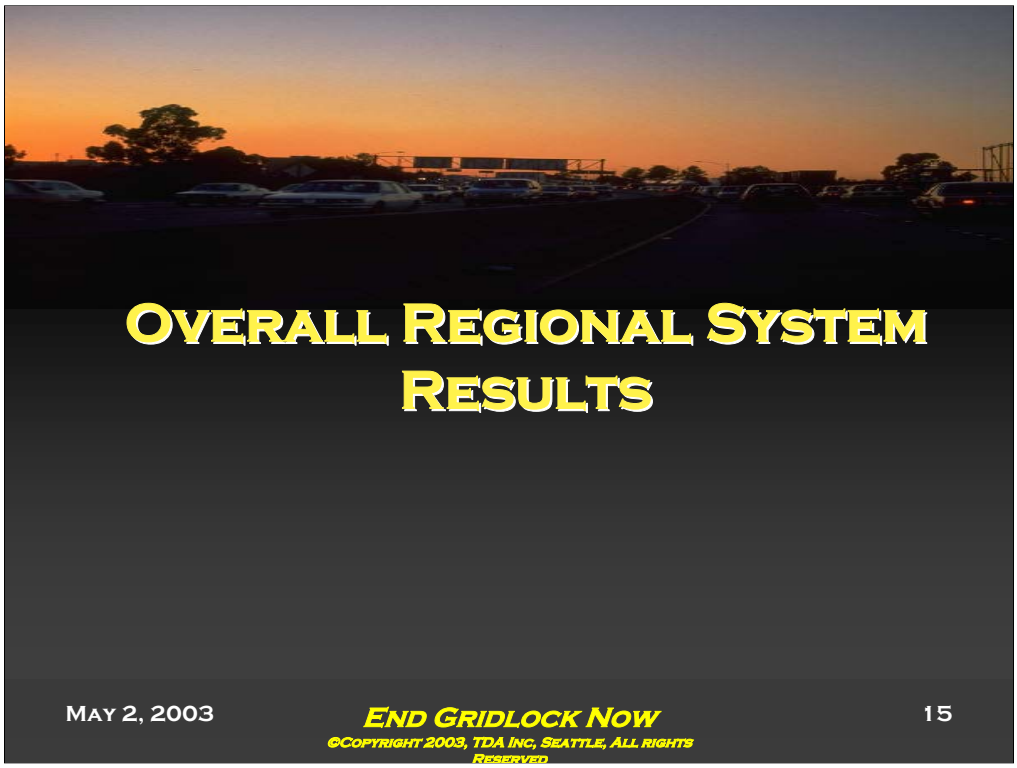


This shows the approximate distribution of lane-miles by county. For the 27 projects, it shows:

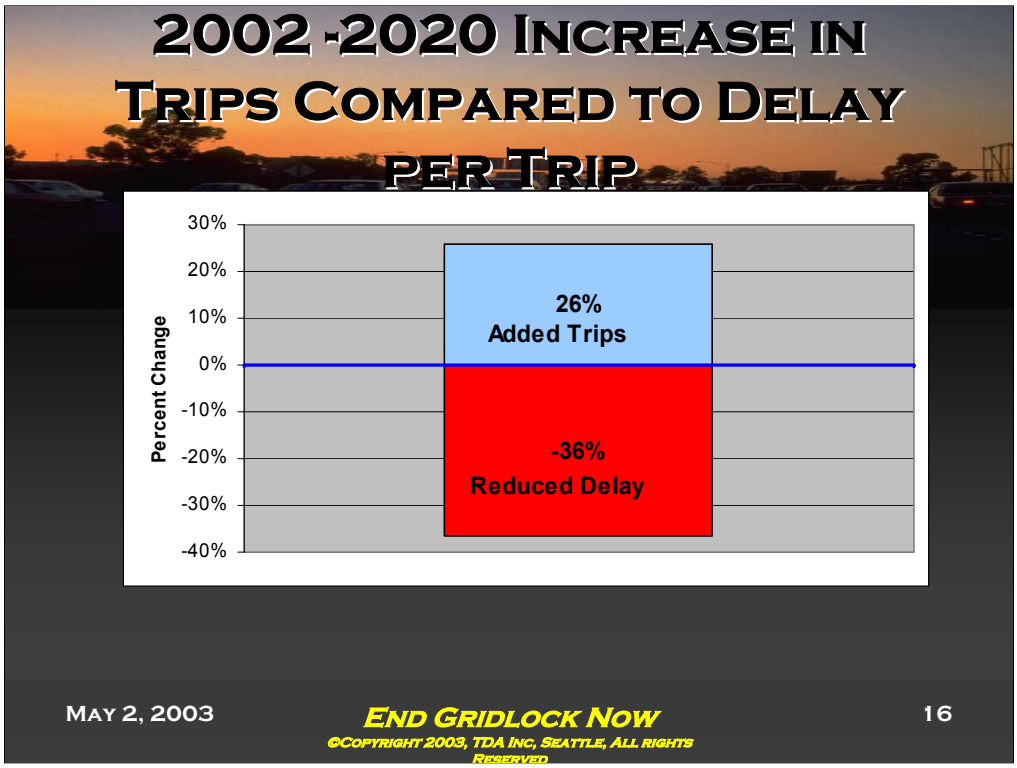
- Snohomish County: 36%
- Pierce County: 17%
- King County: 47%

For only the top 15 projects in regional delay reduction, the distribution is similar, with a slight shift to Pierce County:

- Snohomish County: 28%
- Pierce County: 23%
- King County: 49%

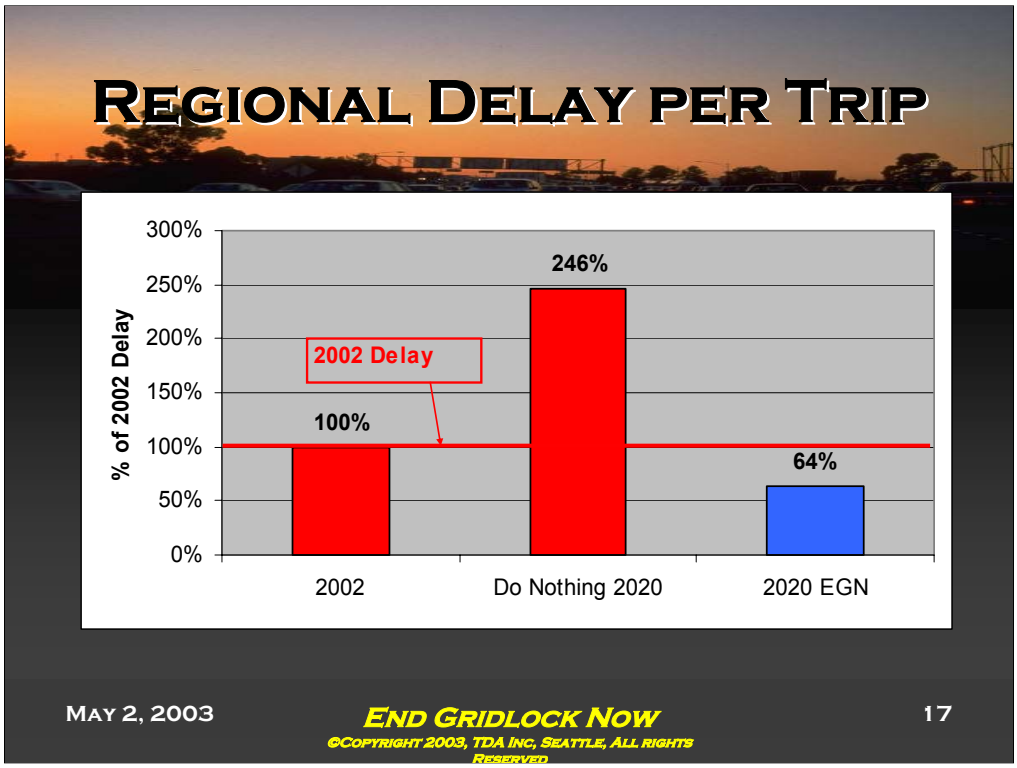


The following slides summarize results at the regional system level, illustrating overall improvement in travel conditions with the End Congestion Now (EGN) program. A later section will look at ranking of the individual projects in the EGN program.



Based on the PSRC projections, the roadway network will have to carry 26% more trips in 2020 than in 2002. Even with this growth in demand the EGN network reduces delay per trip by 36%. That means delay is reduced by 36% from today's conditions for both today's drivers and for the projected 26% growth.

(eng+sea_sysw 9 Sep 02)

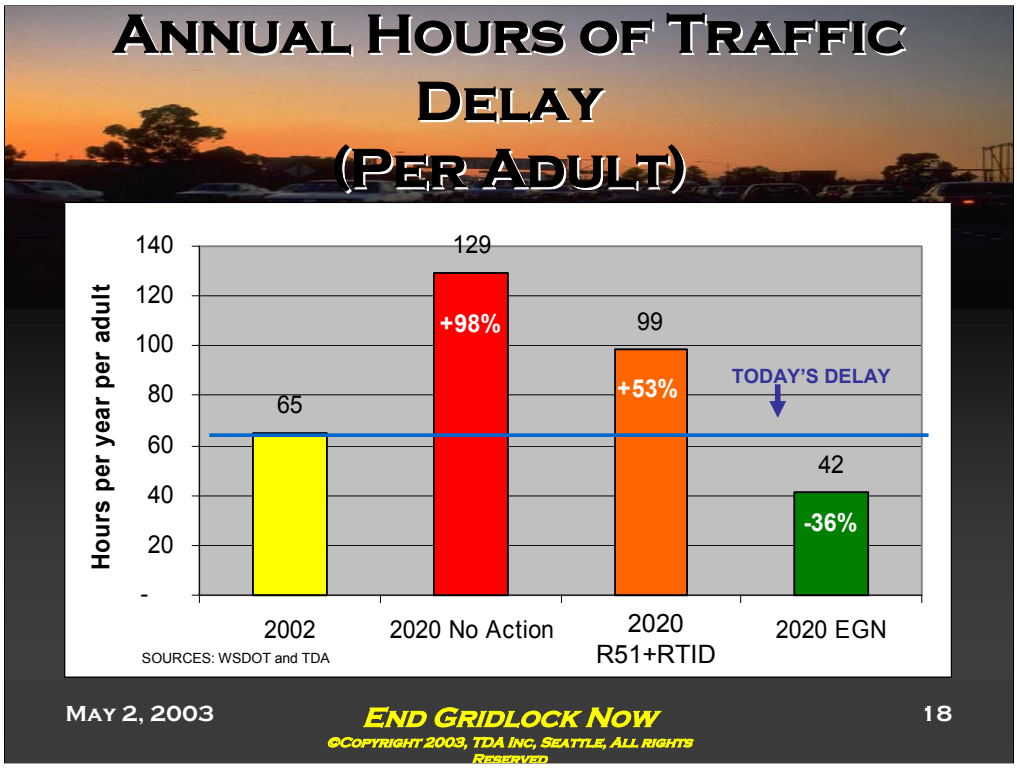


If projected 2020 traffic used the road network that exists today, delay per trip would be about 2.5 times today's level (and today's is bad enough). The 26 End Gridlock Now projects would reduce the delay per trip by about 30% from today's levels. Recall that this is done while serving 26% more trips by 2020.

Critics of highway improvement programs depend on the often-repeated myth that "…you can't build new roads because they will just fill up with traffic". Even if it were true (and it isn't), what's wrong with that? Drivers and passengers are not mindless idiots traveling for the sole purpose of consuming capacity. Those trips are satisfying some social or economic goal. Other critics (including some governmental agencies) argue that increased travel is bad and that we should not improve our roadway system to allow increased travel. Why do we single out mobility for this treatment? We build new schools, new libraries, and add capacity to our water/sewer/natural gas/electric systems to meet demand. While conservation is good, it almost never is the sole solution. One of man's goals throughout history has been to increase mobility. Why now do some critics (and government agencies) argue that increased mobility is evil?

Now for the myth part:

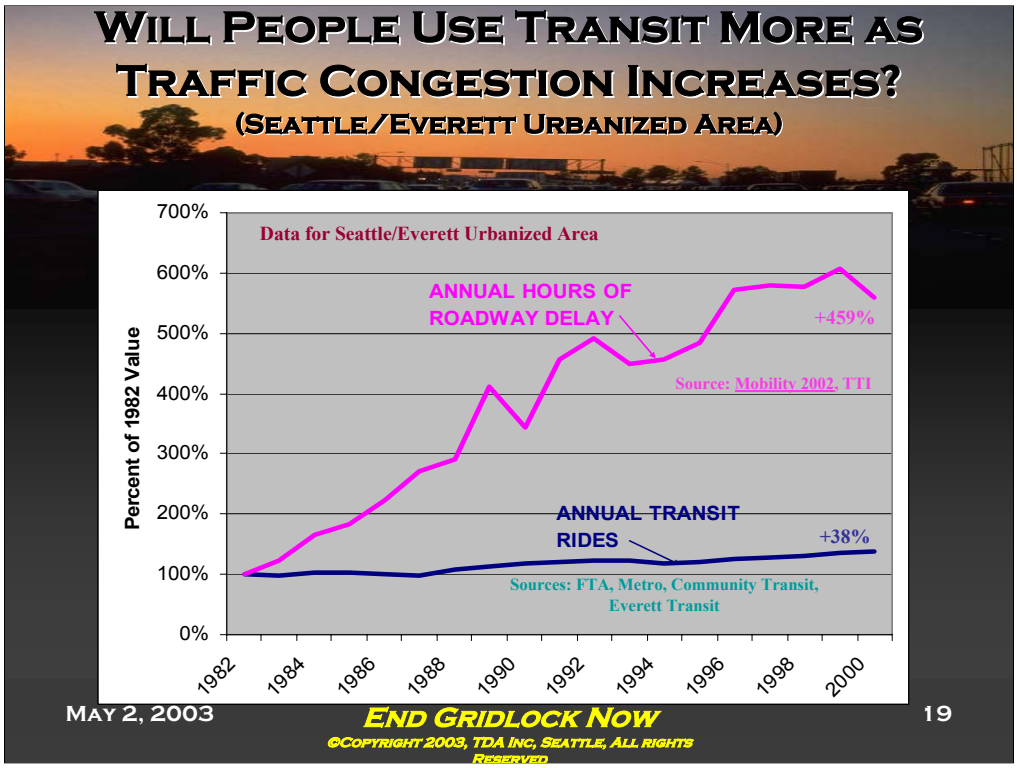
- The major portion of our freeway system was completed in about 1970. If it were true that highways "just fill up with traffic", why did about 20 years pass before we began to see serious congestion? Twenty years is a reasonable planning horizon for a transportation program. Now we've let another decade pass without taking action and suffer even more serious congestion.
- We largely ignored our highway system for the last 3 decades. During this same period our motor vehicle travel has more than doubled. Why should we be surprised if there is a pent-up demand from this long neglect of our highways?



This summarizes annual traffic delay per adult for 4 conditions in the 3-county region:

- In yellow (bar #1 on the left), today's estimated 65 hours per year per adult – equal to 8 working days (Source: WSDOT).
- In red (bar #2), 2020 No Action delay of 129 hours per year per adult – equal to more than three 40-hour work weeks (source: WSDOT). "No Action" means no road improvement projects beyond those currently underway or programmed.
- In gold (bar #3), 2020 with the projects proposed for R51 and the October 10th estimate for projects under the Regional Transportation Investment District (RTID) program, showing just under 100 hours of delay (source: WSDOT). The RTID program is in its formative stages and may change over the next couple of months.
- In blue (bar #4), year 2020 with the EGN projects, showing a reduction in delay from today's condition (source: EGN). **Note that this is the only 2020 scenario that improves travel conditions over today's delay.**

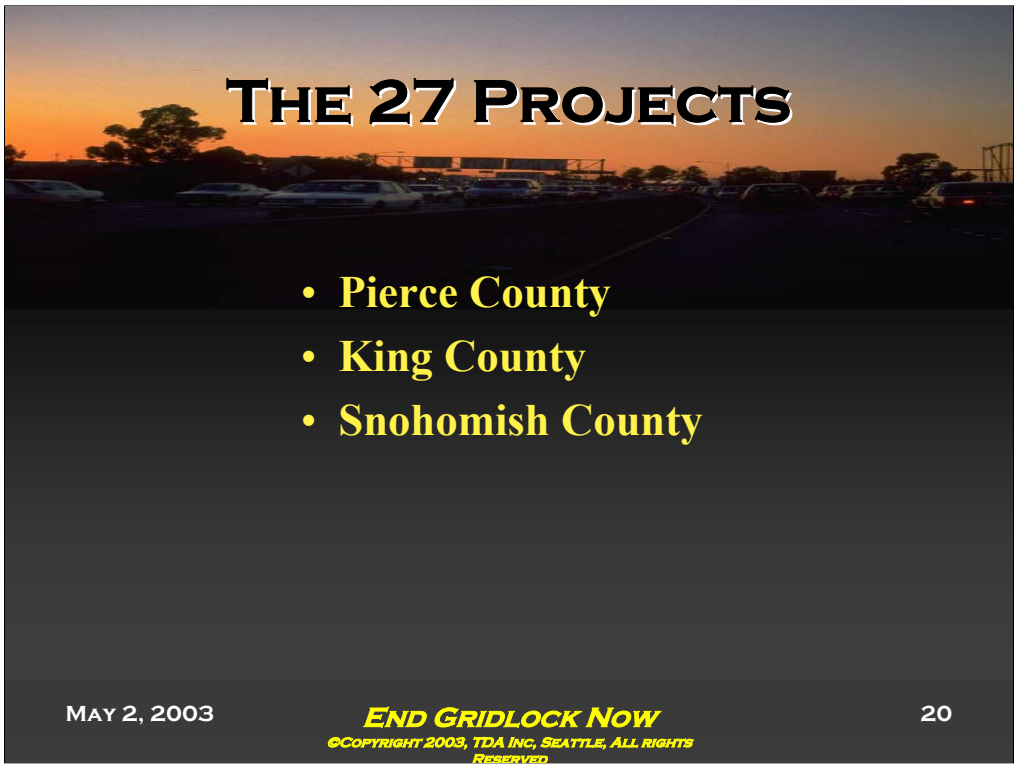
[Ranking/Compare EGN with WSDOT]



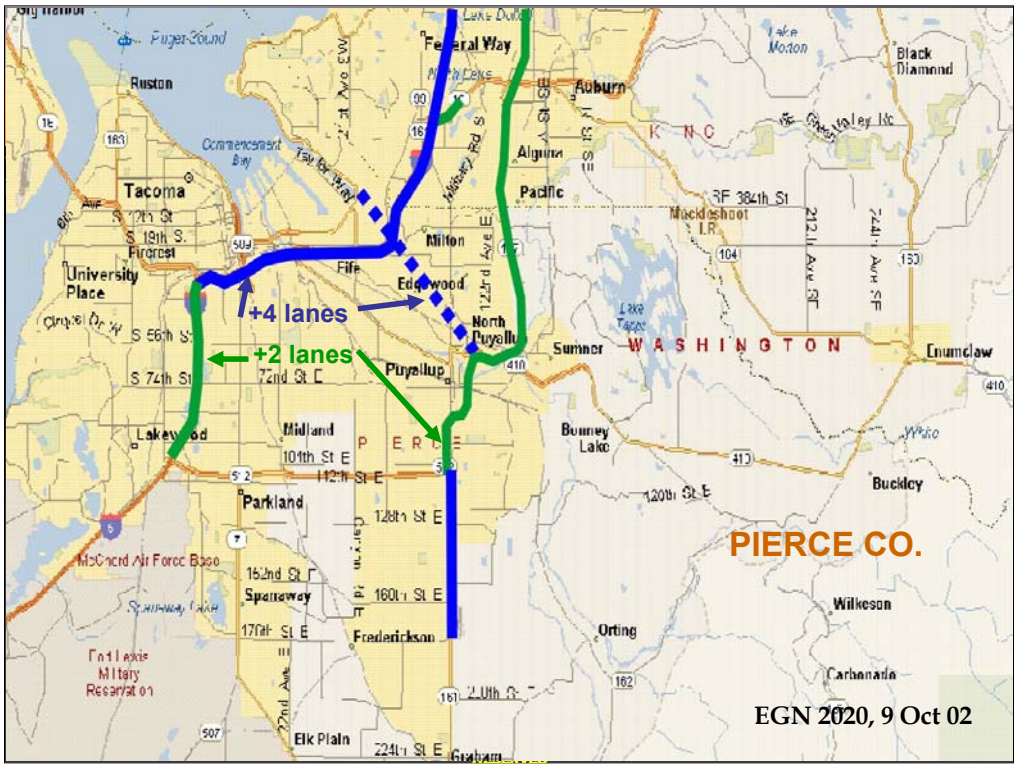
We keep hearing the argument that if we don't build any more roads, congestion will make people switch to transit. The attached slide shows what's happened since 1982. For the Seattle/Everett urbanized area, annual hours of road delay has gone up by 459%; transit ridership has gone up only 38%. That 38% appears to be more related to population increase, because transit rides per capita has been nearly constant over the 1982-2000 period.

So, if increasing congestion causes people to shift to transit, the effect must be delayed by at least a couple of decades.

(Sources: FTA National Transit Database; Mobility 2002, TTI; Metro General Managers Report, other Metro sources, Community Transit website)



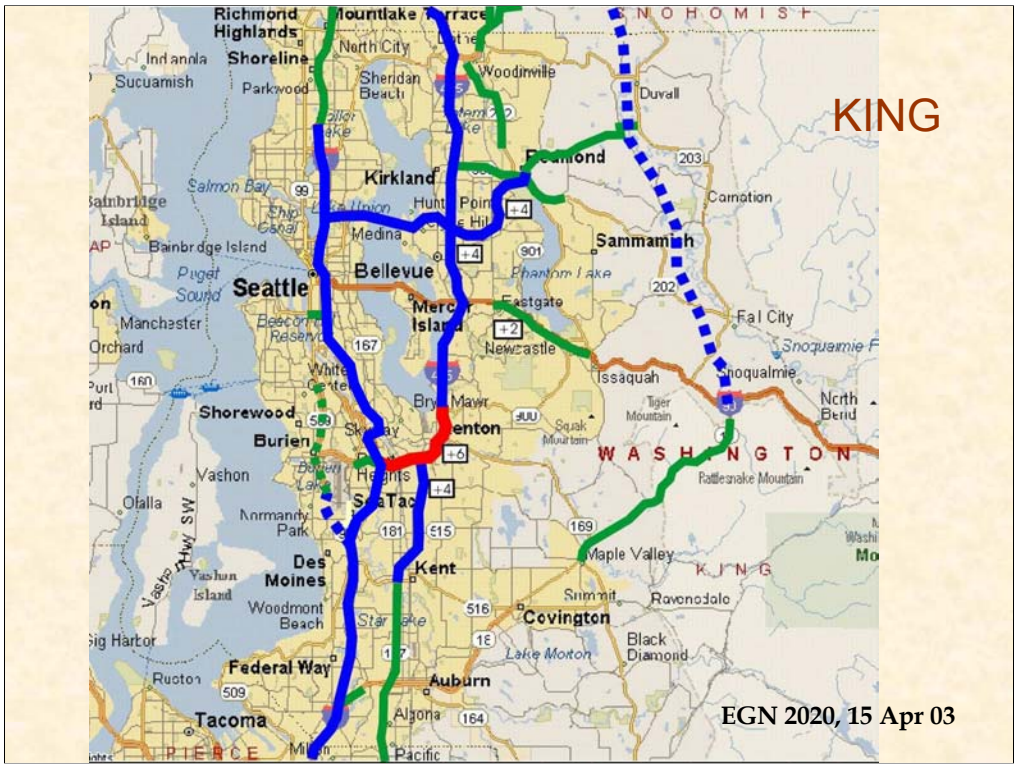
Maps on the following three pages show the 27 projects. Because some projects cross county lines, they may be shown more than once. The last four pages of this document provide more detailed descriptions of the projects.



Of the 27 projects, this slide shows those entirely or partly in Pierce County. These include:

- SR 167 (SR 509 to SR 512 in Puyallup, shown as a dashed, blue line)
- SR 167 (SR 512 to King Co. line)
- I-5 (SR 16 to King Co. line)
- SR 512 (SR 167 to Meridian in Puyallup plus 2 added lanes each direction in Meridian Corridor south)

The colors indicate the number of lanes added: blue is 4 lanes (2 in each direction), green is 2 lanes (1 in each direction). The last 4 pages of this package describe the projects in more detail.



Of the 27 projects, this slide shows those entirely or partly in King County. These include:

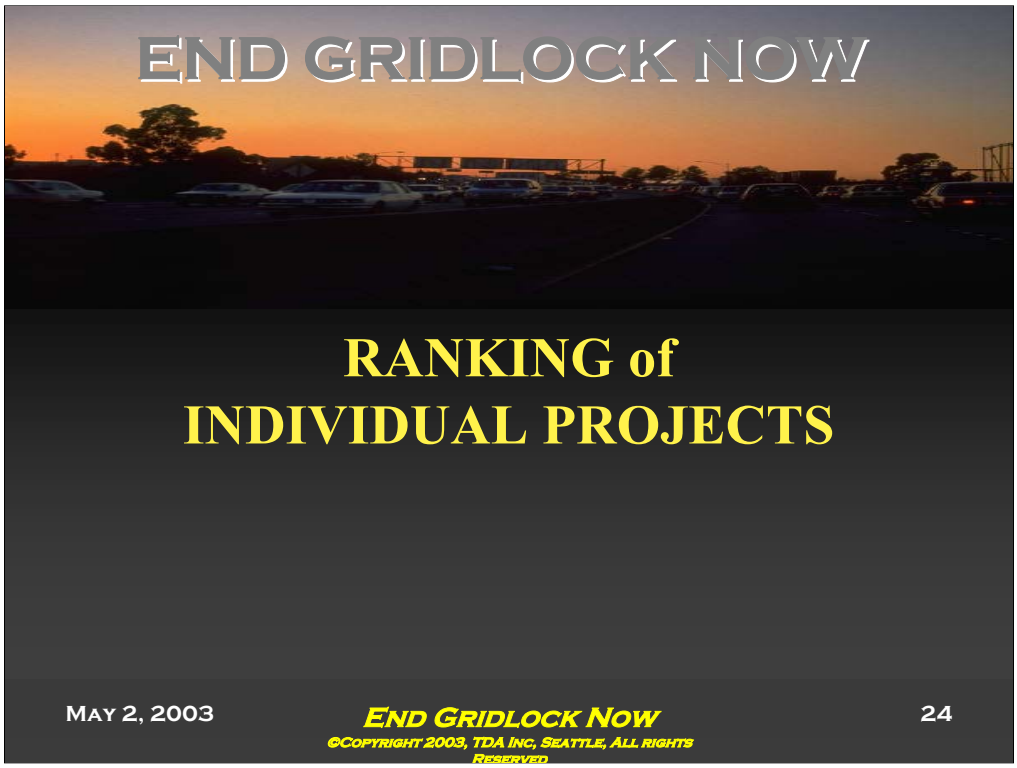
- SR 509 Extension from its terminus west of the Airport to a connection with I-5
- I 405 (the preferred project but with one more added lane in each direction between Southcenter and Kennydale)
- SR 509 HOV
- I-5 (three projects from the Pierce Co. line to Snohomish Co. line)
- New Eastside Freeway (I-90 at SR-18 to Snohomish Co. line, shown as a dashed blue line)
- SR 518 (I-5 to SeaTac exit)
- SR 18 (SR 169 to I-90)
- SR 520 (I-5 to SR 202 in Redmond)
- SR 202 (Woodinville to Sahalee)
- SR 908 (Redmond to I-405)
- Novelty Hill Rd (Avondale to SR 203)
- Spokane St. Viaduct (I-5 to SR 99)
- I-90 (Eastgate to Sunset IC)

The colors indicate the number of lanes added: red is 6 lanes (3 more in each direction), blue is 4 lanes (2 in each direction), green is 2 lanes (1 in each direction). The last 4 pages of this package describe the projects in more detail.

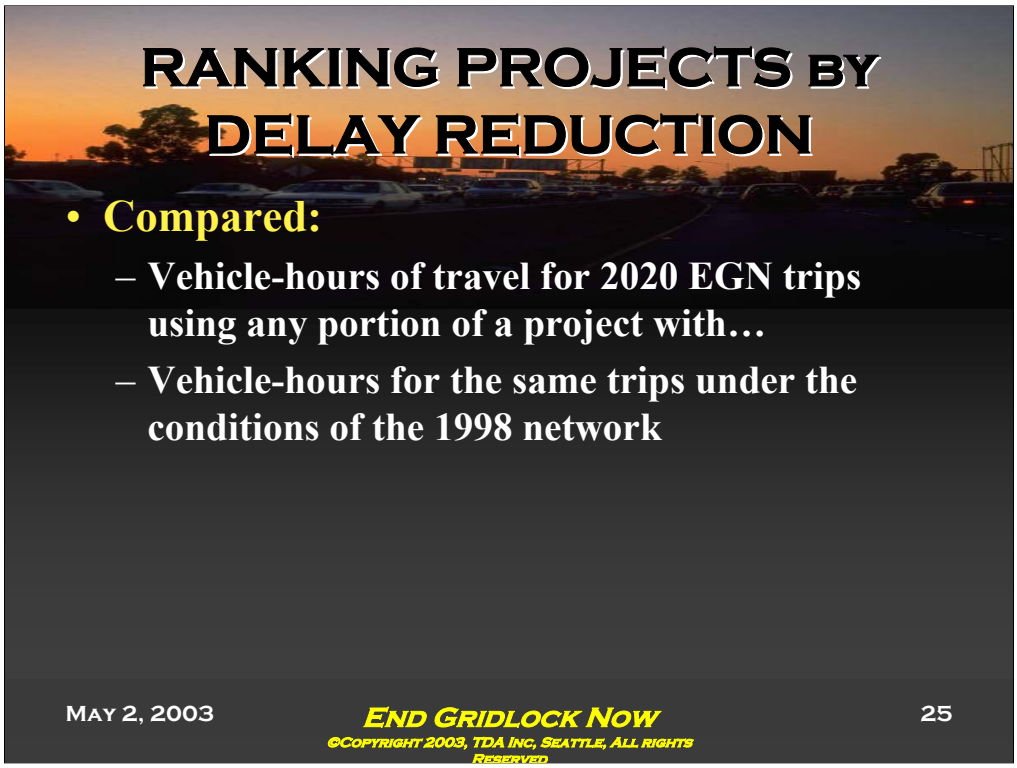
Of the 27 projects, this slide shows those entirely or partly in Snohomish County. These include:

- I-5 (King Co. line to the Skagit County line)
- I-605 (King Co. line to SR 9 and SR 96, shown as a dashed line)
- SR 522 (Woodinville to Monroe)
- SR 525 (I-405 to SR 526)
- SR 9 (SR 522 to Skagit Co. line) widened to freeway standards
- SR 92 (SR 9 to Granite Falls)
- SR 2 (SR 9 to Sultan, including the Monroe bypass, shown as a dashed line)

The colors indicate the number of lanes added: blue is 4 lanes (2 in each direction), green is 2 lanes (1 in each direction). The last 4 pages of this package describe the projects in more detail.



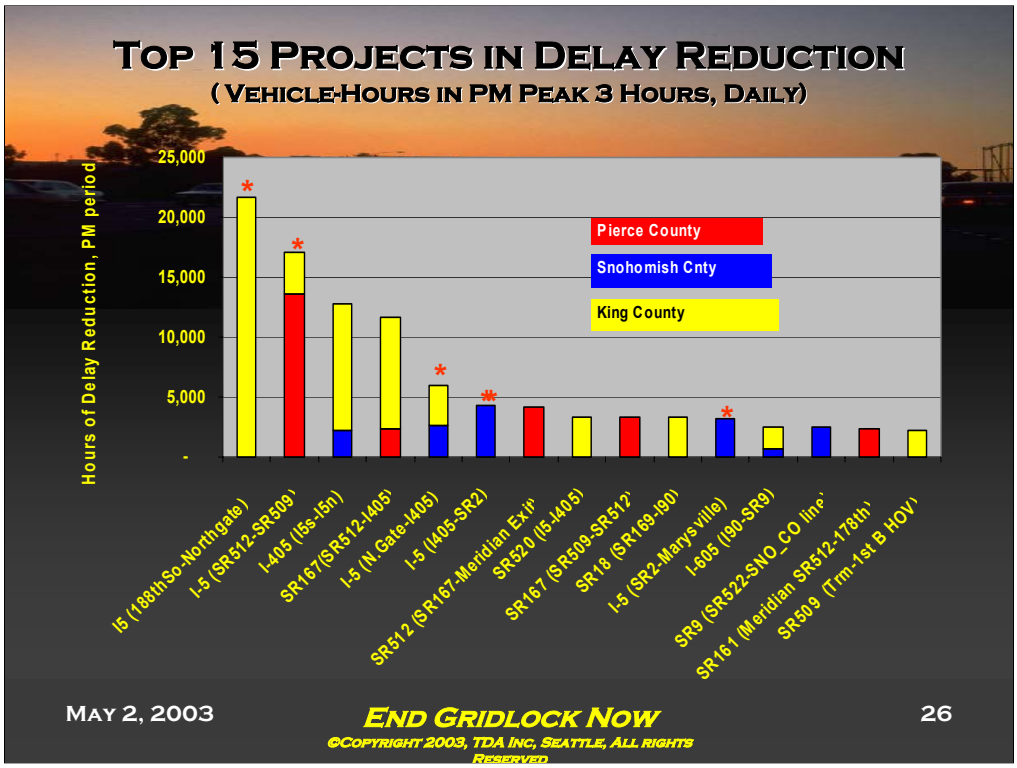
The following slides move from the overall regional system effects to the ranking of individual projects. Primarily, this ranking is based on each project's total contribution to the reduction of regional delay.



The purpose here is to prioritize the projects with the largest amount of delay reduction. The results are not necessarily the time reductions that would be used in a benefit/cost analysis.

Here's a summary of the approach for estimating delay reduction from the EGN projects (for the PM Peak Period of 3 hours):

1. For each of the 27 projects, all of the 2020 trips that used part or all of the project were identified.
2. For these trips, total vehicle-hours required were calculated.
3. Then, vehicle-hours were calculated for these same trips, but under the conditions of the 1998 network including 1998 speeds.
4. The difference was the estimate of delay reduction due to the project.

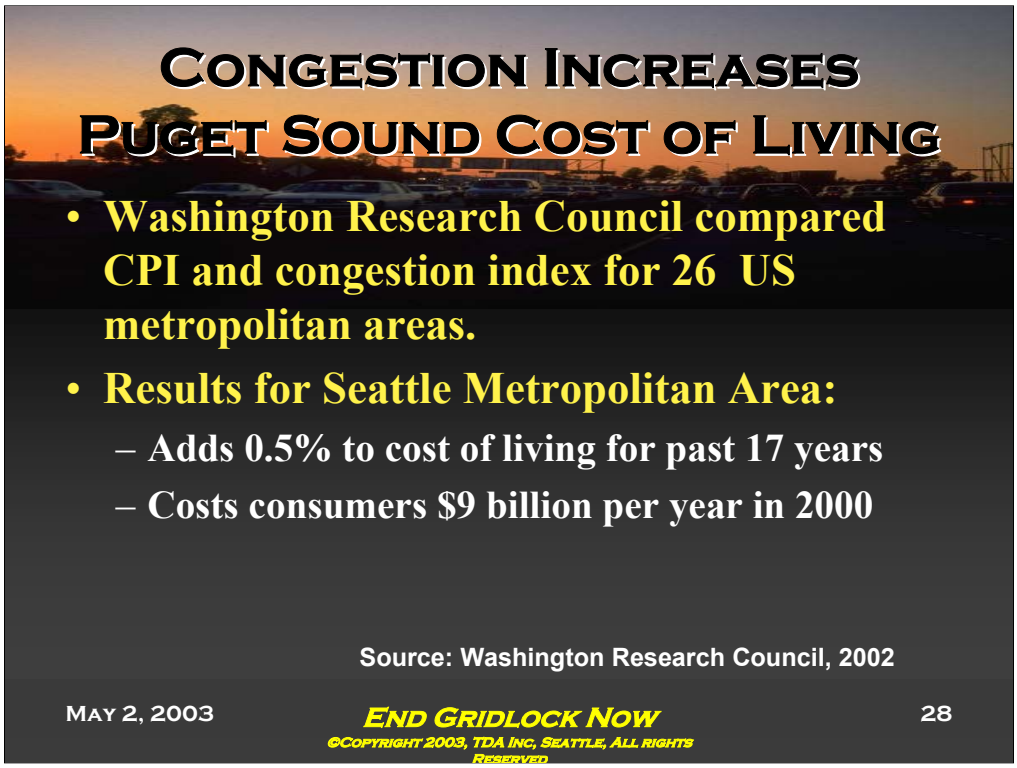


Shown here are the resulting top 15 performers in reducing regional delay and indicates the approximate contribution by County. These 15 projects produce about 90% of the benefit resulting from all the projects.

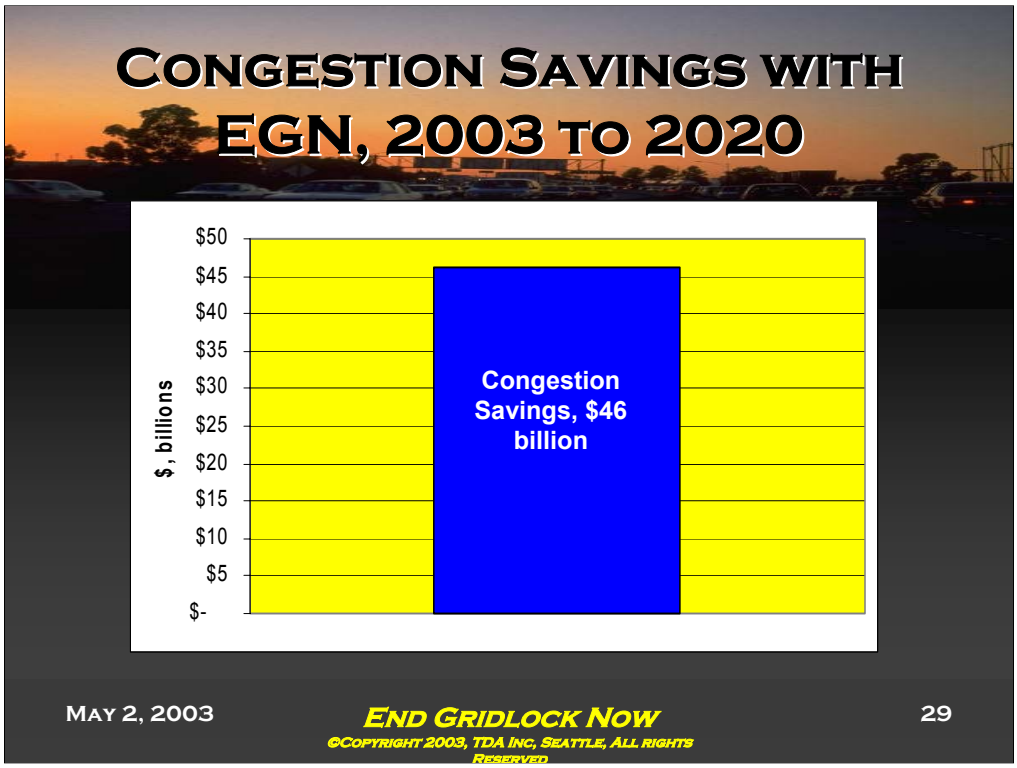
The five projects on I-5 (all in the top 15) would result in over half of all the delay reduction for the Top 15 projects and nearly half (47%) of the delay reduction resulting from all 27 projects. These projects are marked above with a red *.

Costs for individual projects were estimated based on average lane-mile costs of about 40 recent U.S. highway project, sorted by location (Central City, urban, suburban, exurban and rural). All costs were adjusted to year 2002 dollars. The resulting averages ranged from $43 million per lane-mile in central cities to about $8 million in rural areas. For the EGN projects, 42% was added to these national costs to provide additional contingency and sales tax, which is charged on construction in Washington. The $20 million per lane-mile is for the additions to the system. In fact, some of the project costs (I-405, for example) assume reconstruction of existing lanes, in addition to the new lanes.

Project-by project cost estimates are included at the end of the project descriptions, following these slides.



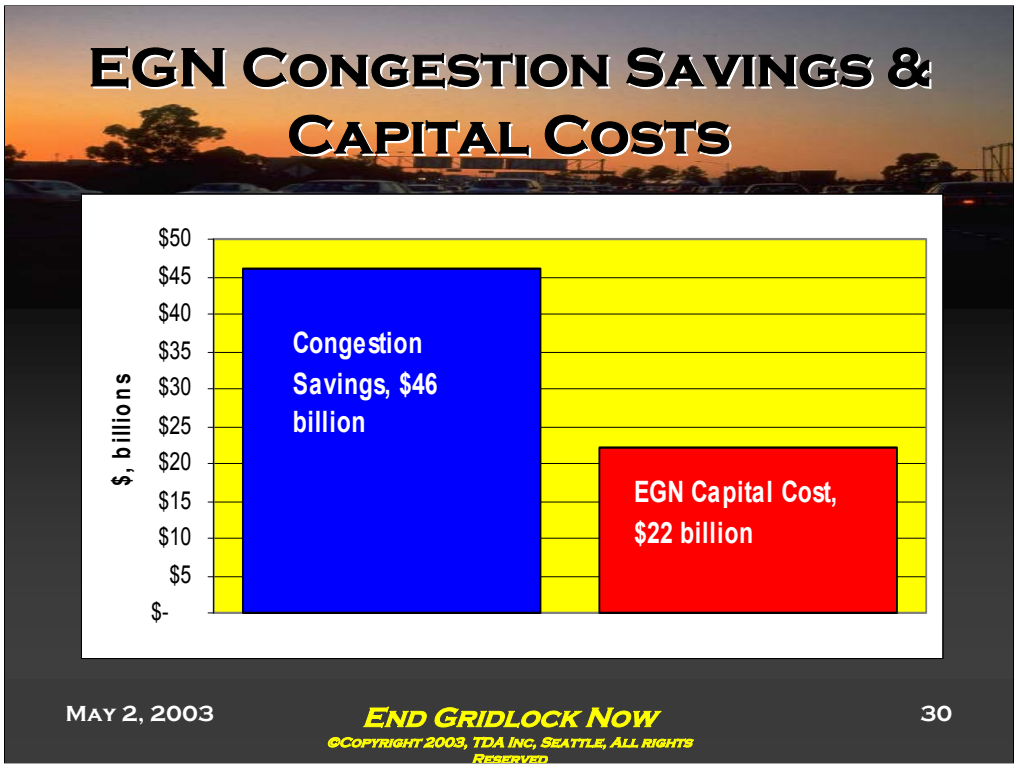
Congestion is not cheap. The Washington Research Council estimates that congestion cost residents of the Seattle Metropolitan area $9 billion in 2000.



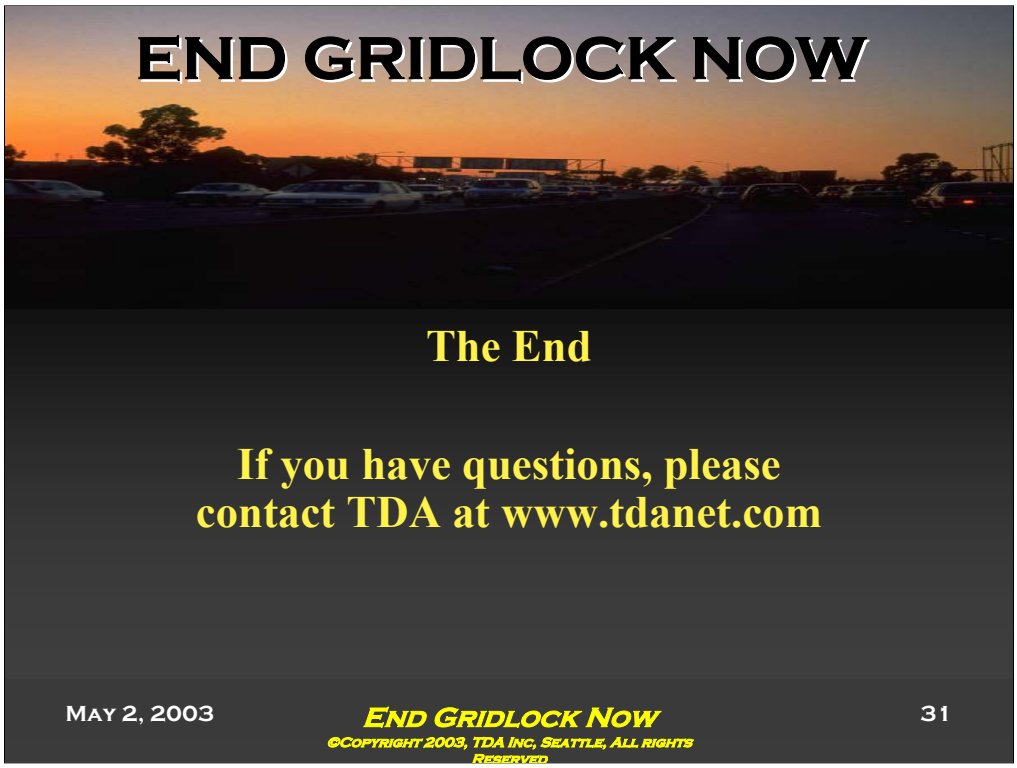
PSRC estimates that delay will increase by about 2.4% per year to 2020. The present value of the resulting congestion costs wasted on congestion over the 18 year period from 2002 to 2020 would total about $167 billion. Reducing congestion by 36% by 2020 would save about $46 billion of these congestion costs.

Other assumptions used in this calculation of congestion cost savings include:

- All figures are in 2002 $; no monetary inflation is included
- Future savings were discounted to a present value at 3% (low because this is net of any inflation)
- Construction begins in 2005 and would be completed in 2017
- First projects would become operational in 2007
- The full delay reduction of 36% from today's levels would not be achieved until 2017



Estimated capital costs for EGN are less than half the projected savings in congestion costs. The projected savings in congestion costs resulting from EGN would exceed estimated capital costs by about $24 billion.



This is the last slide of the presentation. The five following pages provide more detailed descriptions of the 27 projects, and the cost estimates by project.

LIST OF PROJECTS TESTED FOR NETWORK DELAY REDUCTION

RESULTS
Delay was reduced 36% per trip below 2002 congestion levels while accommodating 26% more trips.

OVERVIEW

We have used the PSRC 2020 travel forecasts to develop a 20-year road capacity improvement plan needed to accommodate the 2020 highway travel demands at levels of service that are better than experienced on our regional freeway and major arterial systems in 1998. Because conditions have worsened considerably between 1998 and today (2002), the projects listed below would result in considerably better conditions than we experience today.

The 27 listed projects were selected based solely on the 2020 deficiencies, as indicated by a "true demand" run of the PSRC model. This was done without political considerations with one exception. The City of Seattle continues to discourage any general purpose (GP) capacity enhancement of its primary freeway and arterial system, other than improvements that support transit and HOV modes. This position is in spite of ample evidence that I-5 through Seattle is extremely deficient in capacity today. I-5 through the City of Seattle will be worse by 2020, despite the transit plans that are currently being pursued. Because of the City's resistance to new general-purpose capacity, only three projects were included within the City. These three exceptions recognized the critical need to:

- Add one GP lane in each direction to I-5 from Northgate to the north City limit; rebuild the Spokane Viaduct between Alaskan Way and I-5, adding one GP lane in each direction.

- Add the capacity equivalent of two lanes in each direction to I-5 from S. 188th to Northgate. This is described as Project # 27. *In the analysis of 27 projects, this project ranked 1st of 27 in regional delay reduction. In fact, the five I-5 projects listed above (#'s 1, 7, 8, 9, and 27) contributed over 50% of total regional delay reduction.*

Not listed in the projects below are a few connector additions that we included in the network, but not listed as individual projects. Most of these were modifications of projects in the MTP.

PROJECT DESCRIPTIONS

1. **I-5 from SR-512 in Lakewood to S. 320th Street in Federal Way:** Add two general purpose (GP) lanes in each direction from SR-16 to S. 320th and one GP lane in each direction from SR-512 to SR-16. I-5 congestion through Tacoma is already severe. (EGN recommendation; WSDOT's plans for SR-509 include widening on I-5 north of S. 320th). *This project ranked 1st of 26 in regional delay reduction.*

2. **SR-167 extension from SR-512 in Puyallup to SR-509 in the Port of Tacoma:** Construct new freeway with two GP lanes in each direction. Provide design allowance for phased expansion to add one HOV lane in each direction post-2020. (WSDOT project ready to go). *This project ranked 6th of 26 in regional delay reduction.*

3. **SR-167 (Valley Freeway) from SR-512 in Puyallup to I-405 in Renton:** Add one GP lane in each direction from SR-512 to Kent. Allow for post-2020 expansion to four GP lanes in each direction. Add two GP lanes each way from Kent to I-405. (EGN recommendation) Note: The I-405 Corridor Program includes one GP lane in each direction on SR-167 from I-405 to the S. 188th Street interchange. This is needed at present to accommodate traffic flows between SR-167 and I-405. *This project ranked 2nd of 26 in regional delay reduction.*

4. **SR-509 from its current terminus in SeaTac to I-5 in the vicinity of S. 210th Street:** Construct new four-lane freeway with design to allow addition of HOV lanes post-2020 (see Project 6). The project includes (or should include) added CD roadways on I-5 equivalent to adding two GP lanes in each direction between the SR-509 junction and S. 320th Street in Federal Way. *This project ranked 8th of 26 in regional delay reduction.*

5. **I-405 from I-5 in Tukwila to I-5 in Lynnwood:** Add two GP lanes in each direction per the I-405 Corridor Program Preferred Alternative. (WSDOT project ready to go) Between I-5 Tukwila and Kennydale add one additional GP lane in each direction, for a total of 3 added in each direction. In addition to the two GP lanes each way WSDOT adds an auxiliary lane for trucks on both uphill sides of the Kennydale Hill. *This project ranked 3rd of 26 in regional delay reduction.*

6. **SR-509 from the 1st Avenue S. Bridge to I-5:** Add one HOV lane in each direction. This is known as Phase III of the SR-509/South Access Corridor Project (Project 4) scheduled for post-2020. *This project ranked 12th of 26 in regional delay reduction.*

7. **I-5 from Northgate north to I-405 in Lynnwood:** Add one GP lane in each direction if I-5 GP capacity is not expanded south of Northgate (EGN recommendation). *This project ranked 19th of 26 in regional delay reduction.*

8. **I-5 from I-405 in Lynnwood to SR-2 in Everett:** Add two GP lanes in each direction (EGN recommendation). *This project ranked 15th of 26 in regional delay reduction.*

9. **I-5 from SR-2 to north of Skagit County line:** Add one GP lane in each direction (EGN recommendation). *This project ranked 13th of 26 in regional delay reduction.*

10. **New East King County Freeway ("I-605") from I-90 to SR-9 at SR-96 extended:** Construct new 4-lane divided freeway. This project can likely be staged as an initial 2-lane

express highway like the Bothell-Monroe Highway and upgraded in stages to a 4-lane divided express highway with interchanges added when warranted (EGN recommendation). *This project ranked 7th of 26 in regional delay reduction.*

11. **SR-512 from SR-167 to Meridian (SR-161)/94th Avenue S. interchanges:** Add one GP lane in each direction (EGN recommendation. *See also Project 14). This project ranked 5th of 26 in regional delay reduction.*

12. **SR-518 from I-5 to Sea Tac Entry Road:** Add one GP lane in each direction. This is a strong recommendation of the Port of Seattle/City of SeaTac Joint Transportation Study and the WSDOT SR-518 corridor study. It should be constructed in coordination with the I-405 corridor expansion program. *This project ranked 20th of 26 in regional delay reduction.*

13. **SR-18 from SR-169 (Maple Valley) to I-90:** Complete the expansion of this 2-lane express roadway to a 4-lane divided freeway with added climbing lanes on each side of Tiger Summit. This essential corridor capacity and safety enhancement project has been progressing in stages. It is now completed from Auburn to SR-516 and under construction from SR-516 to SR-169. Funding is also currently in place for some of the final phases. *This project ranked 4th of 26 in regional delay reduction.*

14. **SR-161 (Meridian Avenue) from SR-512 S. to 176th Street E. (Thun Field):** Add two GP lanes each way in the SR-161 corridor. The Meridian Avenue arterial route for SR-161 is severely congested today. This project would widen the arterial street by 2 lanes; however, it is possible that this should be improved to freeway standards. *This project ranked 9th of 26 in regional delay reduction.*

15. **SR-520 from I-5 to I-405:** Expand to 3 GP lanes plus one HOV lane in each direction per the maximum capacity option of the Trans-Lake Study Program. This project is currently in its EIS stage. (EGN recommendation and project now shown in the PSRC MTP). *This project ranked 10th of 26 in regional delay reduction.*

16. **SR-520 from I-405 to SR-202 in Redmond:** Add two GP lanes in each direction in addition to completing the 6-lane freeway (4 GP lanes plus HOV lanes) currently existing and planned. (EGN recommendation) The Trans-Lake study and EIS currently in progress adds only one GP lane in each direction for this segment of SR-520. Improvements also need appropriate capacity enhancements northward to the Union Hill and Avondale Road intersections. *This project ranked 24th of 26 in regional delay reduction. However, it scored high in "new trips served"; additional network improvements are needed in the vicinity of Redmond.*

17. **SR-202 from Woodinville to Sahalee Way:** Add one GP lane in each direction plus center turn lanes to the two-lane portions of this route north of Redmond. Add an additional GP lane in each direction between SR-520 and east of Sahalee Way (EGN recommendation). *This project ranked 25th of 26 in regional delay reduction. However, it scored high in "new trips served"; additional network improvements are needed in the vicinity of Redmond.*

18. **SR-908 from I-405 to downtown Redmond:** Add one GP lane in each direction (EGN recommendation). This project ranked 26th of 26 in regional delay reduction. However, it scored high in "new trips served"; additional network improvements are needed in the vicinity of Redmond.

19. **SR-525 from I-405 to SR-526 near Mukilteo:** Expand/improve to a divided 4-lane freeway including direct thru-routing at Highway 99. This project is in various planning and construction stages by the WSDOT. The direct overpass of SR 525 for old SR 99 was done last year. There is a quarter mile bottleneck just before the south end of Paine field on SR-525 where 4 lanes goes to 2 lanes and back to 4 along Paine field. DOT is also well under construction to complete another mile of four lane just south of where SR-525 meets SR-526. *This project ranked 16th of 26 in regional delay reduction.*

20. **SR-522 from SR-524 (Maltby Road) to Monroe:** Complete the planned expansion to a divided 4-lane freeway with grade-separated interchanges. At Monroe include connections to the planned Monroe Bypass of SR 2 (project 26). *This project ranked 14th of 26 in regional delay reduction.*

21. **SR-9 from SR-522 to Skagit County line:** Expand to a divided 4-lane freeway with limited access and grade-separated interchanges at major cross-streets wherever possible. Expand to a 5-lane arterial where limited access expressway options are not available. Through Lake Stevens as a minimum, add one GP lane in each direction to the existing 5-lane segments. North of Lake Stevens the WSDOT has been implementing expansions to a 4/5-lane rural expressway with limited access. *This project ranked 11th of 26 in regional delay reduction.*

22. **SR-92 from SR-9 to Granite Falls:** Expand to a 4/5-lane limited access highway with signals at major cross-streets. Consider grade-separated interchanges at selected locations through Lake Stevens. (EGN recommendation) This is an extremely high-volume truck route serving numerous gravel mines as well as a recreation route serving North Cascade access. The City of Granite Falls has planned a downtown bypass location for the route. *This project ranked 22nd of 26 in regional delay reduction.*

23. **Novelty Hill Road from Avondale Road to SR-203:** Expand to a 4/5-lane arterial road with access limited as much as possible. King County has been anticipating this expansion need. The portion across the Snoqualmie River Valley (NE 124th Street) should be realigned for direct thru-connection and raised above fall/winter flood levels. *This project ranked 23rd of 26 in regional delay reduction. However, it scored high in "new trips served"; additional network improvements are needed in the vicinity of Redmond.*

24. **Spokane Viaduct from I-5 to the Alaskan Viaduct:** Totally reconstruct this aging viaduct to the standards of the West Seattle Freeway, and including addition of one GP lane in each direction. Include a full interchange with the Alaskan Viaduct. Plans for this important project have been in progress for years by the Seattle Engineering Department. It has also been strongly supported by the Port of Seattle as a primary container-port access route. *This project ranked 17th of 26 in regional delay reduction*

25. **I-90 from Eastgate to the new Sunset Interchange:** Add one GP lane in each direction. (EGN recommendation) WSDOT has a funded study of I-90 from I-405 East to North Bend. *This project ranked 18th of 26 in regional delay reduction.*

26. **US-2 from SR-9 through Sultan:** Expand to a 4-lane express highway, including the planned Monroe Bypass. The segments through Sultan, Startup and Goldbar also need expansions to 4/5 lanes with plans for eventual bypass alignments (not included in the cost

estimates). Urban development is now occurring as far east as Goldbar, and recreation travel is causing significant congestion during summer and winter weekends. *This project ranked 21st of 26 in regional delay reduction.*

27. **I-5 through the City of Seattle:** Expand the capacity of I-5 by the equivalent of 2-lanes in each direction from S. 210th Street to Northgate (improvements south of Tukwila and north of Northgate are already included in the first 26 projects, listed above). Because this project was used in a "what if" analysis, no physical design for achieving this capacity increase was developed. *In the analysis of 27 projects, this project ranked 1st of 27 in regional delay reduction. In fact, the five I-5 projects listed above (#'s 1, 7, 8, 9, and 27) contributed over 50% of total regional delay reduction.*

ESTIMATED CAPITAL COSTS BY PROJECT AND DISTRIBUTION OF LANE-MILES BY COUNTY
(Schematic level estimates, based on national lane-mile costs by location type)

EGN PROJECT		New Lane-	Est. Capital Costs	New Lane-Miles by County		
#	NAME	Miles	(2002 $, mil)	Snohomish	Pierce	King
1	I-5 (SR512-SR509)	82	$ 1,463	-	37	45
2	SR167 (SR509-SR512)	42	$ 881	-	42	-
3	SR167(SR512-I405)	49	$ 587	-	10	39
4	SR509(Exist. Terminus-I5 to Fed Wy)	30	$ 359	-	-	30
5	I-405(I5s-I5n)	154	$ 4,173	26	-	128
6	SR509 HOV(1st Ave Br. To Term.)	18	$ 215	-	-	18
7	I-5 (N.Gate-I405)	19	$ 344	9	-	11
8	I-5 (I405-SR2)	54	$ 641	54	-	-
9	I-5 (SR2-Marysville)	43	$ 513	43	-	-
10	I-605 (I90-SR9)	115	$ 1,227	34	-	80
11	SR512 (SR167-Meridian Exit)	6	$ 75	-	6	-
12	SR518 (I5- SeaTac Exit)	6	$ 66	-	-	6
13	SR18 (Issaq/Hobart-I90)	20	$ 246	-	-	20
14	SR161 (Meridian Ave SR512-178th)	58	$ 692	-	58	-
15	SR520 (I5-I405)	26	$ 1,406	-	-	26
16	SR520 (I405-SR202)	23	$ 415	-	-	23
17	SR202 (Wdnvl-Sahalee)	21	$ 244	-	-	21
18	SR908 (Redmond-I5)	10	$ 122	-	-	10
19	SR525 (I405-SR526)	12	$ 143	12	-	-
20	SR522 (Wdnvle-Monroe)	24	$ 560	21	-	4
21	SR9 (SR522-Snoh. Cnty line)	86	$ 2,004	86	-	-
22	SR92 (SR9-Granite Fls)	15	$ 367	15	-	-
23	Novelty Hilll Rd (Avndl-SR203)	9	$ 107	-	-	9
24	Spokane viaduct	2	$ 778	-	-	2
25	I-90 (Estgt-Sunset Intrch)	16	$ 193	-	-	16
26	US-2 (SR9- Sultan)	69	$ 740	69	-	-
27	I-5 (N'gate to S. 210th)	83	$ 3,138	-	-	83
	Total	1,094	$ 21,700	369	153	572
	1	100%		34%	14%	52%

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