

# Construction Noise at Night, Best Practices & Human Reaction

David S. George

Noise Abatement Coordinator

City of Seattle

700 Fifth Avenue, Suite 2000

Seattle, WA 98124-4019

Tel: 206/684-7843

E-mail: [david.george@ci.seattle.wa.us](mailto:david.george@ci.seattle.wa.us)

## Nighttime Construction Issues

- How can nighttime construction take place without disturbing adjacent neighbors?
- What limitations do construction projects face when the need to work at night is paramount to meeting schedules/timelines (lane closures, utility shutoffs, endangered species, and reduction in basic services)?
- What options can a regulatory agency offer?

## Services We Can Provide

- Help in implementing a construction management plan
- Coordinate meeting with other regulatory agencies
- Coordinate meeting(s) with the neighborhood
- Revise construction management plan
- Issue a temporary noise variance with conditions

## Basic Noise Variance Conditions For Nighttime Work

- Discontinue the use of back-up alarms
- No impact work
- Use radios for long range communication
- Prepare a site plan with staging and queuing areas, this is a necessity for on site truck deliveries and concrete pours
- Provide notification to residential neighbors at least 72 hours in advance of the start of the project
- Create information website and schedule monthly community meetings

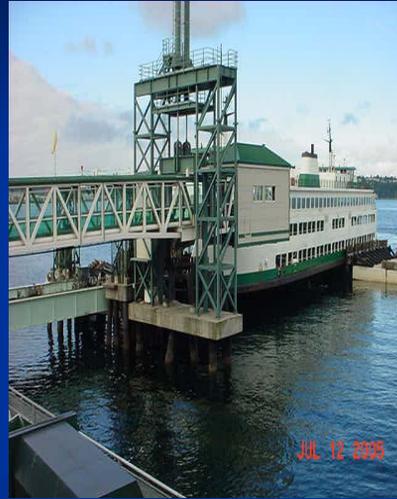
## Nighttime Construction May Solve the Following

- Working around utility shutoffs
- Compressed schedule for over the water construction because of migratory fish
- Removing a traffic lane in an area where an arterial experiences high traffic volumes
- Special events taking place in your project area
- Holiday shopping moratorium
- Regulatory agency prohibiting the delivery of material on trucks with oversized loads

## Working Around Utility Shutoffs During Maintenance and Relocation



- Compressed Schedule for Over the Water Construction Because of Migratory Fish



## Removing a Traffic Lane In An Area Where The Arterial Experiences High Traffic Volumes



## Special Events Taking Place In Your Project Area

- Sporting Spectacles
- Festivals
- Concerts
- Marathons/ Triathlons
- Parades



## Holiday Shopping Moratorium



## Regulatory Agency Prohibiting The Delivery Of Material On Trucks With Oversized Loads



## Noise Variance Process

- The process of applying for a temporary noise variance is simple within the city of Seattle, it's done through email. We email the applicant an excel application form.
- The excel application form has three tabs to fill out. The first tab requires the following: Customer, application date, contact person, contact phone number, related permit if applicable, project location (address), start date, start time, finish date and finish time. The second tab is the noise variance criteria, it asks the applicant three questions. The answers should justify the need for nighttime work. The most important tab is the third: the billing address.

## Noise Variance Process

- Justification is determined by the following: The noise does not annoy a substantial number of people, does not endanger public safety or health, the neighborhood would be compromised if the work was done during the day, and the city as a whole will be better served if the work took place during nighttime hours.

The noise abatement coordinator typically visits the project site. Hopefully this insures that the conditions on the temporary noise variance protect the neighborhood from noise impacts.



## Noise Variance Process

- If the justification for the temporary noise variance has been validated by the noise abatement coordinator, a temporary noise variance document is emailed or faxed to the applicant.
- A copy of the temporary noise variance has to be on site at all times. This is your permit to work in the city of Seattle during evening hours.

## WSDOT Temporary Noise Conditions

- *City of Seattle Noise Variance Conditions*
- Except in the case of emergency, whenever the Contractor works between the night time hours of 5:00 p.m. and 7:00 a.m. Monday through Friday or between 5:00 p.m. and 9:00 a.m. Saturday through Sunday and exceeds the local ordinance noise levels, the Contractor shall, in addition to other restrictions of this section or other ordinances, perform the following measures to minimize construction noise:
  1. Impact/impulse tools such as jackhammers, concrete saws, sandblasting equipment, generators, compressors, and any construction and paving removal equipment **may** be used between the hours 10:00 p.m. and 7:00 a.m. Monday through Friday and between the hours of 10:00 p.m. and 9:00 a.m. Saturday, Sunday and holidays, when condition number 5 is implemented.
- The Contractor may use back-up observers in lieu of back-up warning devices for all equipment except dump trucks in compliance with WAC Chapter 296-155-610 and 296-155-615. The Contractor shall use back-up observers and back-up warning devices for dump trucks in compliance with WAC Chapter 296-155-610.
- All trucks performing export haul shall have well maintained bed liners as inspected and approved by the Engineer, or new rubber or aluminum bed liners between the hours of 10:00 p.m. and 7:00 a.m. Sunday night through Friday and between 10:00 p.m. and 9:00 a.m. on Friday night through Sunday morning.
- During construction cleanup operations, all material spilled within the work zone shall be removed by hand methods or sweeping when possible.
- Stationary equipment, such as light plants, generators, and compressors, and jackhammers shall utilize WSDOT approved noise mitigation shields, noise blankets, skirts, or other means available as approved by the Engineer.
- The contracting agency will take noise level measurements at the property line of the residence and ensure that mitigation measures are in place if any complaint is received. If any noise complaint is received when noise levels are above the allowed threshold and mitigation measures listed in items 1 through 5 of this section are properly in place, the Contractor shall provide additional mitigation measures such as, additional shielding of noise sources, or reducing use of certain types of equipment.
- A copy of each noise variance or exemption shall be kept on the project site at all times.
- The Contractor shall provide written notification to residents within 500' of the nighttime work zone area 7 days prior to the commencement of the work. The Contractor shall furnish a copy of the notification to the Engineer.

## Example of mitigating stationary equipment noise



## Expectations

- The trust factor is important, participants in the noise variance conditions process know the document very well. The conditions must be adhered to and respected by the contractor.
- What if the conditions need modification?  
This is the reality of anticipating impacts, you can't be 100%. The contractor and the regulatory agency can look at the process that is not meeting the desired result; sometimes the steps of the construction process are going to be out order from what is typically done during daytime construction. Sometimes the work can't be done at night, or maybe if the work has to continue, individual mitigation maybe necessary.

## Examples of some nighttime projects

- Replacing piling at the Fauntleroy Ferry Terminal in West Seattle
- Structural slab pour at the Washington Mutual Tower
- Repaving I-5 downtown, from Olive Way to James Street
- Oversized loads: Pine Street stub tunnel beams
- Utility relocation: M L King Jr. Way South Sound Transit Light Rail Project
- Repainting the I-5 Ship Canal Bridge
- Future Mega Projects: Alaskan Way Viaduct, Sound Transit North Link, and SR 520 Floating Bridge

## Interesting phenomenon

- Removing concrete pavement is very difficult and has many negative impacts. The contractor for the Sound Transit Stub Tunnel used a quieter piece of equipment (Badger) to remove the concrete surface on Pine Street. Unfortunately the vibration caused an impact that was unforeseen. A meeting was being conducted in an adjacent hotel, the vibration made the PowerPoint presentation impossible to watch as you can imagine.

# The Badger



# Lack of Cooperation

**CITY OF SEATTLE**  
DEPARTMENT OF DESIGN, CONSTRUCTION AND LAND USE  
700 - 5th Avenue, Suite 2000, Seattle, WA 98104-5070 • Telephone 684-6950

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ALL PERSONS ARE HEREBY ORDERED TO AT ONCE  
**STOP WORK**

PERTAINING TO CONSTRUCTION, ALTERATIONS, REPAIRS,  
WIRING, GRADING, OR REGULATED EQUIPMENT LISTED BELOW

On these Premises at \_\_\_\_\_

This order is issued because \_\_\_\_\_

\_\_\_\_\_  
DIRECTOR

Posted \_\_\_\_\_ A.M. \_\_\_\_\_ P.M. By \_\_\_\_\_ 20 \_\_\_\_\_ By \_\_\_\_\_

**WARNING** DC 5.8

The failure to stop work, the resuming of work without permission from the director, or the removal, mutilation, destruction or concealment of this Notice is punishable by fine and imprisonment.