

# MEMORANDUM

**Date:** Aug. 20, 2020

**To:** Dan Goodman, Mechanical Inspections/Noise Abatement Manager, Seattle  
Department of Construction and Inspection

**Written By:** Abdon Godinez, Project Independent Noise Monitor, and Greg Wornell,  
Project Environmental Compliance Manager, SR 520 Montlake Project

**On Behalf Of:** Margaret Kucharski, Environmental Services Office, Megaprograms Environmental  
Manager, WSDOT

**Re:** MPPCNV Annual Report for Aug. 16, 2019, through Aug. 16, 2020  
MPPCNV Permit Number: 3030792  
SR 520 Montlake Project  
WSDOT Contract No. 009015

## INTRODUCTION

This annual report summarizes and evaluates the project's performance under the Major Public Project Construction Noise Variance (MPPCNV) #3030792 issued for the SR 520 Montlake Project, WSDOT contract number 009015. This annual report is provided as required by Director's Rule 3-2009 and the MPPCNV decision. This report includes noise data collected Aug. 16, 2019, through Aug. 16, 2020.

## SUMMARY OF PERFORMANCE

WSDOT is committed to ongoing coordination with the City of Seattle Department of Construction and Inspections (SDCI). Coordination has included documentation of nighttime noise levels, complaints, and management of compliance issues, using best management practices (BMPs). The following is a summary of performance during this period:

- The majority of noise levels that exceeded the MPPCNV noise limits were not related to project work. See Table B below.
- During this period of performance (Aug. 16, 2019, to Aug. 16, 2020) the Montlake Project worked 91 nights. Of these work nights:
  - 77 were performed under the MPPCNV.
  - 9 were performed under a Temporary Noise Variance (TNV) when specific work operations could not be performed within the MPPCNV limitations. An example of this is demolition of roadways where road closures are limited to nighttime only.
  - 5 were performed under both the MPPCNV and TNV when the work included both work that could and could not be performed within the limitations of the MPPCNV. (See Appendix C for nights worked).
- During this time, the project experienced:
  - 1,494 occurrences of non-project related noise exceedances.

- 27 occurrences where the MPPCNV noise limits were exceeded due to project-related noise. Of these, 18 occurred during work where a TNV was in place, leaving 9 MPPCNV noncompliance events related to noise levels.
- 22 occurrences where crews were found to be out of compliance with MPPCNV/TNV noise mitigation measures. (See Tables B and C below for a summary and Appendix D for a detailed event log).
- The project experienced 22 nights with public complaints, with 38 separate complaints. (See Table E below and Appendix E for a detailed log).

## PROJECT AND MPPCNV BACKGROUND

### ● Project Description

The Montlake Project is the first of the remaining State Route 520 improvements between Lake Washington and Interstate 5, known as “the Rest of the West.” The Montlake Project includes construction of an improved Montlake Boulevard interchange, a landscaped lid over SR 520, a bicycle and pedestrian land bridge east of the lid, and a three-lane West Approach Bridge South for eastbound traffic over Union Bay. Major construction of the Montlake Project began in Summer 2019.

### ● MPPCNV Application and Decision Process

In March 2017, WSDOT applied for a Major Public Project Construction Noise Variance (MPPCNV) from the City of Seattle (COS) Department of Construction and Inspections (SDCI). The application was revised in July 2017 and again in January 2018 in response to comments by SDCI. WSDOT requested a five-year nighttime noise variance for the duration of Montlake Project construction to allow necessary work activities to occur during nighttime hours. As part of the MPPCNV for the project, the application proposed nighttime construction noise limits for noise-sensitive receivers near the construction site. WSDOT made this request with the understanding that completing all planned activities during only daytime hours would be unreasonable in light of public and worker safety. Using only daytime hours would require multiple closures of SR 520, Montlake Boulevard, and Lake Washington Boulevard during peak traffic periods, which would result in:

- Extensive travel delays to the public.
- Increased traffic volumes on city streets and nearby highways.
- A potential increase in the number of accidents in the project work zone.

In April 2018, SDCI issued WSDOT the MPPCNV decision for construction of the Montlake Project.

### ● Key Decision Elements

- Allows for nighttime work and variance to the city noise ordinance.
- Limits allowable nighttime noise levels at key locations around the project site.
- Restricts nighttime noise and work to specific work activities and practices.

- **Design-Builder's Noise Management and Mitigation Plan**

The design-build contractor, Graham Contracting Ltd., provided a draft Noise Management and Mitigation Plan to WSDOT in April 2019. Through the review and comment resolution process with WSDOT, SDCI and Graham, a final plan for managing nighttime noise was completed in July 2019.

- **The Design-Builder Attained Temporary Noise Variances (TNV)**

In addition to the MPPCNV, the design-builder obtained TNVs from SDCI for specific activities that would not meet the provisions of the MPPCNV.

### **COMMUNICATION: INM, GRAHAM, SDCI, AND WSDOT**

As required by the MPPCNV decision, the Independent Noise Monitor (INM) oversaw the independent monitoring and reporting of nighttime noise levels from project construction covered by the MPPCNV and reported back to Graham, WSDOT, and the SDCI coordinator for noise abatement. The INM's responsibilities, organizational reporting chart, and communications protocol are found in Appendix A. The protocol was developed and reviewed with SDCI prior to the start of construction. The purpose of the protocol is to outline the communication chain for reporting exceedances, noncompliance, and complaints.

The INM had regular coordination with Graham's nighttime crews and phone and email contact with Graham Environmental Compliance Manager (ECM) Gary Stensland, WSDOT Megaprograms Environmental Manager Margaret Kucharski, and Seattle Department of Construction & Inspections personnel, including:

- A direct telephone number to the Graham ECM and/or Graham nighttime superintendent in the event nighttime measurements exceed, or have the potential to exceed, established noise-level limits, and to report any noncompliant activity.
- Coordinating with the Graham communications team on any updates or concerns from the neighborhood and residents.
- Coordinating with SDCI on any questions or concerns from the city regarding project noise.
- Providing weekly noise reports to WSDOT, SDCI, and Graham.

The INM compiled noise levels, noncompliance events, and public complaints into a weekly report and provided them to SDCI by the Wednesday of the following week. An example of these reports can be found in Appendix B.

### **CONSTRUCTION AREA AND EXTERIOR NIGHTTIME CONSTRUCTION NOISE-LEVEL LIMITS**

The MPPCNV established noise limits for nighttime noise-sensitive receivers in proximity to the project area. Nighttime noise-sensitive receivers are generally placed at residences where people are sleeping. Table A below identifies the noise monitoring terminal locations and the associated MPPCNV noise-level limits used to monitor compliance of the MPPCNV.

**Table A – Monitoring Sites and Allowable Noise Levels**

Site #	Address	Sound-Level Limits (Leq) dBA
1	2449 E Lake Washington Blvd	67
2	2015 E Roanoke St	78
3	3810 E McGilvra St	62
4	2800 Montlake Blvd E	66
5	2565 22nd Ave E	65
6	2160 E Hamlin St	63
7	2209 E Lake Washington Blvd	66
8	Portable monitor between sites 4 and 6	63
9	Portable monitor between sites 1 and 7	66
10	Portable monitor between sites 1 and 7	66



**Mitigation Measures to be Used During Nighttime Work**

The following mitigation measures are required by the project's MPPCNV to minimize construction noise except in case of emergency, as defined by Seattle Municipal Code (SMC) 25.08.110.

**Mitigation measures**

- The contractor will meet the noise-level limits established in the noise variance.
- The contractor will use broadband or strobe backup warning devices or use backup observers in lieu of backup warning devices for all equipment, in compliance with Washington Administrative Code (WAC), Sections 296-155-610 and 296-155-615. For dump trucks, if the surrounding noise level is so loud that broadband or strobe backup warning devices are not effective, then an observer must be used (WAC 296-155-610). This condition will apply to activity conducted between 10 p.m. and 7 a.m. Monday through Friday, and between 10 p.m. and 9 a.m. on Saturdays, Sundays, and legal holidays. No pure-tone backup warning devices will be used after 10 p.m. or before 7 a.m. on weekdays and 9 a.m. on weekends and legal holidays.
- The contractor will use mufflers and will reduce the point source noise emission by 10 dBA for equipment to reduce noise levels to meet the sound-level limits established in the MPPCNV when needed.
- The contractor will securely fasten truck tailgates.
- The contractor will not use compression brakes.
- The contractor will not leave equipment to idle for longer than 5 minutes.

**Additional noise mitigation**

- Equip nighttime surface equipment with high-grade engine exhaust silencers and engine-casing sound insulation.
- Use electric welders, powered from utility main lines, instead of gas, diesel or internal combustion generators or welders.
- Use critical or double mufflers where practicable on machinery for off-road use, such as cranes.
- Use noise blankets, skirts, or other available means for mobile equipment to mitigate noise that does not unreasonably interfere with the operation of the engine.
- Use temporary mobile noise barriers in the immediate vicinity of loud activities near residences.
- Use temporary noise barriers.
- Provide earplugs and white noise machines to residents near the project area.
- Install temporary sound-dampening drapes for residents.
- Provide hotel rooms for residents during high-impact or extremely noisy operations.

**COVID-19 Project Shutdown**

During the period beginning March 26, 2020, through May 14, 2020, the project was shut down at the direction of WSDOT due to the COVID-19 pandemic. From April 7 through May 13, the noise monitoring system was not operating while no work was being performed. Weekly reporting was produced as a matter of record but showed no noise information.

### Noncompliance Events

Tables B and C below tabulate the occurrences where the project was out of compliance with the MPPCNV. During this time, the project can account for 9 occurrences where the MPPCNV noise limits were exceeded and 21 occurrences where project crews were found to be out of compliance with MPPCNV/TNV noise mitigation measures during work.

See Tables B and C below and Appendix D for a detailed accounting.

Site	Non project-related exceedance*	Project-related construction under TNV ***	Project-related MPPCNV exceedance	Total
1	47	0	0	47
2	0	0	0	0
3	2	0	0	2
4	952**	8	0	960
5	48	2	0	50
6	15	0	8	23
7	2	0	0	2
8	5	2	0	7
9	180**	2	1	183
10	243**	4	0	247
<b>Total</b>	<b>1,494</b>	<b>18</b>	<b>9</b>	<b>1,521</b>

\*Non Project-related exceedances were primarily caused by public traffic adjacent to the noise monitoring site and are not further tabulated or addressed in this report.

\*\* Site #4 is located adjacent to Montlake Boulevard and sites #9 and #10 are located adjacent to Lake Washington Boulevard. These sites pick up a substantial amount of public traffic noise, as indicated by the high number of exceedances. Site #4 will be evaluated for location and / or sound level changes. Sites #9 and #10 will be evaluated for use according to the MPPCNV Decision requirements.

\*\*\* Occurrence where the MPPCNV noise level was exceeded, but a TNV was in place so the exceedance is not considered a noncompliance event.

Project-related noise exceedances, not covered by a TNV	9
Use of pure-tone alarms	17
Bed liners not used	3
Unsecured tailgates	1
Unshielded noise	1
<b>Total MPPCNV/TNV noncompliance events</b>	<b>31</b>

**WSDOT Environmental Compliance Assurance Procedure (ECAP) Addressing Noncompliance**

The ECAP is a WSDOT internal procedure designed to elevate and report noncompliance issues. This may include notifications of regulatory agencies, organization of cleanup activities, or further enforcement of the contract up to or including suspension of part or all of the work causing the noncompliance.

An ECAP was issued to document the incidence and resolution of noncompliance events when, in the opinion of WSDOT, the event could have been anticipated and prevented instead of resolved from previous events of a similar nature, lack of training, care or caution. Examples include:

- Loading concrete debris into unlined truck beds.
- Continued use of pure-tone alarms by same equipment or contractor and failure to turn them off.
- Noise exceedance with no mitigation, such as noise shielding or offering residences hotel rooms.

An ECAP was not issued when, in the opinion of WSDOT, the event could not have been anticipated, caused no exceedance, or a complaint was immediately remedied. Examples include:

- Pure-tone alarms on equipment with operators unfamiliar with the project requirements, such as material delivery, and alarms were immediately disabled with no exceedance or complaints.
- Not using bed liners when loading materials that are soft and don't make noise when being loaded, such as vegetation with no exceedance or complaints.
- Noise level exceedance that was immediately addressed and there no complaints.

On this project, there were 31 occurrences of noncompliance with 8 ECAPS issued. In several cases, noncompliance was bundled together as a single ECAP when the noncompliances are related for the work being performed. Example: eight noise-level exceedances bundled (truck with pure-tone alarm and unlined bed liners). In some cases, as noted above, ECAPS were not issued for noncompliance when, in the opinion of WSDOT, the event could not have been anticipated and caused no exceedances or complaints and was immediately remedied.

<b>Table D – WSDOT ECAP reports. Full reports are included in Appendix G.</b>	
<b>Date</b>	<b>Noncompliance</b>
9/13/2019	Noise exceedances for project nighttime construction. Monitoring system not reporting real-time data until midday Saturday.
10/11/2019	Dropping broken concrete into unlined dump trucks. COS TNV requires all trucks to have lined beds.
12/17/2019	MPPCNV noncompliance issues occurred: - Dump truck tailgate banging - Compactor having a tonal alarm - SPM truck hauling paint barrels having a backup tonal alarm - Power equipment with no shielding - Noise-level exceedance
1/29/2020	Equipment was identified to be equipped with and used a tonal backup alarm. - Equipment moving tractor trailer - New excavator being off loaded
2/6/2020	Pickup trucks at the south pit were identified to be equipped with and used a tonal backup alarm.
2/7/2020	Vehicles on-site with tonal backup alarms.
6/22/2020	Waste Management truck and mini-excavator with tonal backup alarms.
7/25/2020	Trucks and roller equipment with tonal backup alarms

### **MPPCNV Noncompliance Events and How They Were Addressed**

In all cases where work is out of compliance with the MPPCNV, the INM has stop-work authority. The INM actively worked with the design-build contractor staff to identify the work and make changes or stop the work altogether.

The design-build contractor also employed a project noise monitor that was on site during all nighttime work. The design-build contractor's noise monitor worked actively with crews to check compliance and make changes before noncompliance occurred. The design-build contractor's noise monitor also worked closely with the WSDOT INM to manage MPPCNV compliance.

- Project-related noise level exceedances
  - There were 9 project-related exceedance of the MPPCNV's allowable noise levels. Eight of these exceedances occurred on one night at a single location. A single WSDOT Environmental Compliance Assurance Procedure (ECAP) was issued for these exceedances collectively.
  - One ECAP was issued for noise exceedance where better planning and mitigation could have been used to reduce or eliminate the exceedance.
  - One exceedance occurred where no ECAP was issued as this was the result of the monitor being located directly adjacent to the work. Noise levels at the adjacent residence were within MPPCNV limits.
  - In all cases:



- Night work pre-activity planning always addresses potential noise issues and necessary noise mitigation measures. All efforts are made to shift noisy work to daytime.
  - Both WSDOT and the design-builder have noise monitoring staff with handheld monitors to work with crews to identify noise that may result in an exceedances.
  - Real-time project monitoring assists the noise monitoring staff to identify problems.
  - Public noise complaints are relayed to the field to address as soon as possible.
  - Both the WSDOT and design-builder noise monitors addressed excessive work noise with crew superintendents to modify work as needed to maintain work and address noise within MPPCNV limitations.
- Pure-tone alarms
    - The project INM documented 17 occurrences where the design-builder used pure-tone alarms during the nighttime work.
    - Of these, 14 were at a time where WSDOT determined the design-builder could have prevented use by education of equipment operators, equipment rental companies, or proactively checking and deactivating alarms before the nighttime work. These occurrences were noted in the MPPCNV weekly report and documented through the WSDOT Environmental Compliance Assurance Procedure (ECAP).
    - The remaining 3 occurrences were times where typical material or equipment delivery vehicles were new to the project and unaware of the backup alarm requirements. These occurrences were noted in the MPPCNV weekly report but not documented as a WSDOT ECAP.
    - The project received one public complaint from the use of pure-tone alarms.
    - In all cases, the alarm was either immediately shut off and not allowed to continue or the equipment was removed from the project. The INM informed SDCI, the issue was discussed at the weekly Environmental Task Force meeting, and additional training and reminders were sent out to crews, subcontractors and suppliers.
  - Bed liners
    - The project documented three occurrences of material loading without the use of bed liners.
    - Of these, WSDOT determined one occurrence where the design-builder could have prevented this by ensuring that crews and subcontractors were aware of the requirement and were in noncompliance. This occurrence was noted in the MPPCNV weekly report and documented through the WSDOT ECAP.
    - The remaining two occurrences were times when the material being loaded was primarily vegetation or other materials that makes very little noise when loaded. These occurrences were noted in the MPPCNV weekly report but not documented as a WSDOT ECAP.
    - The design-builder used mitigation measures to reduce the noise caused by loading material. Examples of these are lining truck beds with sand or gravel before loading and placing materials in the bed instead of dropping them.

- In all cases, the work was halted until changes in work operations could be made. The INM informed SDCl, the issue was discussed at the weekly Environmental Task Force meeting and additional training and reminders were sent out to crews, subcontractors, and suppliers.
- Unsecured tailgates
  - The project INM documented one occurrence of an unsecured tail gate banging. This event was documented through the WSDOT ECAP.
  - The design-builder made efforts to communicate to all trucking on the project that tailgates must be secured. Asphalt pavers that typically bang tailgates to clear remaining material have eliminated this practice on this project.
  - Review of this requirement is part of pre-activity planning when trucking will be used.
- Unshielded loud noise
  - The Project INM documented two occurrences of the design-builder not providing required shielding during work adjacent to residences
  - One occurrence was documented through the WSDOT ECAP as the noise could have been prevented and/or mitigated. The remaining one occurrence was not documented with a WSDOT ECAP as the duration was limited in time, and there was no apparent impact to the residences.
  - The design-builder has committed to the following:
    - Review work as part of pre-activity planning and the need for shielding.
    - Have shielding in place before work starts.
    - Have additional acoustic paneling on hand for all night work to be used as needed.

**Public Complaints**

Public complaints can come to the project by a variety of means:

- Project 24-hour phone hotline; if received at night, these hotline calls are immediately relayed to the field for resolution.
- Project email; these emails are relayed to the design-builder and resolution on the following business day.
- Call to project staff or project Ombudsman.
- Call to City staff or other agency representative.

In all cases, complaints are documented in a public correspondence log, and a response and follow-up is made as needed to resolve the issue as soon as possible. Below is a summary of complaints. A full detailed list can be found in Appendix E.

<b>Table E – Complaints related to the project</b>	<b>Number</b>
Public complaints for project-related noise associated with noncompliance events	12
Public complaints for project-related noise not associated with noncompliance events	21
Public complaints for noise not project-related	5
<b>Total</b>	<b>38</b>

### Differences Between the Weekly Report Totals to Date and this Report

During this period of performance and compiling data for this report, WSDOT found differences in the reporting numbers as shown below in Table F. WSDOT is providing this information to help the reader of the weekly reports and this annual report understand why there is inconsistency between reports.

<b>Table F – Differences between the weekly report totals to date and this report</b>		
	Weekly Report (8/10/2020)	This Report
Nights Worked	91	91
Project-related noncompliance	23	31
Noise issue comments to the project	33	38
Non-project related exceedances	1,518	1,494

#### Project-related noncompliance

- In early weekly reports, WSDOT reported only the number of noise level exceedances. Other noncompliance issues were reported as part of the report narrative but not accounted for on the front page totals. For example, on the night of 10/11/2019, there were three tonal alarms reported on the weekly narrative but not accounted for on the front page totals. This practice of accounting for only exceedances accounts for the eight noncompliance events difference. This practice was later changed and the reporting item on the front page of the weekly report was revised from “Exceedance” to “Noncompliance” and now accounts for both exceedances and other noncompliance events.

#### Noise issue comments to the project:

- This report includes all noise complaints received to the Project. The accounting for public complaints on the weekly reporting does not include non-project related complaints. These complaints are reported on the back page of the weekly but not included in the front page accounting.

#### Non-project related exceedances

- After a review of all weekly reports in preparation of this report, we found several instances where the count for the week was incorrectly reported on the weekly report for example, there were six weekly reports that showed exceedance at site #2 incorrectly (site #2 has a higher compliance value than other sites). In sum, we found that the weekly reporting was off by 24 occurrences for the year.

### Temporary Noise Variance (TNV)

Because not all necessary nighttime activities could be completed within the limits of the MPPCNV, the design-builder sought TNVs on five occasions for 11 nights of work. WSDOT worked closely with the design-builder to ascertain whether the TNV was unavoidable and on several occasions determined that a TNV was not necessary. During weekends when the TNVs were issued, Graham and WSDOT worked to concentrate the noisiest activities into one night, rather than disrupt neighbors for multiple nights.

WSDOT applied for and received one TNV for geotechnical investigations at the Montlake Market.

Examples of work where a TNV was necessary are demolition of streets and structures requiring lane closures that are allowed only at night.

Below is a list of TNVs received for the project. Refer to Appendix D for noncompliance events related to TNVs issued to the project.

<b>Date (first night)</b>	<b>TNV #</b>	<b>Purpose and scope of work</b>
8/5/2019	6740760-NV	Geotechnical investigation on SR 520 mainline. Lane closures not allowed during daytime hours.
8/23/2019	6738972-NV	Issued to WSDOT for Montlake Market geotechnical investigation.
10/11/2019	6752387-NV	SR 520 mainline pavement demolition. Duration and sequencing of work required demolition work to start during first night.
11/8/2019	6755617-NV	SR 520 mainline pavement demolition. Duration and sequencing of work required demolition work to start during first night.
1/4/2020	6764797-NV	Repair of unstable side slope requiring nighttime lanes closure on SR 520 mainline.
7/24/2020	6790685-NV	Weekend closure of Montlake Blvd at SR 520. During this closure, various work took place, including: waterline installation, pavement removal, signal relocations, paving and pavement marking.

### List of Appendices

Appendix A	INM Responsibilities, Organizational Chart and Protocol for Construction Noise
Appendix B	Example of Weekly report
Appendix C	Table of Nights Worked
Appendix D	Table of Noncompliance Events and Resolutions
Appendix E	Table of Public Complaints and Resolutions
Appendix F	Table of TNVs
Appendix G	Environmental Compliance Assurance Procedure (ECAP) Reports