

To: All interested in Tunnel projects in Seattle

U-Link Montlake Tunnel Vibrations Survey Results & Preliminary Conclusions

Summary in 5 lines:

- U-Link tunnel construction trains disturb residents along most of route built so far
- For many, disturbances increased despite some mitigation measures being implemented
- Some residents are losing enough sleep to be hazardous to their health
- City and Sound Transit officials need to get the word out about these problems
- Sound Transit must study vibration causes and effects, NOW and in the future

Summary in 8 paragraphs:

- The survey was limited to human subjects in structures over or near the U-Link tunnel project. Significant numbers of residents or workers are feeling and/or hearing the construction going on under their homes. Of 82 validated survey participants, 77% hear or feel vibrations coming from the ground below them. Of those, 94% are certain these subterranean vibrations emanate from the Sound Transit construction trains traveling back and forth 90 feet or more below their homes or businesses.
- Multiple means were used to optimize survey response in a zone termed “Boyer Basin” by Sound Transit. For that reason, (and probably other reasons pertaining to underground conditions), the majority of responses come from the Boyer Basin of the Montlake neighborhood.
- However, reports from residents span the entire length of the U-Link Tunnel project from the ship canal to Interlaken Park. Clearly there is more to this than just whatever characterizes the Boyer Basin.
- There is a perception of worsening vibrations/sounds by many people. An early look at objective measurements from a Montlake-based earthquake sensor also suggest this.
- City Officials please take note: In the survey, there is an imperfect question about sleep loss, yet... many hundreds of hours of citizens’ lost sleep are represented in the answers to that question. It would seem some citizens should already be seeking medical attention. It is clear the collective sleep loss by people needing to work, raise families and otherwise participate in normal life activities is significant.

- Everyone doing the survey gave permission for their address to be shared with the City of Seattle and Sound Transit. Survey participants were also aware their home or business addresses could show up in a public way, following this sharing. We are giving that data to Seattle and Sound Transit officials. We assume they will prepare the appropriate maps or lists to be shared with interested media or other agencies. We hope and trust that these public agencies will see this as the starting point to honestly communicating with U-Link Tunnel neighborhoods and other neighborhoods about the real and potential risks of tunnel vibration issues. To our knowledge this has not been done before, not because tunnel vibration issues are an unknown topic, but because Sound Transit never anticipated this happening.
- A corollary to the above paragraph: Sound Transit needs to immediately install and operate appropriate vibration sensing equipment. This is needed to provide the objective data about these issues, assess mitigation efforts, as well as be a realistic aspect of this and future tunneling projects.
- Psychometric measurements are only hinted at in this survey. However it is clear physicists and psychologists may find our neighborhood a fertile study ground if the issues addressed in this survey are not resolved.

Doing this survey was a lot of work, with many people helping out. Most mentionable are the survey takers themselves. We believe the solicitations to take this survey were passed via word of mouth, emails, community newsgroups and a number of neighbors printing out flyers and delivering them to other neighbors. GOOD WORK, neighbors!

The detailed survey analyses can be found in the PDF format supported by SurveyMonkey at this web site: <http://seattlevet.net/stts>

Jeff Parke & Kari Olson
Montlake “Boyer Basin” residents

Addendum/Notes

We will be writing our own discussion of the survey, probably in a few days. We entertain doing specific analyses of the raw data for interested parties, however, we may bill for such work. This entire effort up to this point has been completely voluntary.

We will not release any identifiable responses to specific questions, except, as requested, we will release names, email addresses and/or phone numbers of survey participants who gave their permission to do so. This permission was only given for us to share that additional information with officials of Sound Transit or the City of Seattle.

