King County Department of Transportation, Metro Transit Division's Technical Comments on Alaskan Way Viaduct Replacement Project SDEIS Including Appendix C, Transportation Discipline Report and Appendix H, Social Discipline Report

The following comments include suggested corrections, request further clarification or provide data intended to make the document easier to understand and more useful as a decision-making tool.

Comments on SDEIS document

L-005-001	1.	p. 2	A key part of the January 2009 agreement is omitted from the text: the one percent (1%) MVET for transit; It is expected that transit will carry more trips oriented with downtown Seattle, because the bored tunnel alternative provides bypass trips
L-005-002	2.	p. 4	Third column, traffic safety paragraph: alternatively, speed limits could be lowered.
L-005-003	3.	p. 7	Third column, transit enhancements: the Delridge RapidRide and the SLU concepts are not funded. Seattle First Avenue Streetcar is also not funded. The recommendation provided by Governor Gregoire, former Mayor Nickels, and former County Executive Sims estimated $190 million in capital and $15 million in annual operating expenses to be paid for by a countywide 1% Motor Vehicle Excise Tax. As this new transit revenue source was not subsequently approved by the legislature nor has an alternative funding source been provided, the SFEIS needs to disclose this funding gap.
L-005-004	4.	p. 13	Exhibit 2-3: Port side pedestrian/bicycle facilities should be shown in light green like City-Side Trail.
L-005-005	5.	p. 13	As the transit lanes will operate longer than just during the "peak hour" as described, the document should use the more accurate term *peak period*.
L-005-006	6.	p. 15	Increased congestion in Seattle CBD could impact regional transit ridership if it significantly degrades transit travel times in the CBD.
L-005-007	7.	p. 18	Question 10: under heading *South of King St.* This section described the increase of traffic on north/south city streets between Spokane and Atlantic St, Exhibit 2-12 needs to include intersection conditions south of Holgate St. to Spokane St.
L-005-008	8.	p. 19	Exhibits 2-13 & 2-14: Travel time comparison on 2nd and 4th Avenue may not reflect actual conditions. The increase in daily traffic volumes on city streets is estimated at 22,000 or 27 percent more than the 2015 Existing Viaduct.
L-005-009	9.	p. 20	Exhibit 2-12: In the a.m. peak period, why does Denny Way and SR-99 not show as a congested intersection in both 2015 maps; it seems congested today.
L-005-010	10.	p. 24	Should take into account the impacts of increased congestion on minority and low-income populations coming to the study area from outside areas; not just study area residents

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L-005-001

The agreement signed by the Governor, County Executive, and Mayor in January 2009 described a program of independent yet complementary projects for replacing the Alaskan Way Viaduct and providing a strategy for overall mobility in Seattle. The State is responsible for replacing the viaduct, the City for the seawall and central waterfront, and the County accepted responsibility for additional RapidRide and express bus service, with some identified as construction mitigation. These future transit service improvements have benefits independent of replacing the Alaskan Way Viaduct. WSDOT recognizes the funding anticipated in the agreement has not been realized, and that the recent economic downturn has reduced other funding sources King County currently relies on for providing transit service throughout King County.

Currently WSDOT is providing funding for King County on the S. Holgate Street to S. King Street Viaduct Replacement Project to provide additional transit service hours to help mitigate the effects of construction. This program is ongoing and regularly monitored to evaluate its effectiveness. For the Alaskan Way Viaduct Replacement Project, WSDOT will continue to evaluate the need for increased bus service in the West Seattle, Ballard, Uptown, and Aurora Avenue corridors during the initial portions of the construction period, as well as a bus travel time monitoring system.

L-005-002

The Alaskan Way Viaduct and Battery Street Tunnel do not meet current roadway design standards and have deficiencies that need to be improved. Lowering speed limits alone will not address these deficiencies and safety issues.

The proposed build alternatives, evaluated in the Final EIS, has all been designed to meet current roadway design and safety standards. Please

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L-005-011	11.	p. 26	Mitigation for Permanent Effects: As addressed in chapter 9, all of the tolling scenarios that were analyzed would divert large volumes of traffic onto downtown arterials, potentially resulting in delays, reduced reliability of transit, and increase reliance on transit by those who ride the bus to avoid paying tolls or driving through traffic. These impacts need to be adequately mitigated for example by adding transit service and continuous transit priority lanes on arterials with high transit volumes.
L-005-012	12.	p. 30	Middle column, transit: elaborate how transit will be impacted throughout the construction stages in both the south and north portal construction areas.
L-005-013	13.	p. 30	Construction on 1st Avenue S will definitely affect transit operations. This discussion should also address other streets in the vicinity of the project where construction activities will impact transit.
L-005-014	14.	p. 30	Under the heading *How would transit be affected during the construction?*: This section should also address transit impacts in the central downtown area. Any increase in traffic congestion on 2nd and 4th Avenues will also slow down transit operations. A description needs to be added about construction impacts on 1st Ave and Alaskan Way surface street and side streets during the AWV demolition will slow down transit operations.
L-005-015	15.	p. 36	More information is needed on "transit enhancements" – specifically, related to capital improvements
L-005-016	16.	p. 36	Middle column, land use paragraph: since the project will improve bypass trips by general purpose traffic, would it induce additional development outside the downtown core? As noted, bypass trips are improved by wider lanes, shoulders, and reduced traffic frictions leading to greater speed for through trips.
L-005-017	17.	p. 39	Exhibit 2-31: Transit operations will be impacted as general purpose traffic gets congested on 2nd and 4th Avenue. Skip stop operations on those corridors will require transit coaches to merge back and forth through this congestion to the adjacent transit lane. Transit travel time on this exhibit seems underestimated.
L-005-018	18.	p. 9 & 40	Exhibit 2-32: Tolling traffic diversion to I-5 should be noted only for the off-peak period. Travel times on I-5 with and without tolling are about the same because during the peak period I-5 can't absorb more traffic.
L-005-019	19.	p. 39	Please clarify 16,000 to 18,000 additional vehicles per day on city streets with tolling in addition to the increase of 22,000 on city streets with Bored Tunnel? (See comment regarding page 19). Net increase of about 36,000 to 40,000 vehicles per day? That would be almost half of the 81,000 vph 2015 Existing Viaduct condition.
L-005-020	20.	p. 42	Other issues that need to be resolved are lack of funding to pay for the construction impact mitigation to transit service from mid 2014 to 2017 (or project completion) as well as funding for transit enhancements comprising the program. Similarly, program elements including funding of seawall replacement or surface arterials have not been resolved.

see the Final EIS, Appendix C Transportation Discipline Report, Chapter 5 for more discussion.

L-005-003

The County accepted responsibility for additional RapidRide and express bus service, with some identified as construction mitigation. These future transit service improvements have benefits independent of replacing the Alaskan Way Viaduct. The status of King Counyty's RapidRide program has been included in the Final EIS. Currently WSDOT is working with King County to identify funding for increased bus service in the West Seattle, Ballard, Uptown, and Aurora Avenue corridors during the initial portions of the construction period, as well as a bus travel time monitoring system. WSDOT recognizes the funding anticipated in the agreement has not been realized, and that the recent economic downturn has reduced other funding sources King County currently relies on for providing transit service throughout King County.

L-005-004

This exhibit has been updated in the Final EIS to reflect the current configuration for preferred Bored Tunnel Alternative. Both trails have been through the environmental review process as part of the S. Holgate Street to S. King Street Project. They are not shown in color on the exhibit but are called out so that their location can be identified.

L-005-005

Chapter 3 of the Final EIS provides the updated description of each alternative, including the peak period transit-only lane on the northbound off-ramp to Alaskan Way S.

L-005-006

Any transit travel delays associated with the Bored Tunnel Alternative would not be expected to result in major decreases in transit ridership.

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L-005-021	21.	p. 52	Middle column, the last paragraph describing the January 2009 agreement omits the one percent MVET for transit; it should be added.
L-005-022	22.	p. 77	Regarding *How does transit use the viaduct?* This section should address transit service within the project area (Spokane to Roy St) rather than just extracting transit service on the Viaduct. (see KCDOT's May 2010 comments on the draft Transportation Discipline Report) The detail and coverage of this analysis needs to be comparable to pedestrian and parking on page 78 and 79.
L-005-023	23.	p. 92	Due to the need for $400 million in project funding, WSDOT will likely need to toll SR 99 once granted authority to so. As discussed in chapter 9 of this document, tolling-related diversion will significantly alter travel patters and performance characteristics within the study area, consequently, it is important to include the impacts of tolling in chapter 5 of the SFEIS.
L-005-024	24.	p. 96	First column, north portal area (continued): This section should include an explanation of why the proposed configuration that requires buses to weave through general purpose traffic to exit at Harrison St was selected and a summary of the resulting transportation issues including impacts on transit safety, speed, and reliability.
L-005-025	25.	p. 105	Exhibit 5-19: If the text is correct, the greater then/less then arrows are facing the wrong direction.
L-005-026	26.	p. 106	Exhibit 5-24: 2015 a.m. signalized intersections: should not Denny and SR-99 be depicted as congested? (Also on page 20).
L-005-027	27.	p. 109	Exhibit 5-28: Third column, ST2 improvements listed include Link to Federal Way; in 2008, ST had funding to extend only to South 272nd Street, the northern city limits and not the city center at South 320th Street; in August 2010, ST now expects to not have sufficient funding for South Link and will conduct a study to determine optimal project scope.
L-005-028	28.	p. 109	Third column: Northbound transit-only lane would continue north of Denny Way to Harrison Street (not John Street).
L-005-029	29.	p. 110	Exhibit 5-29: First column, the text does not explain the significant difference in 2030 transit ridership with and without the project.
L-005-030	30.	p. 118	#15: repeat of page 36 comment. The land use analysis needs to address both direct and indirect effects.
L-005-031	31.	p. 136	Will the congestion on SR-99 during construction due to loss of one lane in each direction lead to diversion to surface streets? Will transit flow be degraded? Just as tolling may lead to diversion, so would congestion lead to diversion.
L-005-032	32.	p. 139	Transit pathways need to be established between the new south portal ramp to 3rd Avenue transit spine prior to the demolition of Seneca and Columbia Street ramps. If a facility on Alaskan Way surface street is designated an interim pathway immediately following completion of the tunnel but before Central Waterfront construction is completed, east-west connections via

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The travel forecasting conducted for the Final EIS indicated relatively small variations in 2015 and 2030 transit demand (measured at screenlines) among project alternatives. Please refer to Appendix C, Transportation Discipline Report, for additional detailed analysis of impacts to transit.

L-005-007

Please see the Final EIS and Appendix C, Transportation Discipline Report, Section 5.3 Traffic Operations at Key Arterial Intersections for the more detailed and updated traffic analysis.

L-005-008

The analysis of travel times along 2nd and 4th Avenues for the 2015 Bored Tunnel Alternative, as presented in Exhibits 2-13 and 2-14 of the 2010 Supplemental Draft EIS, includes the additional 22,000 daily trips expected to shift to city streets. Please see the Final EIS, Appendix C Transportation Discipline report for updated transportation analysis, including travel times.

L-005-009

For the traffic analysis conducted for this project, congested intersections were defined as those where drivers might wait about 1 to 2 minutes to travel through a traffic signal. Results of the analysis for the intersections of Denny Way at southbound and northbound Aurora show less than 1 minute of delay during the AM peak hour for 2015. This relatively good LOS reflects the long green time given to the high volume east-west movement. However, the north and south approaches at these intersections operate at a worse LOS than the overall intersection LOS. Please see the Final EIS, Appendix C Transportation Discipline Report, section 5.3 Traffic Operations at Key Arterial Intersections for updated transportation analysis.

L-005-032			Main/Washington St or other alternatives need to be designated as transit corridors along with intersection improvement at Washington/Main/Alaskan Way.
L-005-033	33.	p. 140	Same as page 30 above - Construction on 1st Ave S will affect transit operations. This analysis should also address other streets in the vicinity of the project where construction activities will impact transit.
L-005-034	34.	p. 166	Exhibit 7-8: Why isn't there a travel time comparison for traffic traveling on downtown surface streets rather than only via I-5 or SR 99?
L-005-035	35.	p. 168	Modeled mode share changes are invalid given lack of funding for the transit enhancements.
L-005-036	36.	p. 171	The cumulative traffic analysis needs to address the impacts on transit of signal timing and lane configuration changes on South Jackson Street resulting from the First Hill streetcar. (See KCDOT's comments on Appendix C to this SDEIS).
L-005-037	37.	p. 174	As the project will not be complete until 2017 or 2018, mitigation funding is needed to address transit impacts during these years of construction following expiration of $32 million of previously allocated mitigation funding for Moving Forward Program impacts. The combined, unfunded cost of additional delays and the need for additional transit capacity from 2013 to 2018 is estimated to total $53.3 million. Since these costs are for construction period impacts resulting from this project, the SFEIS should identify funding commitments to mitigate the state-funded portions of the program. Mitigation is also needed to address diversion-caused congestion. This is because tolls on the bored tunnel will be implemented while the central waterfront segment is still under construction. These tolls are expected to divert traffic to surface streets, resulting in additional transit delays.
L-005-038	38.	p. 200	Exhibit 8-30 and the accompanying text needs to include more information to explain the specifics of what project and program elements are included and/or excluded from the estimated costs of each alternative.
L-005-039	39.	p. 205	Inclusion of an evaluation of the impacts of potential tolling scenarios is a critical component of this analysis. As revealed by chapter 9, tolling could result in significant diversion of traffic onto other routes through downtown Seattle resulting in costly transit delays. It is important to include the impacts of tolling as part of the Bored Tunnel alternative analysis and these impacts need to be adequately mitigated.
L-005-040	40.	p. 214	Traffic diversion onto downtown streets that occurs outside the peak period will have adverse impacts for transit as roughly 50% of all transit boardings occur during off-peak travel times.
L-005-041	41.	p. 214, 215	What does "not acceptable as part of a long-term tolling solution mean?" What "other scenarios" and "reasonable optimization measures" would be evaluated, applied and analyzed? Given transit's relative travel time advantage through downtown, would transit be considered one of the optimization measures?

L-005-010

We agree that the analysis of a regional transportation corridor should assess regional impacts, including those to Environmental Justice populations. The transportation team has identified regional-level impacts and potential traffic delays associated with the different alternatives. For the Environmental Justice analysis, project staff reviewed the contributing TAZs (transportation analysis zones) and collected demographic data for each. This enabled the team to assess the demographic profile of the facility users, most of whom live outside the immediate study area. The NEPA documents also speak to the potential impacts of transit lines that bring people into the study area and/ or through it. This is important as there are national and local indicators of higher rates of transit use among low income populations.

Critical to a good Environmental Justice program, the public involvement efforts have also focused on this and related issues. Social service providers have been asked numerous questions in formal surveys. These surveys have collected data on perceived impacts to service recipients and employees, specific to commuting in from outlying areas.

L-005-011

Chapter 7 of the Transportation Disciple Report, Appendix C of the Final EIS includes information showing relatively small variations in daily transit riders at the three selected screenlines in downtown Seattle. However, the Final EIS goes on to state that as part of a long-term tolling solution, scenarios would be evaluated and reasonable optimization measures would be applied and analyzed before tolling would be implemented.

L-005-012

Your comment was made on the Summary. A more detailed discussion of how transit is affected during construction is contained in Chapter 6,

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L-005-042	39.	p. 215	#11 needs to clarify that modeling assumed one transit lane on 2nd and 4th avenues. Under tolling, transit flow would be slower and less reliable due to traffic diversion.
L-005-043	42.	p. 214, 215	When describing the delay to downtown streets, there are several occasions where the effects are described; "These effects would not be not acceptable as part of a long-term tolling solution." Is this double negative is confusing and appears to be erroneous.
L-005-044	43.	p. 215	Exhibit 9-17: The transit travel times appear to be impacted surprisingly little by the projected travel diversion caused by tolling under some tolling scenarios. For example, if general purpose traffic experiences a 20% increase in traffic volumes and 4-8 minutes of delay, how could there be no delay to transit using the same streets such as southbound on 2nd Avenue in the AM peak direction? Current experience shows that when 2nd and 4th Ave become congested, transit also slows.
L-005-045	44.	p. 215	Exhibit 9-21: Does the daily transit mode split include the transit program elements?
	45.	p. 215	Exhibit 9-21: Why is there no shift in mode share when there is an increase in transit service, an increase in the cost of travel through Seattle and when transit travel time improves significantly compared to general purpose traffic?
L-005-046	46.	p. 215	The statement "Since transit routes are designed to serve trips to downtown, while the tunnel is designed to serve trips through downtown, the impact of tolls on transit share is negligible." may be overstated. Transit networks rely on making connections, especially between high quality transit services. With frequent, reliable services being provided by the Ballard, West Seattle and Aurora Ave RapidRides, transit trips that cross Seattle will be made easier even while driving becomes more expensive.
L-005-047	47.	p. 221	Exhibit 9-26: Has WSDOT considered transit service as a potential mitigation measure for the adverse impacts of tolling on low income populations? Many of the neighborhoods on the top of the exhibit 9-26 have frequent transit services. Those services may become more significant in a tolled environment.
L-005-048	48.	p. 225	4(f)-2: Won't the Battery Street tunnel be filled in the Bored Tunnel alternative? It is listed in this exhibit as only being physically altered. Is that correct?

Construction Effects, of the Final EIS and Appendix C, Transportation Discipline Report.

L-005-013

Chapter 6 of the Final EIS discusses construction effects on transit. Final EIS Appendix C, Transportation Discipline Report, includes further information on impacts relating to transit in Chapter 6. The reduction in speed and lane capacity during construction would affect bus operations for West Seattle and South King County bus routes serving downtown Seattle. Information developed for the Final EIS indicated that buses using SR 99 would experience slightly longer travel times during construction.

L-005-014

Chapter 6 of the Final EIS discusses effects to transit during construction. Also, Final EIS Appendix C, Transportation Discipline Report, includes information on each area of the project corridor and provides a more detailed discussion. For the central area, peak hour travel volumes are expected to increase along major arterials including Second Avenue. The magnitude of these increases would not result in high levels of congestion for most locations. The traffic management plan would provide further direction on potential approaches for addressing construction effects, including those relating to transit. Chapter 8 of the Final EIS presents the proposed mitigation measures for effects to traffic.

L-005-015

Transit enhancements during construction are further described in Chapter 2 of the Final EIS. Chapter 6 of the Final EIS Appendix C, Transportation Discipline Report, also includes information on transit enhancements.

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Comments on Appendix C, Transportation Discipline Report

L-005-049	1.	p. 20	Section 1.5.6 should discuss flow on 2nd and 4th avenues through downtown Seattle; during construction, there will be traffic diversion away from the congestion of SR-99 reduced to two lanes in each direction. Also, critical intersections on South Jackson Street and at 4th Avenue and Olive Way need to be analyzed.
L-005-050	2.	p. 26	As U Link is scheduled to be implemented in 2016, it should also NOT be included in the 2015 modeling.
L-005-051	3.	p. 30-31	Exhibit 2-2 and 2-3: Some intersections critical to downtown Seattle transit flow are not included in the analysis: 4th Avenue and Olive Way, 5th Avenue South and South Jackson Street, and Stewart Street at 2nd, 3rd, and 4th avenues. The two intersections at South Jackson Street may also be impacted by the First Avenue Streetcar project.
L-005-052	4.	p. 39	Exhibit 2-6: In 2030, The analysis should also evaluate a corridor between Ballard and the South Portal using the future Elliott/Western roadway (variant of the purple line,) because this route may provide competitive travel times with tolling.
L-005-053	5.	p. 43	Section 2.8.1: The 1st Avenue streetcar should be listed under the second set of bullets under transit elements.
	6.	p. 43	Section 2.8.2: The First Hill Streetcar, if implemented as planned could affect transit flow on and through South Jackson Street. The impact of the streetcar should be addressed under section 2.8.2 "Other Projects".
L-005-054	7.	p. 52	The *Alaskan Way Viaduct Partnership Scenario Development Documentation Portfolio 4.3: Rapid Trolley Network* should also be included as this which was developed by Metro as part of the Alaskan Way Viaduct Partnership. http://globaltelematics.com/pitf/KingCountyMetroRapidTrolleyNetworkPortfolio4-3.pdf
L-005-055	8.	p. 53	In fall 2009, the Metropolitan King County Council shifted most of the ferry district property tax to Metro Transit.
L-005-056	9.	p. 67-69	Exhibit 4-13: In spring 2010, the trip level data on SR-99 routes 5, 5X, 26X, 28X, and 358X sum to 12,100, more than the 11,900 of the text. Before the recession in fall 2008, the north portal routes attracted weekday loads of 13,200.
L-005-057	10.	p. 80	Exhibit 4-20: Note LOS F for southbound SR-99. This will be relevant for construction period when SR-99 will be reduced by one lane in each direction and in tolling period when trips will divert to the Denny Way exits.
L-005-058	11.	p. 85	Exhibit 4-29: Table does not include critical intersections for transit flow listed above in page 30 comment: 4th Avenue and Olive Way, South Jackson Street and 2nd Avenue Extension South, 4th Avenue South, and 5th Avenue South, and Stewart Street at 2nd, 3rd, and 4th avenues.
L-005-059	12.	p. 118	Passenger service between Kingston and downtown Seattle began in summer 2010.

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L-005-016

As stated in section 5.2.1 of Appendix G, Land Use Discipline Report, of the Final EIS, the Bored Tunnel Alternative would represent only one of numerous ongoing improvements occurring in Seattle. Overall, many factors influence land use decisions, including economic conditions, zoning, and land supply. Because the Bored Tunnel Alternative would replace an existing facility to meet safety requirements and the projected growth in traffic demand it is not likely to have large, if any, influences on these factors. The potential to induce growth would be minor.

L-005-017

Chapter 7 of the the Final EIS Appendix C, Transportation Discipline Report includes information on estimated travel times on Second and Fourth Avenues for tolled and non-tolled options. With the tolled options, higher travel times are identified for general-purpose traffic travel. The Final EIS states that as part of a long-term tolling solution, scenarios would be evaluated and reasonable optimization measures would be applied and analyzed before tolling would be implemented.

L-005-018

The analysis in the 2010 Supplemental Draft EIS aimed to examine conservative scenarios. Therefore the conditions during the AM and PM peak hour are reported, when traffic volumes on area roadways are typically more congested.

Please see this Final EIS and specifically Appendix C, Transportation Discipline Report, for more information regarding estimated traffic diversion due to tolling by various time periods throughout the day.

L-005-019

Tolling would cause vehicles to divert from SR 99 to other nearby roadways. The extent of the diversion and the travel patterns associated

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L-005-060	13.	p. 132	Event traffic at the Seattle Center often disrupts bus routes 3, 4, and 16 on 5th Avenue North and routes 1, 2, 13, 15, 18, 8, and 30 on 1st Avenue North.
L-005-061	14.	p. 185	Exhibit 5-29: Note low LOS for South Jackson Street intersections at 2nd Avenue Extension South and 4th Avenue South that would be degraded by the proposed First Hill Streetcar (F and D, respectively in 2030).
L-005-062	15.	p. 186	Exhibit 5-31: Note that 4th Avenue and Olive Way intersection is not analyzed and it is critical to the transit capacity of downtown Seattle, especially before 2021 when Link is expected to reach Northgate.
L-005-063	16.	p. 210	The path between Holman and SODO via the new Elliott/Western avenues connector is not analyzed.
L-005-064	17.	p. 220	Key findings could be expanded to mention the impact of traffic imposed on routes 5, 5X, 26X, 28X, and 358X (E Line) by the project.
L-005-065	18.	p. 221	The weaving required by transit is less impactful under existing conditions.
L-005-066	19.	p. 222	Exhibit 5-39: Link to UW stadium station and Capitol Hill will not be implemented until 2016, therefore after 2015. In addition, the extent of transit restructure for the 2016 UW station is unknown.
L-005-067	20.	p. 221, 224	5 year-old data is no longer "existing" and if possible, should be replaced with more current information. Also, data between September 2005 and September 2007 was anomalous because the DSTT was closed during this time for retrofit for joint bus/light rail operation. This change degraded transit and traffic performance.
L-005-068	21.	p. 226	Exhibit 5-41: This needs to explain why transit travel time is faster from West Seattle to CBD in the outbound direction in the pm peak hour.
L-005-069	22.	p. 259	The impacts of traffic diversion caused by tolling needs to be evaluated by Appendix C because tolling is consistent with the state's financing assumptions for the project. As discussed in chapter 9 of the SDEIS, tolling would result in up to 45,000 daily trips being diverted from the tunnel onto city streets and I-5. This is significant but without analyzing the impacts of tolling, the utility of the entire transportation analysis is compromised.
L-005-070	23.	p. 295, 296	Exhibits 6-12, 13: Impacts to bus layover in these areas should be addressed.
L-005-071	24.	p. 311	The First Hill Streetcar's impacts to South Jackson Street and its intersections with 2nd Avenue Extension South and 4th and 5th avenues South should be analyzed as part of the Cumulative Effects section. The project may take lanes and change signal timing.
L-005-072	25.	p. 338	Exhibits 7-17, 18: Note relatively poor LOS. Could be made worse at Denny Way by tolling and impact transit flow.
L-005-073	26.	p. 355	Exhibits 7-26, 27: Does 2015 transit ridership estimates include U Link to be implemented in 2016?

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with the diversions would be sensitive to the configuration of the facility, the available capacity on alternative routes, and the tolling implementation strategy.

With tolling, the Bored Tunnel Alternative is expected to result in a daily diversion rate of about 40 percent for all vehicle classes.

Because of their different physical configurations, the Cut-and-Cover Tunnel and the Elevated Structure Alternatives are expected to result in different diversion patterns when analyzed with tolling. The daily diversion rate for all vehicle classes for these two alternatives would be about 50 percent and 65 percent, respectively.

The Final EIS evaluates all the build alternatives with and without tolling. See Chapter 5 for current information about the project's permanent effects, including diversion.

L-005-020

Project cost estimates include provisions for construction impact mitigation. Chapter 8 of this Final EIS describes the mitigation under consideration or identified as a project commitment. The amount and type of funding for transit service as part of construction impact mitigation is currently being discussed with King County. Funding for other program elements, such as replacing the Elliott Bay Seawall, is being developed by the City of Seattle.

L-005-021

The MVET for transit has been added to the description of the agreement in the Final EIS.

L-005-022

The Chapter 4 of the Final EIS Appendix C, Transportation Discipline

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Comments on Appendix H, Social Discipline Report

L-005-074	1.	p. 81, 88	Pg 81 cites increases in local congestion, and potential for increases in transit travel times. This seems to conflict with page 88 and elsewhere where the report says "transit service would improve for areas in south downtown..."
L-005-075	2.	p. 91	Operational mitigation should discuss how to mitigate longer transit travel times for transit-dependent persons, or at least reference the transportation discipline report. All mitigation is focused on property acquisition.
L-005-076	3.	p. 132	Refers to transit enhancements that are not funded, specifically items 1, 3, and 6 in the 2nd paragraph.

Report presents further information on transit services and facilities in the project corridor.

L-005-023

Chapter 9 in the 2010 Supplemental Draft EIS discussed the possibility of tolling and effects if tolls were applied to the Bored Tunnel Alternative. In addition, a detailed tolling analysis has been conducted for all alternatives and is presented in this Final EIS. Please refer to Appendix C, Transportation Discipline Report, for additional detailed analysis of tolling impacts to transportation elements.

L-005-024

While the weaving motions would occur in the in the north area under the Bored Tunnel Alternative, they also would occur under the 2015 Existing Viaduct scenario. Additional information can be found in Final EIS Appendix C, Transportation Discipline Report.

L-005-025

The text is correct, Exhibit 5-19 in the 2010 Supplemental Draft EIS was indicating that there is less than a 1% increase.

L-005-026

For the traffic analysis conducted for this project, congested intersections were defined as those where drivers might wait about 1 to 2 minutes to travel through a traffic signal. Results of the analysis for the intersections of Denny Way at southbound and northbound Aurora show less than 1 minute of delay during the AM peak hour for 2015. This relatively good LOS reflects the long green time given to the high volume east-west movement. However, the north and south approaches at these intersections operate at a worse LOS than the overall intersection LOS.

Please see the Final EIS, Appendix C Transportation Discipline Report for updated transportation analysis.

L-005-027

The terminus of a potential Link extension would be in the vicinity of the Redondo Heights park-and-ride lot. This location is within the Federal Way city limits. ST2 still shows the Federal Way Link extension as a funded element.

L-005-028

The northbound transit only lane has been revised in the Final EIS Appendix C, Transportation Discipline Report, to extend to Harrison Street.

L-005-029

We are not sure what significant difference you are referring to. As shown in Exhibit 5-29 on pages 110 of the 2010 Supplemental Draft EIS, transit mode share to and from Seattle's City Center is expected to be similar between the 2030 Viaduct Closed (No Build) and the 2030 Bored Tunnel:

- Commute Trips = 39.6% for 2030 Viaduct Closed versus 40.5% for the Bored Tunnel
- Non-Commute Trips = 9.8% for 2030 Viaduct Closed versus 10.1% for the bored Tunnel

For commute trips the difference is less than 1% and for non-commute trips the difference is .03%. In the case of mode share and transit ridership in Seattle, the lead agencies do not agree that a difference of less than one percent represents a significant difference.

L-005-030

The land use effects of all the build alternatives are discussed in Chapters 5 and 6 of the Final EIS. The direct and indirect effects of the Bored Tunnel Alternative are discussed in section 5.2 of Appendix G, Land Use Discipline report, of the Final EIS.

L-005-031

Yes, reduction of capacity on SR 99 during construction could lead to some diversion to surface streets. Effects to transit would likely vary on a street-by-street basis depending on the level of diversion and the presence of transit-only lanes on that street.

L-005-032

The routings for buses in the south area between the SR 99 off-ramps and the Third Avenue transit spine would best be determined by King County Metro. Some direction for a connecting transit pathway could be in part determined by the central waterfront planning effort being led by the City of Seattle.

L-005-033

Chapter 6 of the Final EIS and Chapter 6 in the Final EIS Appendix C, Transportation Discipline Report, present information on travel times along major transit corridors. This information is provided for corridors evaluated in traffic models used for the Final EIS. In 2015, construction is expected to affect transit travel times with the added times of between 1 and 3 minutes in each corridor as compared to 2015 Existing Viaduct.

L-005-034

Travel times on 2nd and 4th Avenues were not provided for the cumulative effects discussion because it is not needed in order to discuss possible cumulative effects.

Expected travel times for drivers traveling on city streets - specifically 2nd and 4th Avenues were provided in the 2010 Supplemental Draft EIS and are provided in the Final EIS. Chapter 5 of the Final EIS discusses travel times during operation of the project and Chapter 6 discussed travel times during construction of the project.

L-005-035

Please refer to the introduction of the Cumulative Effects chapter of the Final EIS. The Program elements, including transit enhancements, consist of the Moving Forward projects identified in 2007 as well as improvements recommended as part of the Partnership Process. Studying the combined effects of the Project and the Program helps the public and decision-makers understand how our transportation system would function in the future when the planned improvements are completed. The traffic modeling methodology and assumptions are discussed Appendix C, Transportation Discipline Report.

L-005-036

The Final EIS Appendix C, Transportation Discipline Report, specifically the Chapter 8 discussion of cumulative effects, contains the discussion this comment requests.

L-005-037

The agreement signed by the Governor, County Executive, and Mayor in January 2009 described a program of independent yet complementary projects for replacing the Alaskan Way Viaduct and providing a strategy for overall mobility in Seattle. The State is responsible for replacing the viaduct, the City for the seawall and central waterfront, and the County accepted responsibility for additional RapidRide and express bus service, with some identified as construction mitigation. These future transit service improvements have benefits independent of replacing the Alaskan Way Viaduct. WSDOT recognizes the funding anticipated in the

agreement has not been realized, and that the recent economic downturn has reduced other funding sources King County currently relies on for providing transit service throughout King County.

Currently WSDOT is providing funding for King County on the S. Holgate Street to S. King Street Viaduct Replacement Project to provide additional transit service hours to help mitigate the effects of construction. This program is ongoing and regularly monitored to evaluate its effectiveness. For the Alaskan Way Viaduct Replacement Project, WSDOT will continue to evaluate the need for increased bus service in the West Seattle, Ballard, Uptown, and Aurora Avenue corridors during the initial portions of the construction period, as well as a bus travel time monitoring system.

L-005-038

Costs are not an environmental issue per se and so are not discussed in detail in this document. Chapter 3 of this Final EIS describes the alternatives and program elements.

L-005-039

The analyses regarding how tolls might be implemented as part of the proposed action were preliminary for the 2010 Supplemental Draft EIS but have been updated for the Final EIS. They will be further refined during final design through a joint planning effort (described below) should the state legislature authorize tolls on the SR 99 Bored Tunnel. The analysis in the Final EIS represents a conservative estimate of the impacts of tolling the SR 99 Bored Tunnel. We anticipate that any effects due to applying tolls to the SR 99 Bored Tunnel will be notably less than those described in the Final EIS analysis.

Prior to a final decision about how the SR 99 Bored Tunnel would be tolled, the Washington State Department of Transportation will be working with the Seattle Department of Transportation and other

agencies to refine and optimize how to toll the SR 99 tunnel while minimizing diversion of traffic to city streets and minimizing potential effects to transit, bicycle, and pedestrian travel. WSDOT, with cooperation from the City of Seattle, the Port of Seattle, and King County, will establish a Tolling Advisory Committee to provide strategies for minimizing diversion impacts. Chapter 8 of the Final EIS further discusses the role and objectives of the Tolling Advisory Committee.

As part of the Bored Tunnel project and related projects, WSDOT and partner agencies have or will implement several strategies that should reduce the effects of potential diversion. For example, both the south and north portal configurations include bus priority lanes to provide reliable travel times for SR 99 transit service into and out of downtown. The streets that transition between SR 99 and the downtown street grid are designed in a manner that meets the City's Complete Street goals and include treatments for pedestrians, bicycles, freight, and adjacent land uses.

In advance of construction, WSDOT funded Intelligent Transportation System (ITS) investments that provide improved signal operations and travel time information on SR 99 and city streets such as 15th Avenue NW that were likely to see increased volumes due to SR 99 construction activities. These investments will have lasting value. Supplemental transit services and transportation demand management were also implemented with assistance from the City of Seattle and King County, and these strategies can form the blueprint for future strategies.

L-005-040

The distribution of traffic diversion over the course of the day is expected to vary greatly, even with reduced toll rates during off-peak periods. Diversion rates are expected to be greater during off-peak periods. However overall traffic volumes are expected to be less during these off-peak periods as well.

A detailed tolling analysis has been conducted for all alternatives and is described in this Final EIS. Please refer to Appendix C, Transportation Discipline Report, for additional detailed analysis of tolling impacts to transportation elements. Also, please the Final EIS Chapter 8 for information regarding mitigation.

L-005-041

A detailed tolling analysis has been conducted and is described in the Final EIS. Please refer to Appendix C, Transportation Discipline Report, for additional detailed analysis of tolling impacts to transportation elements, including impacts to transit and transit travel times. Results of the analysis indicate that transit travel times on Second Avenue and Fourth Avenues would benefit from bus-only lanes, as well as limited skip-stop access to bus zones along each avenue. Therefore, estimated added travel time under tolling scenarios would likely be less for buses than for general-purpose travel.

As part of the Bored Tunnel project and related projects, WSDOT and partner agencies have or will implement several strategies that should reduce the effects of potential diversion due to tolling. For example, both the south and north portal configurations include bus priority lanes to provide reliable travel times for SR 99 transit service into and out of downtown. The streets that transition between SR 99 and the downtown street grid are designed in a manner that meets the city's Complete Street goals and include treatments for pedestrians, bicycles, freight, and adjacent land uses.

Please see the Final EIS, Chapter 8 Mitigation, for more details regarding potential mitigation for tolling impacts.

L-005-042

The modeling includes transit lanes on Second and Fourth Avenue. A

detailed tolling analysis has been conducted and is described in the Final EIS. Please refer to Appendix C, Transportation Discipline Report, for additional detailed analysis of tolling impacts to transportation elements.

L-005-043

The second "not" was a typo. Sentence should read: These effects would not be acceptable as part of a long-term tolling solution.

L-005-044

Modeling for the Supplemental Draft EIS indicates that increased congestion Second and Fourth Avenues would result in transit trip increases of 1 to 2 minutes. However, modeling results also indicate that transit priority treatments on Second and Fourth Avenue and peak period restrictions on Third Avenue for traffic in general purpose lanes would minimize transit travel time increases from expected diverted traffic. Please see the Final EIS and Appendix C, Transportation Discipline Report, for updated tolling analysis.

L-005-045

Transit service levels would be the same for the Bored Tunnel Alternative under tolled or non-tolled conditions. While some shifts to transit could occur as a result of tolling, many trips in the tunnel travel through downtown Seattle. Transit serves demand to and from downtown.

L-005-046

The Aurora, Ballard, and West Seattle RapidRide service cross downtown Seattle but downtown Seattle is a major market for these routes and are key parts of their service area. The service market and alignments contrast to general-purpose routes that have both start and end points outside of downtown Seattle.

L-005-047

Transit as an alternative to SR 99 with tolls is an important part of our evaluation of effects on low-income populations. This is discussed in Chapter 5 of the Final EIS and Appendix H, Social Discipline Report.

L-005-048

The Battery Street Tunnel would be decommissioned and sealed under the Bored Tunnel Alternative, which constitutes a use under Section 4(f), as noted in the Final EIS.

L-005-049

The major intersections chosen for analysis were selected based on several factors: proximity to the SR 99 corridor, location near or on SR 99 access routes, forecasted traffic volumes and existing LOS, and inclusion in previous analysis for this project. All signalized intersections along Second and Fourth Avenues, between Battery Street and S. Royal Brougham Way, were included in the travel time analysis for the build alternatives. The intersection of S. Jackson and 4th Avenue S. is included in the intersection operations section.

Specific technical data are not provided for the various construction stages, although conclusions draw from the results of preliminary analysis highlight areas where potential congestion issues may occur. Travel times on two typical routes that use the SR 99 corridor: between Woodland Park and S. Spokane Street and between Ballard and S. Spokane Street were analyzed during construction. These routes were deemed sufficient for describing the effects of construction activity on regional travel in the SR 99 corridor.

Please see the Final EIS Appendix C, Transportation Discipline Report, for updated transportation analysis.

L-005-050

The University Link project is included in the 2008 Partnership Process analysis for analysis year 2015 and was included for consistency purposes. Additionally, the inclusion of University Link better represents the transportation network for the general time period after the bored tunnel would open.

L-005-051

The major intersections chosen for analysis were selected based on several factors: proximity to the SR 99 corridor, location near or on SR 99 access routes, forecasted traffic volumes and existing LOS, and inclusion in previous analysis for this project. All signalized intersections along Second and Fourth Avenues, between Battery Street and S Royal Brougham Way, were included in the travel time analysis.

Additionally, the intersection operations on S. Jackson Street at Second Avenue and S. Jackson Street at Fourth Avenue are reported in the Final EIS. Please see the Final EIS Appendix C, Transportation Discipline Report for updated transportation analysis.

L-005-052

The new Elliott/Western Connector would be an independent project led by the City of Seattle. It is not a component of the Bored Tunnel Alternative, so the effects analysis does not assume it is in place. It is for this reason that it is not listed as a travel time route. The travel time route for the Bored Tunnel Alternative evaluation uses Alaskan Way in this section.

The Elliott/Western Connector Project is considered in Chapter 7, Cumulative Effects, of the Final EIS.

L-005-053

The Final EIS Appendix C, Transportation Discipline Report has been revised to clarify the references to services and facilities.

L-005-054

The documentation identified in the comment has been included in the Final EIS Appendix C, Transportation Discipline Report.

L-005-055

The reference in the Transportation Discipline Report involves planning efforts relating to passenger-only ferry service.

L-005-056

The numbers provided in the exhibit were derived from the travel demand model. Although several steps are taken to align forecasts with observed data, discrepancies will still be evident. Furthermore, the model estimated transit ridership of 11,900 on SR 99 was for the year 2005, as stated in the exhibit title. The numbers provided by King County Metro for comparison are for different years: 12,100 for spring 2010 and 13,200 before the recession in autumn 2008. Thus, the numbers are not directly comparable, as it is expected that transit ridership would increase over time, especially during the summer of 2008 when gas prices rose dramatically. Nevertheless, the exhibit which referenced SR 99 transit ridership has been removed from the Final EIS, since it was decided that transit ridership forecasts are better presented at the screenline level.

L-005-057

Updated analysis has been included in the Final EIS and uses 2015 Existing Viaduct as the baseline scenario. The southbound SR 99 section north of the Battery Street Tunnel under 2015 Existing Viaduct would operate at a LOS F. For the Bored Tunnel Alternative construction stage 5 traffic analysis, refer to Chapter 6 of the Final EIS

Appendix C, Transportation Discipline Report. Slower speeds north of Aloha Street than under 2015 Existing Viaduct conditions are discussed. Chapter 7 of the Final EIS Appendix C, Transportation Discipline Report also discusses that southbound SR 99 would operate at a LOS F north of the Bored Tunnel for the AM peak hour Tolled Bored Tunnel Alternative,

L-005-058

The major intersections chosen for analysis were selected based on several factors: proximity to the SR 99 corridor, location near or on SR 99 access routes, forecasted traffic volumes and existing LOS, and inclusion in previous analysis for this project. All signalized intersections along Second and Fourth Avenues, between Battery Street and S. Royal Brougham Way, were included in the travel time analysis.

Please see the Final EIS, Appendix C Transportation Discipline Report for updated transportation analysis.

L-005-059

The Port of Kingston passenger-only service is included in this Final EIS.

L-005-060

The effects of event traffic on transit performance near Seattle Center were not explicitly investigated as part of the traffic analysis and planning effort. However, it is recognized that the high concentrations of traffic that typically develop before and after Seattle Center events will likely continue to impact traffic flow and slow down transit vehicles. As such, appropriate traffic control measures will be needed to ensure that all travel markets and modes are accommodated during event periods. The project improvements in the north end of the study area would provide greater options for access to/from Seattle Center with new crossings of SR 99 between Denny Way and Mercer Street.

L-005-061
Impacts directly associated with the City of Seattle's First Avenue Streetcar project are documented in that project's Environmental Checklist: http://seattlestreetcar.com/firsthill.asp.

L-005-062
The major intersections chosen for analysis were selected based on several factors: proximity to the SR 99 corridor, location near or on SR 99 access routes, forecasted traffic volumes and existing LOS, and inclusion in previous analysis for this project. All signalized intersections along Second and Fourth Avenues, between Battery Street and S. Royal Brougham Way, were included in the travel time analysis.

L-005-063
The new Elliott/Western Connector would be an independent project led by the City of Seattle. It is not a component of the Bored Tunnel Alternative, so the permanent effects analysis does not assume it is in place. It is for this reason that it is not listed as a travel time route. The travel time route for the Bored Tunnel Alternative evaluation uses Alaskan Way in this section.

The Elliott/Western Connector Project is considered in Chapter 7, Cumulative Effects, of the Final EIS.

L-005-064
Several bulleted items in the summary refer to potential effects on bus routes serving the north area of the project corridor.

L-005-065
The text in the Final EIS has been revised.

L-005-066

The University Link project is included in the 2008 Partnership Process analysis for analysis year 2015 and was included for consistency purposes. Additionally, the inclusion of University Link better represents the transportation network for the general time period after the bored tunnel would open.

While the transit restructure for University Link is not currently defined, some assumptions were made for how existing transit services would integrate with LRT. Assumed bus routing changes and truncations were consistent with other recent planning- and environmental-level studies, including the Sound Transit 2 Plan and the cumulative effects analysis in the Supplemental Draft EIS for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project.

L-005-067

The 2005 existing conditions analysis was updated for the Final EIS to reflect a base condition of the 2015 existing viaduct. Refer to Chapter 4 Affected Environment in the Final EIS Appendix C, Transportation Discipline Report.

L-005-068

In the 2010 Supplemental Draft EIS, travel times in the PM peak period would be less for the 2015 Project as compared to the 2015 Existing Viaduct because traffic would no longer be using congested westbound Columbia Street to access SR 99. Also, having buses use the new stadium area ramps would increase transit service and coverage in the area south of downtown Seattle. Travel times would likely be the same for both the 2015 Existing Viaduct and the 2015 Project if buses exit via S. King Street. However, with the 2015 Project, some time savings over general-purpose travel is expected to occur for transit vehicles with the northbound bus-only shoulder lane between S. Holgate Street and the S. Royal Brougham Way off-ramp. For this segment, transit travel times are

reflected, whereas general-purpose travel times are reflected for the rest of the West Seattle/downtown Seattle corridor. Please refer to the Final EIS Appendix C, Transportation Discipline Report, for updated information and additional detailed analysis of transit travel times.

L-005-069

Chapter 9 in the 2010 Supplemental Draft EIS discussed the possibility of tolling and effects if tolls were applied to the Bored Tunnel Alternative. In addition, a detailed tolling analysis has been conducted for all alternatives and is presented in this Final EIS. Please refer to Appendix C, Transportation Discipline Report, for additional detailed analysis of tolling impacts to transportation elements.

L-005-070

Any affected bus layover spaces would be addressed by the construction traffic management plan which would include procedures to identify and incorporate the needs of transit operators. WSDOT will be preparing the construction traffic management plan for the selected alternative as construction plans are refined.

L-005-071

The intersection operations on S. Jackson Street at Second Avenue and S. Jackson Street at Fourth Avenue are reported in the Final EIS. Please see the Final EIS Appendix C, Transportation Discipline Report, for the updated transportation analysis.

L-005-072

Chapter 9 in the 2010 Supplemental Draft EIS discussed the possibility of tolling and effects if tolls were applied to the Bored Tunnel Alternative. In addition, a detailed tolling analysis has been conducted for all alternatives and is presented in this Final EIS. Please refer to

Appendix C, Transportation Discipline Report, for additional detailed analysis of tolling impacts to transportation elements.

L-005-073

Transit person-trip volumes for 2015 include University Link.

L-005-074

Thank you for your comment about transit travel times. Appendix H, the Social Discipline Report for the Final Environmental Impact Statement, has been reviewed for these types of inconsistencies and rectified as appropriate.

L-005-075

Thank you for your comment about operational mitigation for longer transit travel times for transit-dependant persons. A reference has been added to Appendix C, the Transportation Discipline Report, within Appendix H, the Social Discipline Report.

L-005-076

The agreement signed by the Governor, County Executive, and Mayor in January 2009 described a program of independent yet complementary projects for replacing the Alaskan Way Viaduct and providing a strategy for overall mobility in Seattle. The State is responsible for replacing the viaduct, the City for the seawall and central waterfront, and the County accepted responsibility for additional RapidRide and express bus service, with some identified as construction mitigation. These future transit service improvements have benefits independent of replacing the Alaskan Way Viaduct. WSDOT recognizes the funding anticipated in the agreement has not been realized, and that the recent economic downturn has reduced other funding sources King County currently relies on for providing transit service throughout King County.