

Talking Points

Tunnel Construction Issues

- Safety is the top priority for WSDOT during any construction project and we have an excellent safety record. Nationally and internationally there are examples of problems in all types of construction – form work collapses during bridge and building construction and tower crane collapses during bridge construction.
- This is why WSDOT maintains a strong oversight role before, during and after construction to review and monitor safety designs and construction methods.
- The overall record for safety during tunnel construction continues to be excellent -- the I-90 Mount Baker bored tunnel for example.
- The voids at the surface above the light rail tunnel under Beacon Hill and the sinkholes seen above the Brightwater tunnel are examples of why we are and will continue to take very seriously the issue of potential ground settlement during construction of the SR 99 bored tunnel in the dense urban environment of downtown Seattle.
 - Safety begins with design. Last year's decision to proceed with a single bore tunnel rather than a twin bore tunnel reduces some of the potential risks during construction.
 - We have also met with national and international tunnel experts to evaluate the current bored tunnel plan and seek input on how best to construct the tunnel under downtown.
 - We will continue to engage these and other experts to ensure construction plans incorporate lessons learned from tunnel projects around the world.
- We are taking a proactive approach using state of the art risk management techniques to determine all the hazards we must address, such as understanding the ground and building conditions above the tunnel and will have a risk management plan with a real time monitoring and response systems in place during construction.
 - We are completing an initial soil sample along the alignment every 1,000 feet. This work will be completed at the end of this month.
 - We'll then begin this summer with a more intense state of the art soil sampling effort, taking samples every 300 feet. This work will take several months.
 - We are also completing surveys of all the buildings along the alignment to better understand which ones may be most susceptible to ground movement.
 - We'll use the soil and building information to place instruments in the ground that will reach from the surface down to where the tunnel boring machine will travel. These instruments will allow for real-time monitoring of soil conditions and movements, and early warning of any conditions to avoid or mitigate.
 - For those areas where our investigations tell us that there may be ground movement during the boring of the tunnel. We will take preventative measures, including, for example, placing tubes into the ground that will allow us to put grout or other stabilizing material into the ground if our monitoring equipment shows movement of concern. This will allow us to respond immediately when the instruments show something is happening.
- WSDOT will take an active role in monitoring and responding to indications of ground movement during construction. We will specify requirements for the contractors' monitoring activities and equipment operators, and will also have our own inspectors on hand to review information and stop the tunnel boring machine if needed.