

HIGHLIGHTING ENVISION CREDITS



QL1.4 Minimize Noise and Vibration



**Institute for
Sustainable
Infrastructure**



ENVISION™



Envision includes 64 sustainability and resilience indicators, called 'credits', organized around five categories.

CREDIT HIGHLIGHT

QL1.4

Minimize Noise and Vibration



CREDIT INTENT

Minimize noise and vibrations during operations to maintain and improve community livability.



METRIC

The extent that operational noise and vibration is assessed and mitigated, and target levels achieved.



QUALITY OF LIFE: WELLBEING

WHAT DOES THIS CREDIT ADDRESS?

Noise and vibrations during *project operations*.

“Noise” is defined as an unwanted or disturbing sound. It becomes unwanted when it interferes with normal activities or diminishes quality of life.

(Credit QL1.6 Minimize Construction Impacts addresses construction-related noise and vibrations.)



WHY IS THIS IMPORTANT?

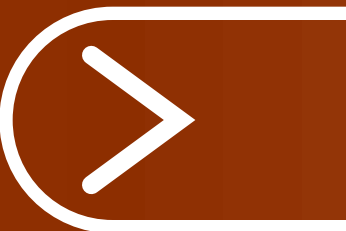
- ▷ Addressing operational noise is an important step for *incorporating infrastructure into communities* and the environment.
- ▷ This is particularly true during *stakeholder engagement* to demonstrate that community concerns are being heard.
- ▷ Setting noise reduction targets can often provide an impetus to *consider creative and innovative alternative* solutions.





Project teams should realize that noise:

- ▷ Is a common complaint against a wide variety of infrastructure projects.
- ▷ Can have significant negative health effects, including hearing impairment, hypertension, and sleep disturbance.
- ▷ Can reduce performance in cognitive tasks.
- ▷ Can also interfere with animal communication.



QL1.4

Minimize Noise and Vibration

Guides project teams to:

1. Assess the potential for *operational noise impacts* on the surrounding community and/or environment.
2. Mitigate noise generated as a result of the project and *document noise mitigation measures*.

QL1.4

Minimize Noise and Vibration

Guides project teams to:

4. Set or *adopt target noise levels*.
5. Engage *impacted stakeholders* on issues of noise and vibration impacts, mitigation strategies, and target levels.
6. Maintain or *reduce existing noise* levels.



IN PRACTICE

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Minimizing noise and vibration from plant operations was deemed to be a high-priority issue for the City of Red Deer's Water Treatment Plant Residuals Management Facility. Several noise and vibration studies, including a 48-hour ambient noise and vibration monitoring survey and a noise and vibration assessment from an operating facility, were conducted to predict airborne, structure-borne and ground-borne noise and vibration that could be present during construction and when the project is fully operational. Studies found that the facility, when operational, could potentially exceed the recommended nighttime noise limit of 50 dBA at nearby residential developments. Therefore, changes were made to the project's design to reduce noise levels to below this limit. For example, the project team reduced noise and vibration by adjusting the power levels of the facility's HVAC (heating, ventilation, and air conditioning) system and using acoustic liners for the ductwork. Also, the centrifuge room's concrete floor was separated from the outer walls and the rest of the floors to further reduce noise and vibrations during facility operations.

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