Steel Bridge Skatepark

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and
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MEMO

Date: **May 23, 2001**
To: **Skateboarding Task Force Members**
From: **Paul Van Orden, Noise Control Officer**
Phone number (503) 823-5829
Re: **Noise impacts from a proposed, skateboard park under the Steel Bridge.**

Over the last few months I have been making observations and sound level readings at a number of skateboarding parks in our area, as well as studying the proposed skate park site under the Steel Bridge in the Old Town neighborhood of Portland. The purpose of my visits has been to compare sound levels and the impact of existing skateboarding locations to the potential future location of a skatepark under the Steel Bridge. This memo serves the purpose of providing my initial impressions on the use of the Steel Bridge location as a skateboarding facility.

Observations have been made at a number of skateboarding facilities in the State of Oregon. These locations include parks in Saint Helens, Scappoose, Tualatin, Newberg, and Portland. Measurements have focused on two primary locations: the Portland Burnside skate park located under the East side of the Burnside Bridge, and at a very large outdoor facility located in Newberg Oregon. All of the parks were public owned and operated.

My initial conclusion is that locating a skateboarding facility on the undeveloped property adjoining and underneath the West side ramps of the Steel Bridge will provide limited noise impacts on the surrounding community.

The impact on the neighboring daytime offices can easily be minimized through adequate planning and design of the skateboarding facility. Any potential noise impacts to existing residential neighbors are mitigated by the physical distance of the proposed park to residential locations. The area is also frequented by regular roadway, rail, and helicopter traffic, which will help to mask the sound from a skateboard park. I will expound on the initial sound level information I have gathered, which has lead to my conclusions. I have attempted to express the information in a lay-persons terms, however some of the information is inherently technical in nature. It is my intention to continue collecting data

to further analyze potential noise impacts to a rapidly growing area of the City. I will keep the Skateboarding Task Force updated on my findings.

A Description of Skateboarding Related Noise

The main concern from a correctly paved and smooth surface concrete skateboard park is not from the skateboards or roller-bladers rolling around the facility. Urethane wheels of the average hardness used by modern skateboarders are not inherently loud unless they are applied to rough surfaces. The main source of sound I have measured has been from the skateboarders hitting the tail or nose of their skateboards on to the ground or edges of one of the skateboarding bowls and surfaces. The riders are hitting their tails to help project themselves in the air. (Hence, the commonly heard skateboarding jargon "getting air".) The result of a rider hitting the nose or tail on another hard surface creates a sound that one might compare to the short instantaneous sound a baseball makes when hit by a bat Instantaneous sound levels for an individual skateboard making the tail popping type of sound range from approximately 65 to 71 decibels (dBA Fast) at fifty feet. This sound is very short in duration and easily controlled by the use of any basic barrier or obstruction.

The second sound that one might be concerned about is the sound of the skateboard trucks hitting the various metal pipes located on the edges of the skateboarding surfaces. The "trucks'° are the metal axles that facilitate the turning operation of a skateboard. One of the goals that modern skateboarders attempt to achieve is sliding along metal surfaces in the skateboard park on their trucks. The noise can best be described as a metal grinding type of sound. Imagine rubbing two pieces of steel together. This sound can be minimized by pumping in a sand like substance into the actual metal pipes that the skateboarders ride over. r The sand or some other resilient material limits the ability of the metal to resonate sound into the community. A little engineering work up front can help to virtually eliminate this source of sound from being a concern. This sound ranged from 54 to 63 decibels (dBA Fast) at fifty feet.

Decibel Levels Predicted at Neighboring Properties

Projected decibel levels at Neighboring properties are predicted at the levels below at two noted locations. These predictions are based on the sound having a direct path to reach the noise receiver locations. The predictions do not include any corrections for potential sound mitigation, which will further reduce the sound levels.

Location	**Tail and Nose related sounds**	**Skateboard Truck related sounds**	**Approximate Distance from edge of Park to location**
Reference measurements	*65-71 dBA*	*54-63 dBA*	*50 ft. from skateboard*

Outside the Eastern wall of the ODOT Offices at SW 1st between NW Flanders and Glisan	59-65 dBA	48- 57 dBA	100 feet
Inside the ODOT offices along the Eastern facade of the building	49-55 dBA	38- 47 dBA	100 feet
Outside the closest residence at the McCormick Pier Apartments	53-59 dBA	42-51 dBA	250 Feet
Inside the closest residence at the McCormick Pier Apartments	43-49 dBA	32-41 dBA	250 Feet

The loudest sound level predicted above is 65 dBA. This sound level is comparable to the level of a moderate conversation between two individuals. Average conversational levels have been noted in my experience to range from 59 ABA to 63 dBA. The loudest level predicted inside the residences at the McCormick Pier apartments is 49 dBA. This is very similar to my estimates on the nighttime ambient levels for the apartment complex.

A hour long sample was measured in the center of the proposed skateboard park site at 9 PM on a weekday evening. The sound meter was centrally located from the surrounding traffic roads and ramps to minimize the one individual mad or ramp froin effecting the overall recorded levels. Due to construction on the Interstate Light-rail project, no trains passed through the area during the measurement period. There was one helicopter that landed and took off during the measurement. The helicopter reached peaks of 81 to 82 dBA and headed North over the McCormick Pier Apartments at a similar height standard to the level it passed over the sound level meter.

During the measurement, I recorded an ambient hourly Leq level at 52.9 dBA, and an L50 of 54.8 dBA. The Leq can be best described to a lay-person as a tool used by acoustical engineer to determine the average sound energy present during a defined measurement period. The L50 level simply means that the sound level reached 54.8 dBA for a 50 percent or greater period of time. The L90 was 50.4 dBA, so 90 percent of the time the level is at 50.4 dBA or greater. The L 10 noise descriptor, which accounts for more intermittent sources, reached 61.7. Had I made daytime ambient measurements, I would anticipate approximately an 8 dBA increase in the average level of sound.

Suggestion on Noise Concerns from the Community

In the process of working with the community on this project, if the potential impact of noise becomes a growing concern, I would offer the following suggestion: Neighbors should visit one of the skateboard parks noted above. It would be most helpful to see and hear the sources of noise. Burnside skateboard park offers one a good example of how effective background noise from roadway traffic can mask the majority of sound from a

skateboard park. The large skateboard park in Newberg is isolated from traffic noise, other than an occasional train. It allows the listener to hear only the sounds that one would hear from skateboarding. However, locating a park under the Steel Bridge would be closer to the sound-scape found at the Burnside skateboard facility