

W. 72ND AVENUE - KIPLING ST. TO SIMMS ST.

NOISE ANALYSIS

As part of the W. 72nd Avenue Bond Project, a series of noise analyses were conducted to identify the noise impact of widening W. 72nd Avenue between Kipling and Simms streets.



CONCEPTUAL RENDERINGS



HOW IS NOISE DEFINED?

Studies have shown that changes in noise levels of 3 decibels or less are not normally detectable by the average human ear. An increase of 5 decibels is generally readily noticeable by anyone, and a 10-decibel increase is usually felt to be “twice as loud” as before.

EXPERIENCE DECIBELS LEVELS

Go to YouTube.com and search “What Does a Decibel ‘Sound’ Like?” to experience a comparison of traffic noise levels in decibels.

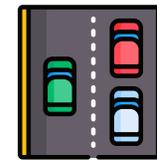
NOISE COMPARISON



Human Hearing
0
DECIBELS



Peaceful Neighborhood
40-50
DECIBELS



Busy Urban Street
70-80
DECIBELS



747 Plane Taking Off
110
DECIBELS

RESULTS OF PROJECT NOISE ANALYSIS



Using CDOT Noise Analysis and Abatement guidelines, the first noise analysis on W. 72nd Avenue was conducted in September 2019. In order to get the most accurate sound results, traffic needs to be free flowing at or near the posted speed limit. Existing noise levels were monitored and data collected from noon and 2:30 p.m. This data is important to be able to develop a comparison between the existing measurements and results obtained with the future predictive modeling software. This exercise is performed to validate the model results so that it can be used with confidence to predict the future noise levels.

MODEL ANALYSIS

Modeling for the W. 72nd Avenue project was completed by predicting noise levels at 348 noise sensitive locations throughout the corridor.

DECIBEL CHANGE COMPARED TO EXISTING NOISE

- With the proposed project, sound levels would increase by one decibel.
- Based on projected traffic volumes by 2040, widening the road would increase sound by 0.4 decibels more than if there were no roadway improvements.

TOTAL DECIBEL RANGES

Existing: 43.5 to 66.8 decibels	Future No-Build: 44.1 – 67.2 decibels	Future Build: 44.1 to 67.4 decibels
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YOU SPOKE. WE LISTENED.



The noise analysis results were presented at the public open house in November 2019, and some residents were concerned that the project would create a greater change in sound levels than the model predicted. The City listened to these concerns and hired an outside noise specialist to conduct a second noise analysis which confirmed the original results were accurate.

EVALUATION OF NOISE BARRIERS



CDOT's Noise Analysis and Abatement guidelines state that a proposed noise wall must be both feasible and reasonable. Feasible is defined as:

- Having a height of 20 feet or less
- Providing noise reduction of at least 5 decibels
- Constructed without major engineering or safety issues.

Reasonable is defined as:

- Providing a noise reduction of at least 7 decibels
- Constructed in a cost-efficient manner
- The community desires the wall

BARRIERS EVALUATED

Three noise barriers were evaluated as part of this project. None of barriers were able to meet the feasible and reasonable criteria.

LEARN MORE

NOISE FAQS:
codot.gov/programs/environmental/noise/noise-faqs

PROJECT WEBSITE & NOISE REPORTS:
arvada.org/w-72nd-avenue-project