

Coalition for Effective Transportation Alternatives

October 10, 2002

Washington State Government Oversight of Link Light Rail

By **John S. Niles**, Technical Coordinator, CETA

Summary: I recommend that the Washington State Auditor explore two areas of potential state government regulatory involvement with the 14 mile right-of-way design of the Sound Transit Link Light Rail Initial Segment from Westlake Center to Tukwila.

The first area to explore is the responsibility for design oversight of Link Light Rail by the State Fixed Guideway Safety Oversight Agency in Washington State Department of Transportation (WSDOT).

The second area is the application to Link Light Rail of the grade crossing design standards specified in the WSDOT *Design Manual*.

In these two areas I understand that **State of Washington officials claim to have no oversight authority with respect to Sound Transit's action**. Thus no action is being taken. In both cases I believe that the public interest would be better represented if the State did exercise oversight, so I am recommending that the State Auditor double check my findings in the near future and recommend changes in policy if warranted.

Background

The physical design of the Central Link Light Rail Initial Segment right of way in conjunction with planned train headways and speeds presents potential safety hazards from collisions with motor vehicles in two sections:

- (1) Within the Downtown Seattle Transit Tunnel (DSTT) where, during the busiest hours of weekdays in each of two directions, 10 trains are going to be operating interspersed with 60 buses. The mixture of trains and buses in a tunnel with station stops is not operated anywhere else in the world. Sound Transit designers are planning for the separation of vehicles to be maintained by a combination of a newly designed signaling system and the judgment of trained vehicle operators. At each end of the tunnel, buses will cross the tracks to enter the DSTT right of way.
- (2) At 18 ungated grade level crossings along the median of Martin Luther King Jr Way in the Rainier Valley, 272 trains in two directions will be scheduled every weekday to cross the path of tens of thousands of motor vehicles, including cars, buses, and trucks.

The review processes leading to these designs have been controversial and the subject of lawsuits, one of which is unresolved.

Federal Transit Administration safety guidelines published in the report *Hazard Analysis Guidelines for Transit Projects* (FTA-MA-26-5005-00-01 posted at <http://transit-safety.volpe.dot.gov>) require right of way designs to be certified for no more than one expected fatality per one million operating hours. For Central Link that many operating hours will take approximately 20 years to be reached. Based on historical FTA light rail operating statistics, going 20 years without a fatality from a collision in the DSTT or at a grade crossing will be a difficult standard to meet *if* Sound Transit tries to meet the train speed

and headway performance requirements that have been established in Sound Transit planning documents.

State Fixed Guideway Oversight Program

The State of Washington Fixed Guideway Safety Oversight Agency is the WSDOT Rail Office. This Agency is established by the State in response to Federal regulation. The overall Federal State Fixed Guideway Oversight Program is described in a report *Compliance Guidelines for States with "New Starts" Projects* (DOT-FTA-MA-90-5006-00-1 posted at <http://transit-safety.volpe.dot.gov>). Although Federal Transit Administration has actively encouraged State Oversight Agencies to address safety during all pre-revenue phases, including planning and design, I have been informed from several sources that there is no legal or regulatory requirement for the State of Washington to become involved with Link Light Rail until after it goes into operation, scheduled for 2009. **Thus, the State Rail Office does not intend to become involved in Link Light Rail right-of-way design.** The State Rail Office will wait until the last years of the present decade to be responsible for monitoring safe operation of what has in fact been built. I recommend this finding be verified by the State Auditor.

WSDOT Design Manual

For state highway grade crossings, the Washington State Department of Transportation *Design Manual* (<http://www.wsdot.wa.gov/eesc/design/policy/DesignPolicy.htm>) states on page 930-5 that grade separation is the recommended design for train tracks crossing highways where exposure factors of 50,000 per day or greater exist. This exposure factor is the product of average number of vehicles per day times trains per day. This guideline relates both to safety from collisions and to traffic flow disruptions caused by frequent trains blocking busy cross streets. At some of those 18 crossings in the Rainier Valley, the daily exposure factor will exceed three million.

The *Design Manual* grade crossing guideline is undoubtedly meant to apply to long, fast trains. Light rail trains have only two or four cars. Furthermore, light rail design professionals say that street running light rail operating at 35 miles per hour or slower is perfectly safe in urban settings at ungated arterial street crossings. However, I am not sure that safety engineering and traffic engineering professionals aware would agree, especially given the potential for frequent trains at crossings to disrupt street traffic, including emergency vehicles. In any event, my research finds that **the WSDOT Design Manual has no authorized application in the design of Link Light Rail.** The contradiction between the Link grade crossing design and the published guideline is thus deemed irrelevant. I recommend my finding be verified by the State Auditor.

Conclusion

If the State of Washington has no authority to intervene in the design of Link Light Rail in either of the two areas described, then I urge that the State Auditor explore the wisdom of a recommendation to change the law or regulations to increase State Government oversight. Because of the manifest potential hazards in the emerging Link design and operations plan, this action has the potential to make the three billion dollar Central Link Light Rail much safer and more efficient.

Contact: John Niles, jniles@alum.mit.edu or 206-781-4475