



CITY OF KIRKLAND
Police Department
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MEMORANDUM

To: Kurt Triplett, City Manager

From: Cherie Harris, Chief of Police
Todd Aksdal, Deputy Chief
John Starbard, Deputy Director

Date: June 22, 2023

Subject: Automated Noise Enforcement Briefing

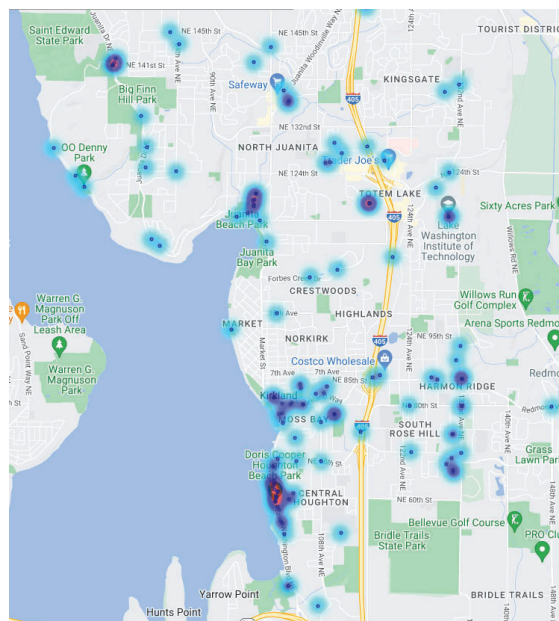
RECOMMENDATION:

It is recommended that the City Council receive a briefing on the Street Racing Noise Pilot Project.

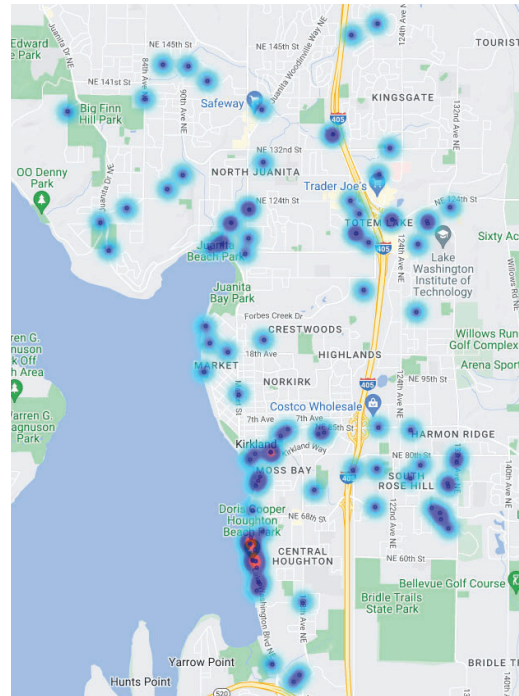
BACKGROUND DISCUSSION:

In 2019, the Washington State Legislature approved a budget proviso for the Washington Traffic Safety Commission (WTSC) to oversee a pilot program in up to three cities, implementing the use of automated vehicle noise enforcement cameras.

After receiving a considerable increase in street racing & noise complaint calls for service in various locations in the City, the Department sought authorization from the WTSC to conduct a pilot program. In 2021, there were 144 calls for service that included the keyword "racing" in the dispatch narrative:



During the same timeframe, there were 95 calls for service that included the keyword “exhaust” in the dispatch narrative:



Heatmaps illustrate that the highest concentration of both types of calls for service occurred along Lake Washington Blvd NE.

The Washington Administrative Code that relates to motor vehicle exhaust system noise performance standards is WAC 173-62-030. The WAC restricts vehicle noise by age, weight, and type of vehicle (**Attachment A**). The Department does not train Officers in the use of vehicle noise monitoring equipment for enforcement of the WAC as there are too many variables, but RCW 46.37.390 “Mufflers required” provides a simple way to conduct enforcement of vehicles with modified exhaust. Unfortunately, enforcement of only a vehicle with a modified exhaust is not an equitable or far-reaching solution as it does not include loud vehicles with a factory installed system.

WTSC approved the use of a pilot program in Kirkland, through an agreement with Cithaeron Inc, a local company developing integrated vehicle noise camera technology. Although the proviso indicated that an Ordinance was required to be implemented by the City as a “Stay Out of Areas of Racing” the WTSC did not require a new local law, due to the inability of Cithaeron and the Department to issue warning notices. Cithaeron does not currently have an agreement with the Department of Licensing to access motor vehicle license information like automated speed safety camera systems. The Department does not currently have the Staffing needed to conduct vehicle license information manually and although the technology is rapidly advancing, it’s still too new to issue warnings.

On September 1, 2022, the Department signed an agreement with Cithaeron to provide two automated vehicle noise devices for an initial term of six months. Due to the normal permitting process, the devices were not operational until November of 2022. Public Works Transportation Operations Division has supported the pilot project by conducting all of the installation of signage and equipment.

Cithaeron installed the first device at the intersection of Lake Washington Blvd NE and NE 59th St, near Houghton Beach Park. “Street Racing Noise Pilot Program in Progress” signs were installed to warn motorists, an informative landing page was developed for the City’s website and a press conference was held to ensure the community was aware of the program.

The picture below was captured in October 2022, and provides a visual representation of the signage and the first automated noise equipment that was installed on Lake Washington Blvd and NE 59th Street.



During the first month, more than three thousand incidents with sounds exceeding 80 dB were captured. These incidents are stored in a secure, cloud system, with access limited to Cithaeron staff and city personnel upon request. To ensure privacy, facial features are blurred.

While the intention was to install a second device at Central Way and Sixth Street, the weather conditions during the winter months were too much for the initial equipment designed to protect the noise capturing technologies.

In May 2023, a new device with better weather protection and sound detection was installed at the same location and is currently capturing incidents. Lake Washington Blvd NE has continued to be the primary location of community concern when it comes to loud exhaust complaints. In 2022, the Traffic Sergeant received eleven complaints from community members regarding loud exhaust. Seven of the eleven complaints were associated with Lake Washington Blvd NE. Year to date in 2023, the Traffic Sergeant has received four complaints from community members regarding loud exhaust. Two of the four complaints were associated with Lake Washington Blvd NE.

The following table includes details related to the device:

Device components	1st Device – installed Nov 2022	2 nd Device – installed May 2023
Microphones	8	16
Case	3 component w/o bracket mount	2 component w/ bracket mount
Motherboard	Xavier	Orin
Camera	USB	USB (Swappable to Basler)
Networking	SIM, onboard modem	4g/5g Networking

Weather protection improvements include:

- Gore vent placement redesigns
- Front-facing array panel microphone hole redesign
- Sealing functionality
- Water displacement mesh over microphone holes

Cithaeron is currently exploring different sound pressure capture ranges (from 80db > 92db+) to better assess feasibility and incident capture. When the sound threshold is triggered, a twenty-second audio-video recording is captured. The recording is agnostic to the source, and can include vehicle/s, equipment, or heavy machinery. A heat-dot indicates the likely source of the preset sound pressure or higher sound. The heat dot is a color-coded representation of the microphone beamformer tracking. Cithaeron is also experimenting with several new forms of heat-dot tracking including a larger sound map and object recognition.

The partnership between the Department and Cithaeron is the first pilot project in the State of Washington. The Legislature recently extended the Proviso until June 2025, and the partnership in Kirkland will continue through the end of the summer.

NEXT STEPS:

The Department recommends that the Council receive a presentation regarding this pilot program at their July 5, 2023 meeting.

WAC 173-62-030 Standards. (1) No person shall operate any motor vehicle or any combination of such vehicles upon any public highway under any conditions of grade, load, acceleration or deceleration in such a manner as to exceed the maximum permissible sound levels for the category of vehicle in Table I, as measured at a distance of 50 feet (15.2 meters) from the center of the lane of travel within the speed limits specified, under procedures established by the state commission on equipment in chapter 204-56 WAC, "procedures for measuring motor vehicle sound levels."

Table I
IN-USE MOTOR VEHICLE NOISE PERFORMANCE STANDARDS
Measured @ 50 feet (15.2 meters)

Vehicle Category (type)	Effective Date	Maximum Sound Level, dBA Speed Zones			Stationary Test
		45 mph (72 kph) or less	Over 45 mph (72 kph)		
Motorcycles	July 1, 1980	78	82		N/A
Automobiles, light trucks and all other motor vehicles 10,000 pounds (4536 kg) GVWR or less	July 1, 1980	72	78		N/A
		35 mph (56 kph) or less	Over 35 mph (56 kph)		
All motor vehicles over 10,000 pounds (4536 kg) GVWR	June 1, 1977 1986 and after	86 Reserved	90 Reserved	86 Reserved	

(2) Every motor vehicle operated upon the public highways shall at all times be equipped with an exhaust system and a muffler in good working order and constant operation to prevent excessive or unusual noise.

(3) No person shall operate a motor vehicle in such a manner as to cause or allow to be emitted squealing, screeching or other such noise from the tires in contact with the ground because of rapid acceleration or excessive speed around corners or other such reason, except that noise resulting from emergency braking to avoid imminent danger shall be exempt from this provision.

(4) No person shall operate any motor vehicle upon any public highway if the vehicle exhaust system exceeds the maximum permissible sound levels of Table II for the category and year of vehicle, as measured at a distance of twenty inches (0.5 meter) from the exhaust outlet under procedures established by the state commission on equipment in chapter 204-56 WAC, "procedures for measuring motor vehicle sound levels."

(5) No person shall sell or offer for sale a NEW MOTOR VEHICLE except an off-highway vehicle, which produces a maximum noise exceeding the noise levels in Table III at a distance of 50 feet (15.2 meters) under acceleration test procedures established by the state commission on equipment in chapter 204-56 WAC, "procedures for measuring motor vehicle sound levels."

Table II
IN-USE MOTOR VEHICLE EXHAUST SYSTEM NOISE PERFORMANCE STANDARDS
Measured @ 20 inches (0.5 meters)

Vehicle Category (type)	Model Year	Maximum Sound Level, dBA
Motorcycles	before 1986	99
	1986 and after	(reserved)
Automobiles, light trucks and all other motor vehicles 10,000 pounds (4536 kg) GVWR or less	before 1986	95
	1986 and after	(reserved)

Table III
MAXIMUM SOUND LEVELS FOR NEW MOTOR VEHICLES
Measured @ 50 feet (15.2 meters)

Vehicle Category (type)	Date of Manufacture	Maximum Sound Level, dBA
Any motor vehicle over 10,000 pounds (4536 kg) GVWR excluding buses	before January 1, 1978	86
	after January 1, 1978	83
	after January 1, 1982	80
All buses over 10,000 pounds (4536 kg) GVWR	after January 1, 1980	85
	after January 1, 1983	83
	after January 1, 1986	80
Motorcycles	after January 1, 1976	83
	after January 1, 1986	80
Automobiles, light trucks and all other motor vehicles 10,000 pounds (4536 kg) GVWR or less	after January 1, 1976	80

[Statutory Authority: Chapter 70.107 RCW. WSR 80-14-041 (Order DE 80-29), § 173-62-030, filed 9/30/80; Order DE 77-2, § 173-62-030, filed 6/1/77; Order DE 75-17, § 173-62-030, filed 8/11/75; Order DE 74-33, § 173-62-030, filed 1/30/75, effective 7/1/75.]