

Toolkit: What can be done when traffic patterns change?

To reduce the impact of increased traffic on downtown streets from the new tunnel and planned tolling, the city could take a threefold approach:

- Prioritize streets for pedestrians, bicycles, transit, and carpools/vanpools
- Provide information and incentives for using alternative transportation
- Manage vehicle capacity and price parking in the Center City

A comprehensive approach to the impacts of the SR 99 replacement is likely to produce a more effective result. Although each of the strategies listed below will provide measureable benefits independent of other approaches, addressing the issues and impacts with a comprehensive package of strategies will lead to a combined effect that is greater than the sum of the component parts.

Tool	Description	Effectiveness	Focus Area
1. Strategic Capacity Management • Signal timing • Traffic calming	• Implement arterial traffic calming to manage speed and volume • Set signal phases to influence vehicle speeds and improve traffic flow • Measures signal to motorists that downtown is not meant to be a by-pass	• Constrains vehicle capacity and manages speeds • Discourages traffic diversion and cut-through traffic	• Primary Center City traffic corridors like 1st, 2nd, 4th, and 5th Street, Alaskan Way, Yesler, Main, Washington, Denny, Mercer
2. Transit/HOV Priority and RapidRide Expansion • Transit Only Lanes and Transit Streets • Signal Priority • Expanded RapidRide network • Higher quality RapidRide service prompted by lane dedication • Permitted HOV transit lane use	• Dedicate transit only lanes and give buses priority at intersections in order to improve transit travel time, encourage transit use, and limit vehicle capacity • Transit lanes allow buses to bypass congestion • Dedicated carpool and vanpool lanes manage capacity but rewards ridesharing	• Gives transit a competitive advantage over automobiles • Congestion bypass lanes will significantly improve transit speed and reliability • Expanding transit lane use to carpool and vanpools will make ridesharing more attractive	• Center City arterials in strategic locations. • Major regional travel corridors (Aurora, Eastlake, Westlake, Stewart, Madison/ Marion, Rainier)
3. Aggressive TDM and Parking Management • Parking Pricing • Parking Cash Out/Unbundled Parking Costs • Employee/Resident Transit Passes • Transportation Management Association	• Use variable pricing by time of day or a more innovative dynamic pricing that adjusts prices in real-time as demand shifts • Eliminate free parking, even in privately owned structures and lots • Develop package of voluntary and enforced programs to promote alternative transportation into Center City	• Extremely cost effective way to reduce congestion • 10-35% potential trip reduction (trips would shift to transit, walk, bike, carpool)	• Parking Pricing: Center City • TDM: Center City and citywide
4. Urban Design Measures • Pedestrian separation • Reclaim underutilized space	• Enhance the pedestrian environment with curb extensions, wider sidewalks, and on-street parking buffers	• Constrains vehicle capacity and manages speeds • These projects would leverage placemaking opportunities	• Primary Center City traffic corridors like 1st, 2nd, 4th, and 5th Street, Alaskan Way, Yesler, Main, Washington, Denny, Mercer
5. Tolling • Segment tolling on SR 99 • Integrated regional congestion pricing • Buy down tolls	• Tolling longer segments of SR 99 instead of the tunnel itself to discourage toll diversion. • Likely to charge higher tolls during peak travel periods • Expand tolling to surface streets and I-5 to approach congestion systemically • Down tolls: A new revenue source, as yet unidentified, could be employed to support bond payments and reduce tolls • Down tolls: Could be implemented after true diversion impacts are assessed	• Reduces toll diversion • Encourages mode shift • Generates funding for transit, TDM, and non-motorized improvements • Regional congestion pricing would effectively eliminate congestion • Down tolls: Strategically employed, the concept could ease diversion issues. • Down tolls: The source of revenue to support this concept is unknown and would have to be established through a policy discussion.	• SR 99 and regionwide • Down tolls: Applied only to SR 99, but only effective if no other tolling is in place to mitigate traffic diversion



Issues | Impacts | Possible Solutions

Introduction

Damage incurred to the Alaskan Way Viaduct during the 2001 Nisqually earthquake has necessitated action to address the facility’s long-term seismic safety. Even with temporary repairs made to the facility, the potential for collapse in a significant seismic event is unacceptably high. Washington State Department of Transportation (WSDOT) and the City of Seattle, co-leads for the replacement project, through three environmental documents issued in the past six years have narrowed a long list of viaduct replacement concepts to a “preferred alternative,” a Bored Tunnel with the planned inclusion of facility tolling to assist in project funding.

This digest synthesizes the key issues facing the Center City, what the traffic impacts will look like based on information extracted from the current environmental analysis, and a possible “tool kit” that could be employed to blunt the intensity of the impacts and harmonize with adopted City policy goals like Complete Streets and pending City policies such as Carbon Neutral Seattle. The issues, left unaddressed, will impact accessibility to and the character of the Center City, particularly in the vicinity of Pioneer Square and the Seattle Center/South Lake Union areas.

What are the key issues?

Changing patterns of surface street traffic. In alternatives considered since 2004, there has been broad agreement that the SR 99 ramps at Seneca and Columbia would be eliminated. As with many alternatives considered, the deep bored tunnel alternative also changes these access points. Additionally, the “preferred alternative” eliminates the SR 99 ramps in the area of Elliott and Western Avenues. The proposed tunnel design features ramps for downtown traffic access in the vicinity of the “South Portal” area. Downtown access would be either through a new intersection at Alaskan Way and Dearborn with a connection to First Avenue or through intersections along Alaskan Way as far north as Spring Street. It is also assumed, although not yet designed, that a new connection from Alaskan Way to the Elliott and Western Avenue intersection will be constructed as part of the Waterfront reconstruction project. In the “North Portal” area ramps will lead into an improved street grid, allowing access to several streets including maintaining the present connections to Denny Way. All of these changes mean that traffic into and out of Seattle Center City will change markedly.

Toll diversion. The 2010 SDEIS states that about 40,000 to 45,000

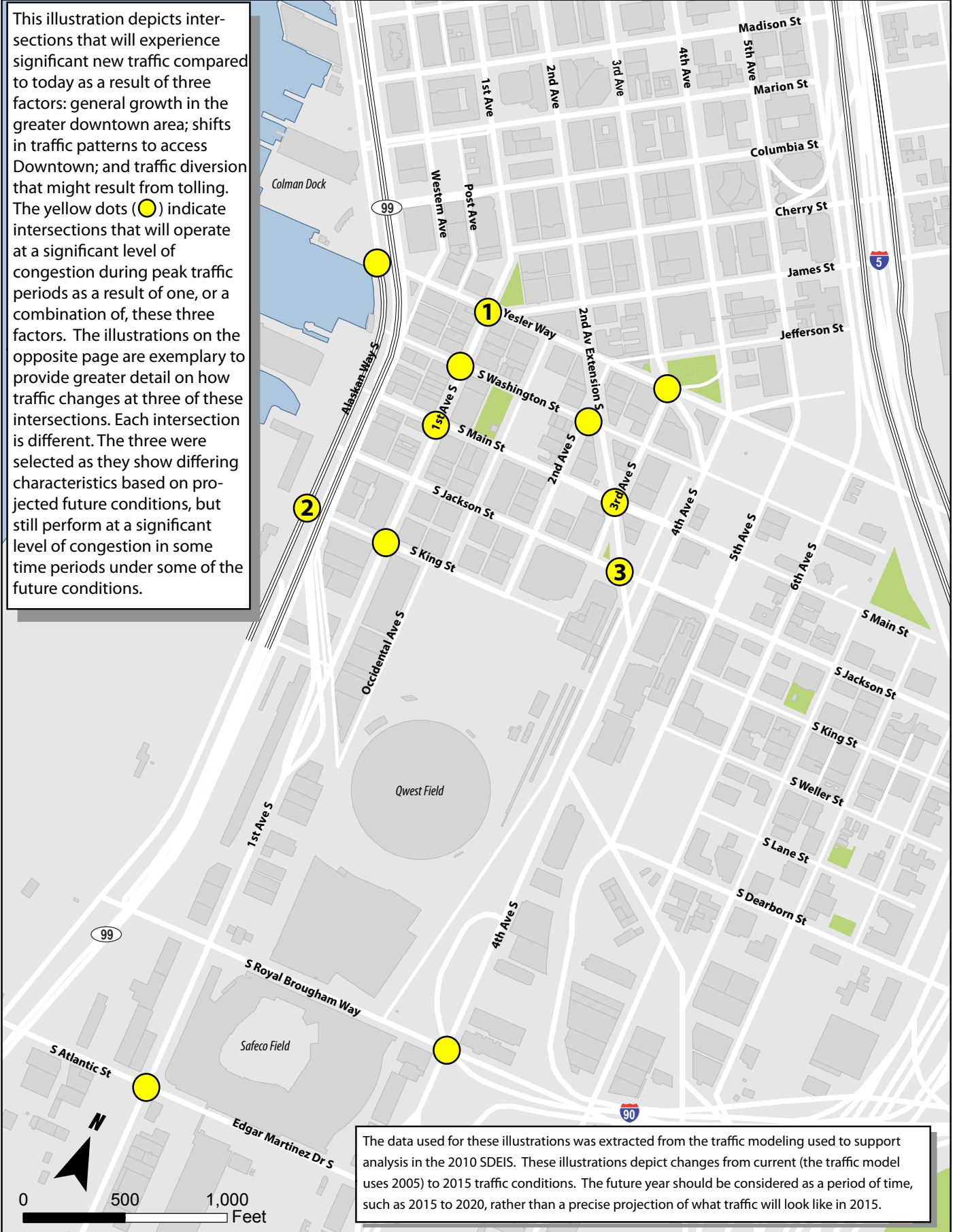
daily trips will divert from SR-99 as a result of tolling the tunnel. These trips divert into three general areas: I-5, Downtown Seattle surface streets, and surface streets east of I-5. Between 16,000 and 18,000 additional daily trips will divert onto Downtown Seattle surface streets; 14,000 to 15,000 will choose I-5; and 10,000 to 12,000 will use Seattle surface streets east of I-5. The direction of the deep bored tunnel alternative includes a need to toll the facility to fund construction. The WSDOT funding plan relies on about \$400 million in bonds to be repaid using toll revenues. The tolling/funding plan has not yet been approved by the Washington State Legislature. The availability of parallel street options for drivers to avoid tolls leads to significant diversion of traffic from SR 99 onto Center City surface streets.

Transit routing. Because the SR 99 Bored Tunnel Portal designs shift downtown traffic access points, transit service from the south will need to enter downtown using streets within the Pioneer Square District or access points along the newly redesigned Alaskan Way causing an increase in bus volumes in those areas. Unless addressed on the surface streets, transit travel times have the potential to increase as a result of limited routing options, currently un-planned transit priority treatments, and potential conflicting traffic congestion at ramp locations and critical intersections. Transit access in the north of downtown will follow a path similar to that of today, but will also be challenged by intersection congestion that results from shifts in traffic patterns.

Pedestrian and bicycle conflicts. Any shift of traffic patterns onto downtown Seattle’s streets will increase conflict between automobiles and vulnerable road users. Seattle must develop countermeasures and provide adequate facilities to maintain a high level of safe mobility for pedestrians and bicyclists.

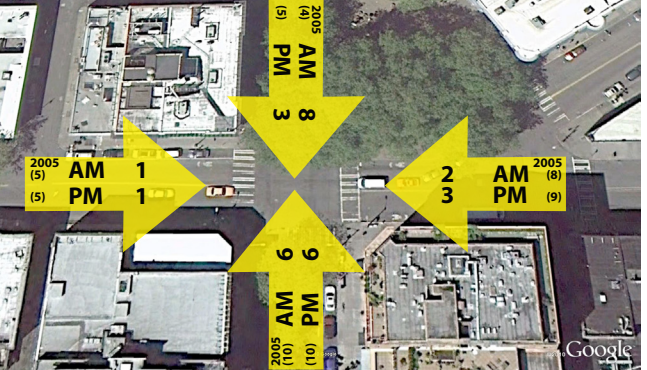
Deterioration of transportation system performance indicators. The general policy direction of the region coupled with the affects of the project will increase demand for driving and increase vehicle miles traveled, and therefore, greenhouse gas emissions—even as improved fuel economy and low emission technology is widely employed. It should be noted, however, that this phenomena is not unique to this project. Nearly every roadway project that has some element of capacity improvement will increase vehicle miles traveled and, consequently, greenhouse gases.

SR 99 Replacement South Portal Traffic Impacts

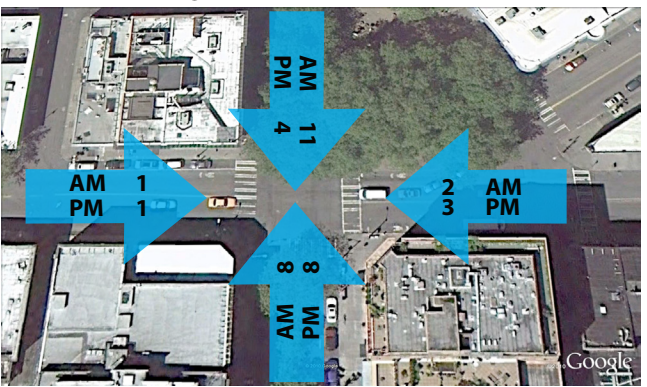


1 1st Avenue & Yesler Way
Change in Volume per Minute by Direction and Time of Day

How will traffic change with downtown growth, the tunnel, and other road projects?

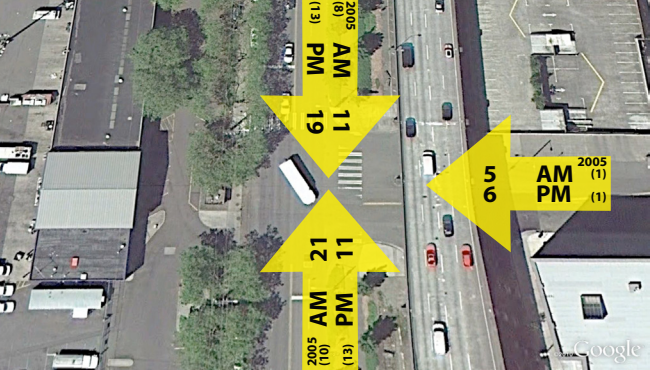


How will traffic change with all of the above and tolls on the tunnel?

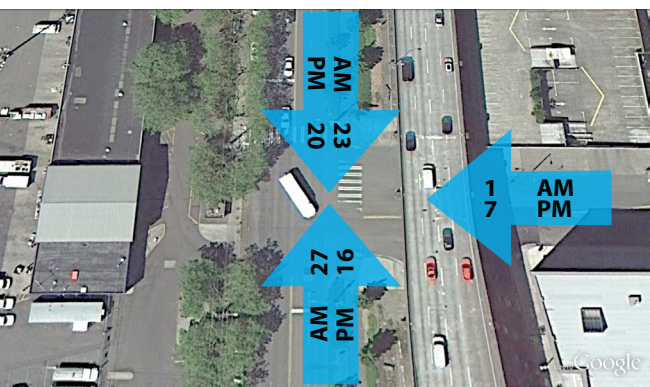


2 Alaskan Way & King Street
Change in Volume per Minute by Direction and Time of Day

How will traffic change with downtown growth, the tunnel, and other road projects?

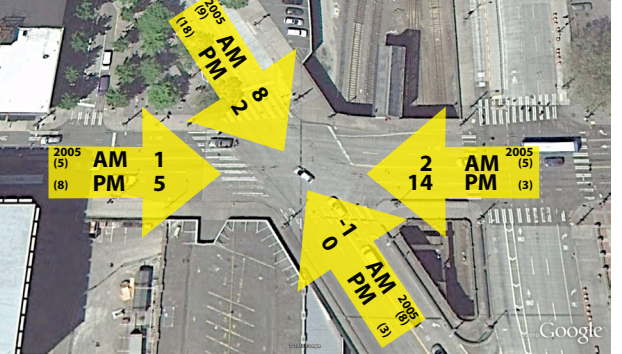


How will traffic increase if the tunnel is tolled?

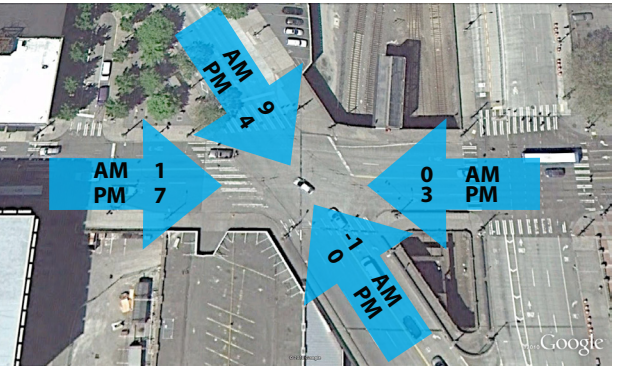


3 2nd Avenue Extension & Jackson Street
Change in Volume per Minute by Direction and Time of Day

How will traffic change with downtown growth, the tunnel, and other road projects?



How will traffic increase if the tunnel is tolled?



The graphics show traffic volumes in 2005, in parenthesis in the yellow arrows, and changes in traffic volume approaching the intersections during peak hours. The volumes are presented in vehicles per minute. The change, in the larger typeface, is compared to today's conditions. Imagine counting cars at one of these intersections today and then ten years from today. The number in parenthesis indicates the volume you would see today. The larger typeface numbers are the projected change in the number of cars compared to today. The changes in traffic volumes are shown for two conditions:

- Yellow Arrows -- Construction of the deep bored tunnel project and completion of projects that complement it, such as SR 99 Holgate to King, ramps from Spokane Street to Fourth Avenue S., Two-Way Mercer, Alaskan Way along the Central Waterfront, and an Alaskan Way-Elliott and Western connector.
- Blue Arrows -- All of the above projects with tolls collected on the tunnel. The illustrations use toll scenario C.

It should not be presumed that all increases in traffic are a consequence of the SR 99 project. The Seattle Travel Demand Model, used as a basis for these analyses, projects growth in background traffic resulting from new development and intensification of land use in Center City and SODO. The degree to which three factors; general growth, changes in traffic access patterns, and tolling diversion, influence future traffic volumes varies by location. The point of these illustrations is not to assign impact to the change factors, but to assemble a picture of future traffic under differing conditions.