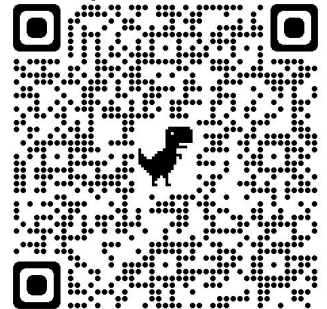


GES Noise Workshop

Taller de Ruido GES

8 Oct 2022

This presentation:
Esta presentación:





COLORADO
Department of Transportation
Office of Communications

Dear [REDACTED]

Thank you for your recent inquiry related to: How to request sound walls along I-25 in Globeville.
I-25 Globeville

Most highway noise abatement (e.g., noise barriers) in Colorado are built by Colorado Department of Transportation (CDOT) as a result of a Federal regulation (Title 23 Code of Federal Regulation Part 772 [23 CFR 772]; Procedures for Abatement of Highway Traffic Noise and Construction Noise).

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1. CDOT must plan to do a construction project in the area
2. Project type is determined, referring to Type I or III projects. All projects are either Type I or Type III. Project types are defined in 23 CFR 772.5. Only Type I projects are analyzed for potential noise mitigation because they could increase noise levels. Examples include adding through-traffic lanes or completing partial interchanges.
3. Noise analysis is conducted for all Type I projects to determine if any receptors (e.g., homes, schools, parks, offices) will be impacted due to the proposed construction project. "Impact" is defined for different types of receptors by the CDOT Noise Analysis and Abatement Guidelines.

4. If analysis shows that any receptors are impacted, CDOT analyzes the feasibility and reasonableness of noise mitigation for the impacted receptors. In order for CDOT to recommend noise mitigation, the mitigation must be shown to be feasible and reasonable.

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I see no type 1 projects on I-25 Globeville on the 10 Year Plan. If one gets funded it will be difficult to miss the Public Meeting notices.

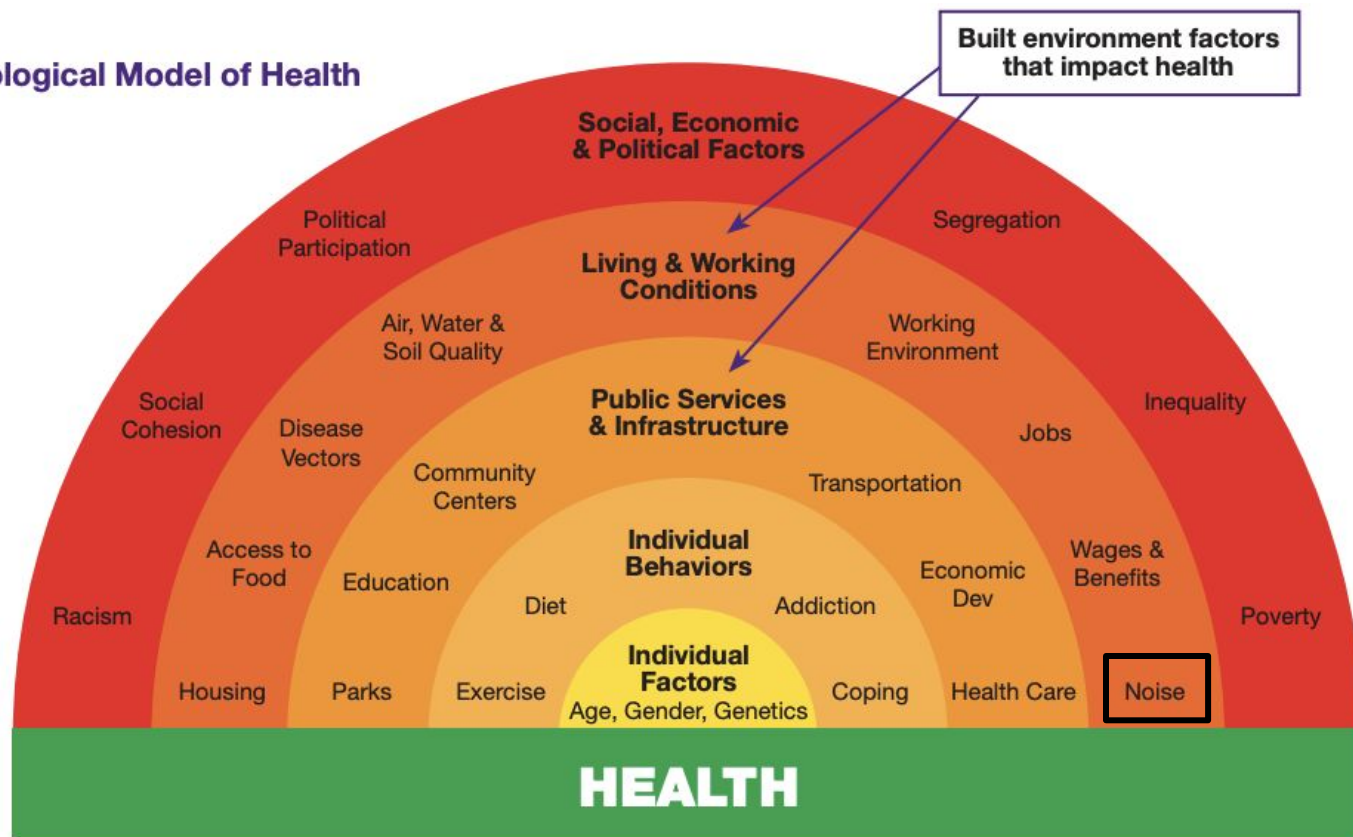
<https://www.codot.gov/programs/your-transportation-priorities/your-transportation-plan>

If there is any way I can assist you further please contact us.

Best Regards,

The CDOT Customer Service Team

FIGURE 2:
A Socio-Ecological Model of Health



SOURCE: World Health Organization

Noise vs Sound

Noise: unwanted or disturbing sound that disturbs normal activities and alters quality of life

Sound: a particular auditory expression; the sensation perceived by the sense of hearing

Ruido vs Sonido

Ruido: sonido no deseado que molesta actividades normales y altera la calidad de vida

Sonido: una expresión auditiva particular; la sensación percibida por el sentido del oído

What is a Decibel?

Decibel (dB): unit of measurement for sound

A-weighted Decibels (dBA): the relative loudness of sounds in the air as recognized by our ears

Que es un Decibel?

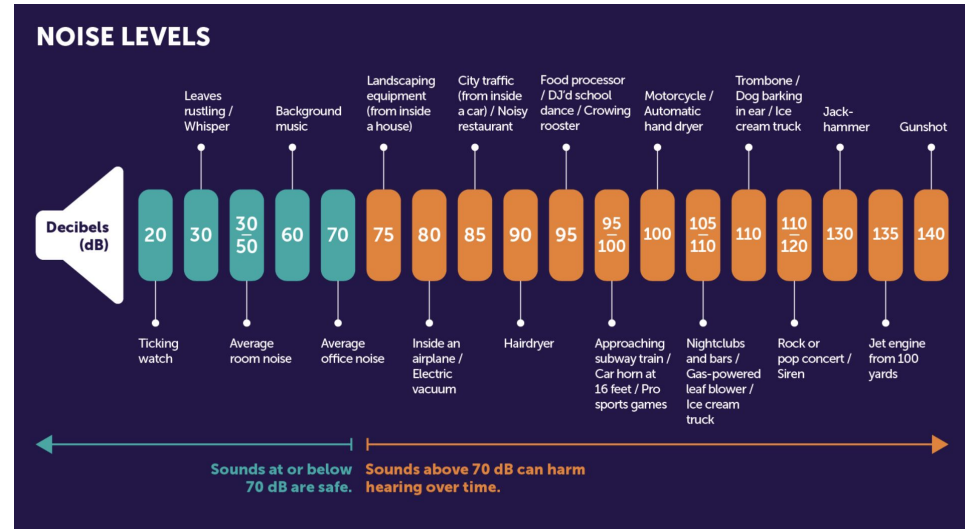
Decibel/Decibelio (dB): unidad de medida de la intensidad sonora

Decibeles con ponderación A (dBA): el volumen relativo de los sonidos en el aire reconocido por nuestros oídos



Typical Noise Levels

Noise Source	Noise Level (dBA)
Commercial Jet	110-120
Shouting at 5 feet	95-105
Heavy Truck/Motorcycle at 25 feet	85-95
Freeway Traffic at 50 feet	70-80
Conversational Speech at 5 feet	55-65
Quiet Neighborhood	45-55
Living Room	35-45
Remote Outdoor Location (no wind)	20-30
Threshold of Hearing	0



Health Impacts

Short-Term

- Annoyance
- Stress
- Poor sleep
- Decreased learning in children

Long-Term

- High blood pressure
- Cardiovascular disease
- Stroke
- Hearing loss

Impactos de Salud

A Corto Plazo

- Molestia
- Estrés
- Falta de sueño
- Disminución de aprendizaje en los niños

A Largo Plazo

- Presión alta
- Enfermedad cardiovascular
- Derrame cerebral
- Pérdida de la audición



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What is **23 CFR 772**?

23 CFR 772 is an **amendment** to the original **1970 Federal Highway Act**

- **States** must provide guidelines for **projects** that may pose environmental, social or economic risks before Federal aid is given to that project
- Noise levels are addressed, but only in response to a **planned project**

Que es **23 CFR 772**?

23 CFR 772 es una **enmienda** a la **Ley de Autopistas Federal de 1970** original

- **Estados** deben de proveer pautas para **proyectos** que puedan presentar riesgos ambientales, sociales o económicos antes de que se otorgue ayuda federal al proyecto
- Niveles de ruido son reconocidos pero solo como respuesta al **proyecto planeado**



Programs

[Home](#) | [Programs](#) | [Environmental](#) | [Noise](#) | When and Why CDOT Builds Noise Mitigation

Resources

[Regulations, Guidelines & Policies](#)

[When and Why CDOT Builds Noise Mitigation](#) >

[Noise Program Book \(Updated March 2015\)](#)

[Noise FAQs](#)

[Noise Research Studies](#)

When and Why CDOT Builds Noise Mitigation

Most highway noise abatement (e.g., noise barriers) in Colorado are built by CDOT as a result of a Federal regulation (Title 23 Code of Federal Regulation Part 772 [23 CFR 772]: Procedures for Abatement of Highway Traffic Noise and Construction Noise). Other noise barriers are built by private developers, local government agencies, and private citizens

In order for an area to qualify for noise abatement to be built by CDOT, the following steps must be followed:

1. CDOT must plan to do a construction project in the area.
2. The project is classified as being either Type I or Type III. Project types are defined in 23 CFR 772.5. Only Type I projects are analyzed for potential noise mitigation. Examples include adding through-traffic lanes or completing partial interchanges. Projects such as repaving or adding turn lanes are classified as Type

Environmental Programs Branch News

[Coffee at CDOT Aug 31, 2022](#)

[New Version of CDOT's Planning & Environmental Linkages Handbook Published Jun 14, 2022](#)

[New EPB Environmental Policy and Biological Resources Manager Jun 14, 2022](#)

[Updated Federal Lands MOU May 23, 2022](#)

<https://www.codot.gov/programs/environmental/noise/when-and-why-cdot-build-s-noise-mitigation>

Questions?/Preguntas
?



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What is **a receptor**?

A **receptor** is a noise-sensitive property where highway traffic noise may be detrimental to the outdoor enjoyment and functional use of the property.

Noise sensitive receptors include:

- Parks
- Schools
- Offices
- Residential areas
- Hospitals
- Daycare facilities

CDOT's noise study zone is **500 feet from the edge of highway travel lanes**.

Que es **un receptor**?

Un **receptor** es una propiedad sensible al ruido donde el ruido de tráfico de autopista puede ser perjudicial para disfrutar al aire libre y el uso funcional de la propiedad.

Receptores sensibles al ruido incluyen:

- Parques
- Escuelas
- Oficinas
- Areas residenciales
- Hospitales
- Guarderías

La zona de estudio de ruido de CDOT está a **500 pies del borde de los carriles de la autopista**.

What defines **impact**?

According to **CDOT**:



For **residences, schools and parks**: **66 dB or higher**

For noise sensitive **businesses**: **71 dB or higher**

(<https://www.codot.gov/programs/environmental/noise/noise-faqs.html>)

According to the **EPA***:  United States Environmental Protection Agency

For **interiors**: **45 dB or higher**

For **exteriors**: **55 dB or higher**

(<https://www.pewtrusts.org/-/media/assets/external-site/s/health-impact-project/globeville-and-elyria-swansborough-neighborhood-plan-hia.pdf>)

¿Qué define el **impacto**?

Segun **CDOT**:



Para **residencias, escuelas, y parques**: **66 dB o más**

Para **negocios sensibles al ruido**: **71 dB o más**

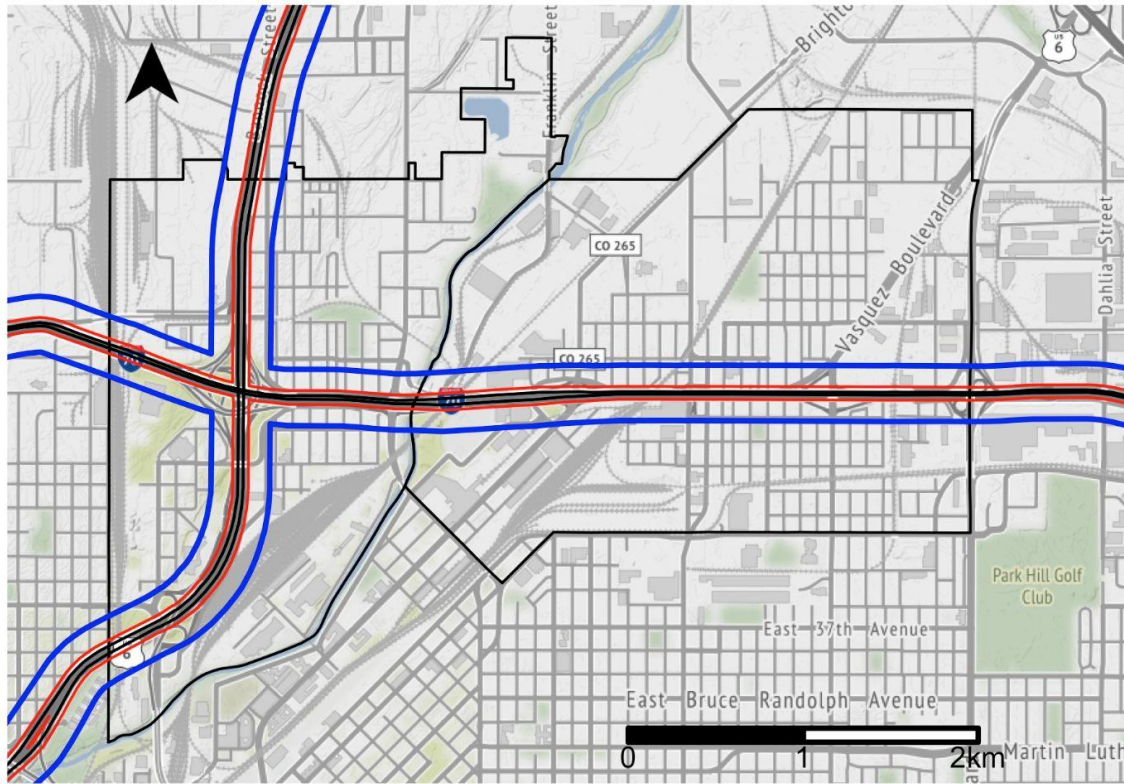
(<https://www.codot.gov/programs/environmental/noise/noise-faqs.html>)

Segun **EPA**:  United States Environmental Protection Agency

Para **interiores**: **45 dB o mas**

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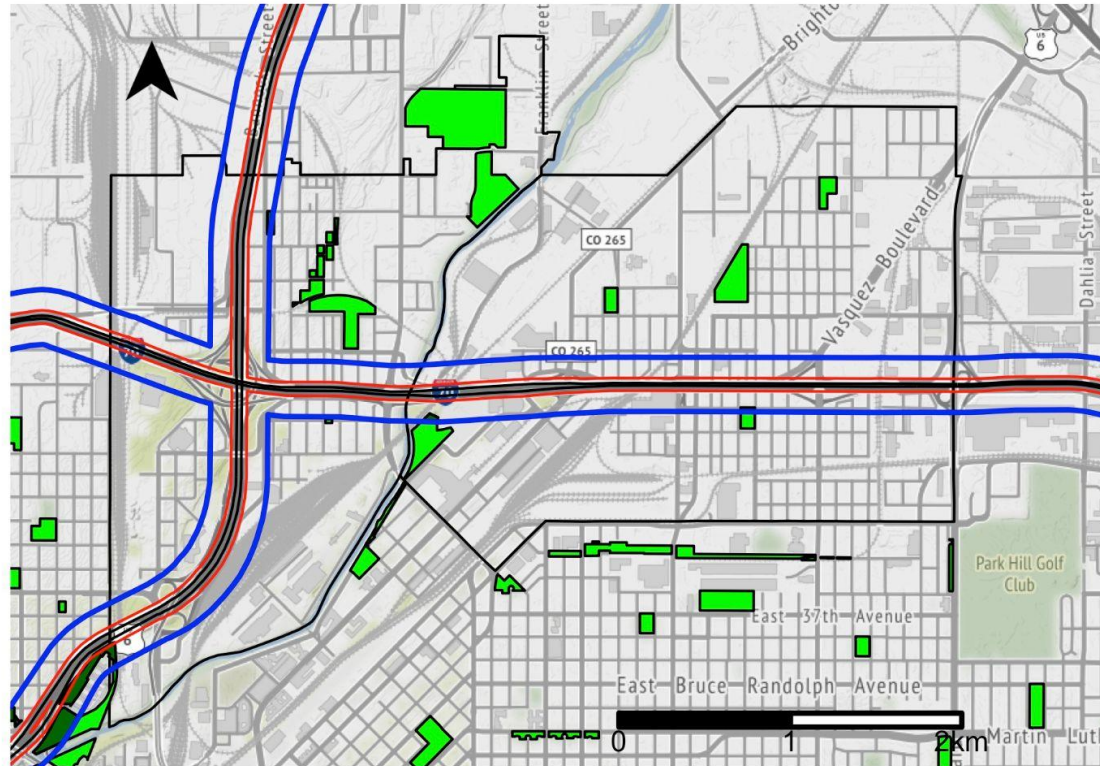
(<https://www.pewtrusts.org/-/media/assets/external-sites/health-impact-project/globeville-and-elyria-swansborough-neighborhood-plan-hia.pdf>)



Distance from Highway
Distancia Desde la Autopista

- 100 ft
- 500 ft

Parks and Open Space/Parques y espacios abiertos



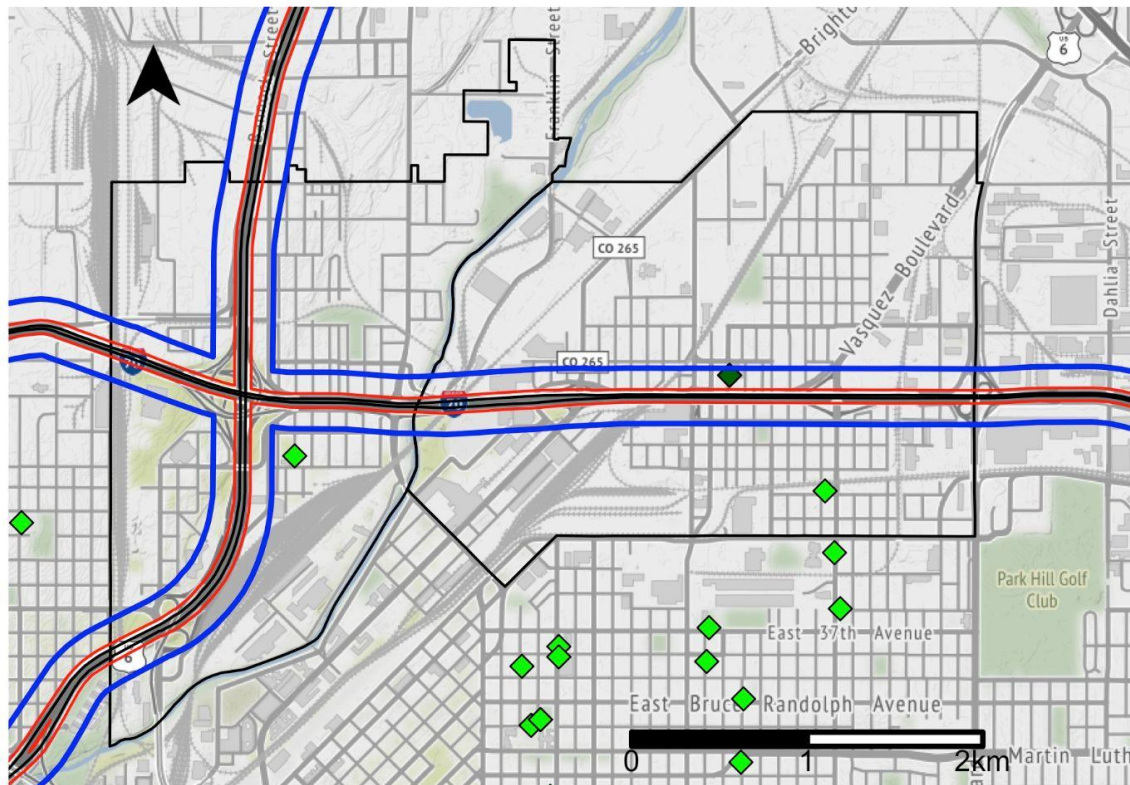
Distance from Highway
Distancia Desde la Autopista

- 100 ft
- 500 ft

Location
Posición

- Outside/Fuera de 500 ft
- Within/Dentro de 500 ft

Schools/Escuelas



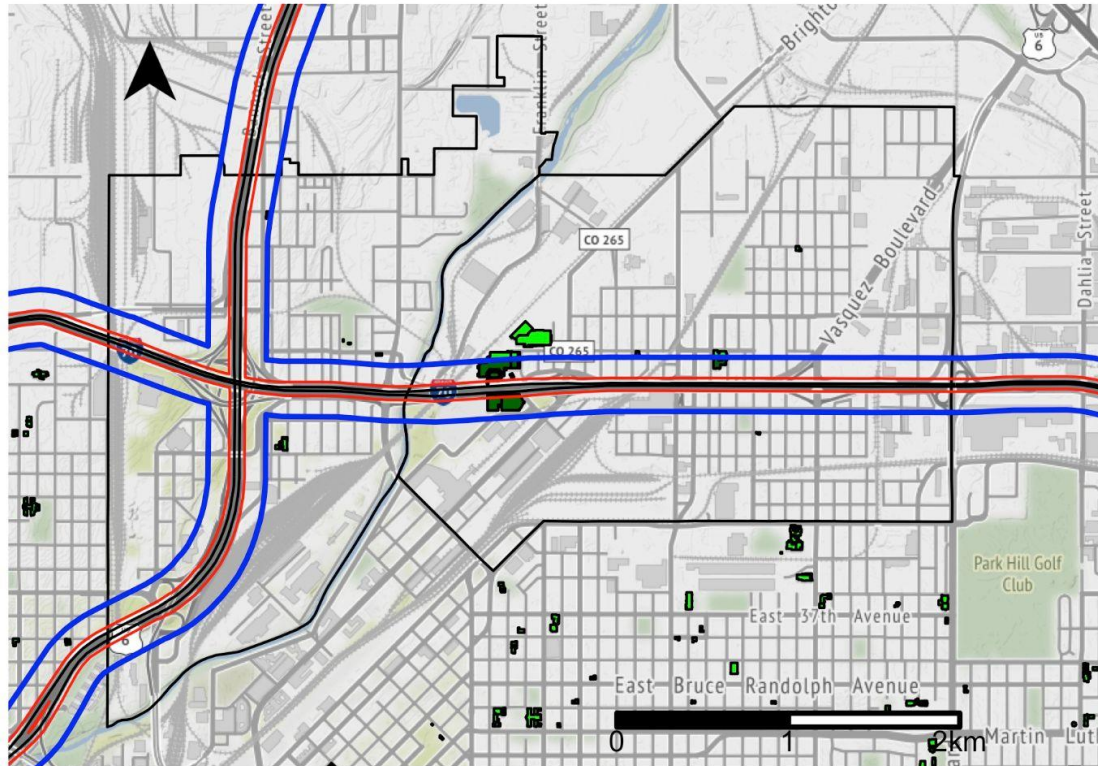
Distance from Highway
Distancia Desde la Autopista

- 100 ft
- 500 ft

Location
Posición

- Outside/Fuera de 500 ft
- Within/Dentro de 500 ft

Public Buildings/Edificios Públicos



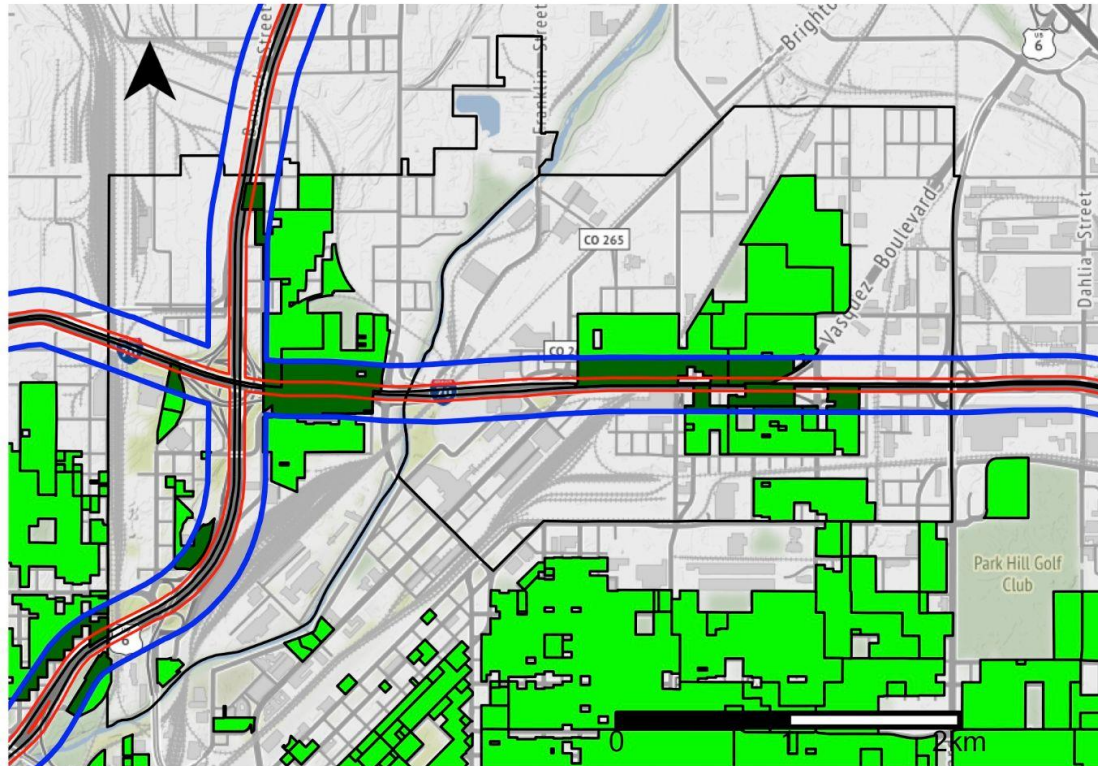
Distance from Highway
Distancia Desde la Autopista

- 100 ft
- 500 ft

Location
Posición

- Outside/Fuera de 500 ft
- Within/Dentro de 500 ft

Residential Zones/Zonas Residenciales



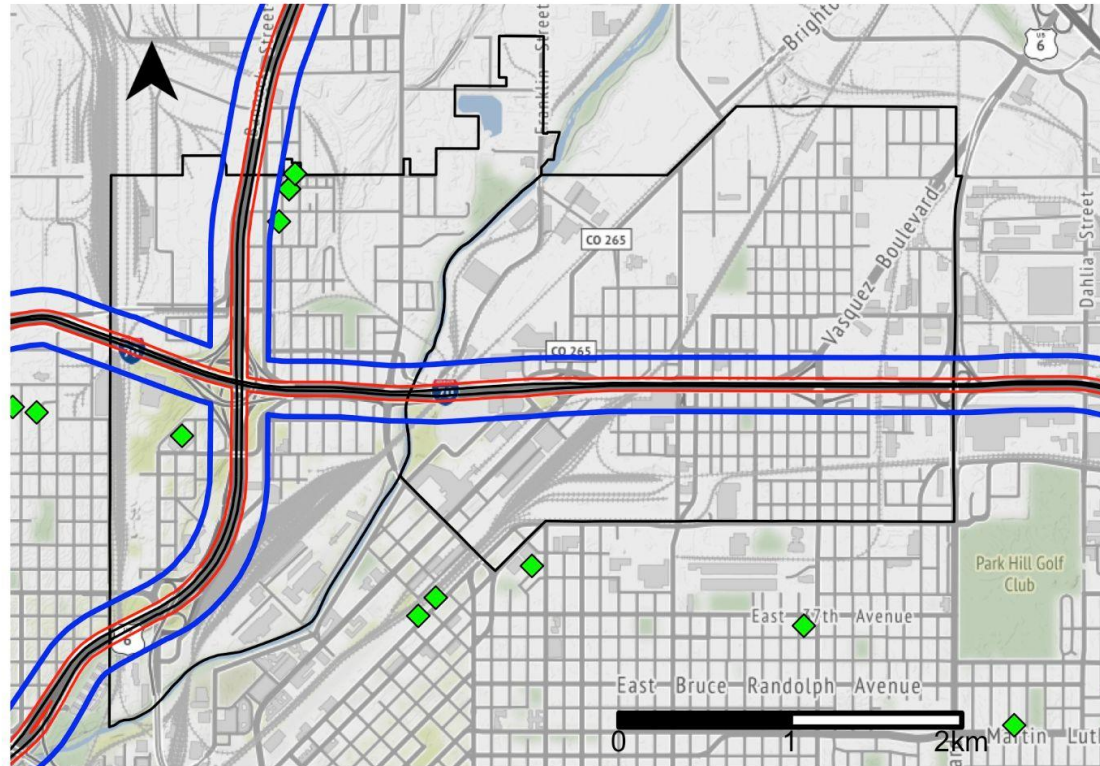
Distance from Highway
Distancia Desde la Autopista

- 100 ft
- 500 ft

Location
Posición

- Outside/Fuera de 500 ft
- Within/Dentro de 500 ft

Medical Facilities/Instalaciones Medicas



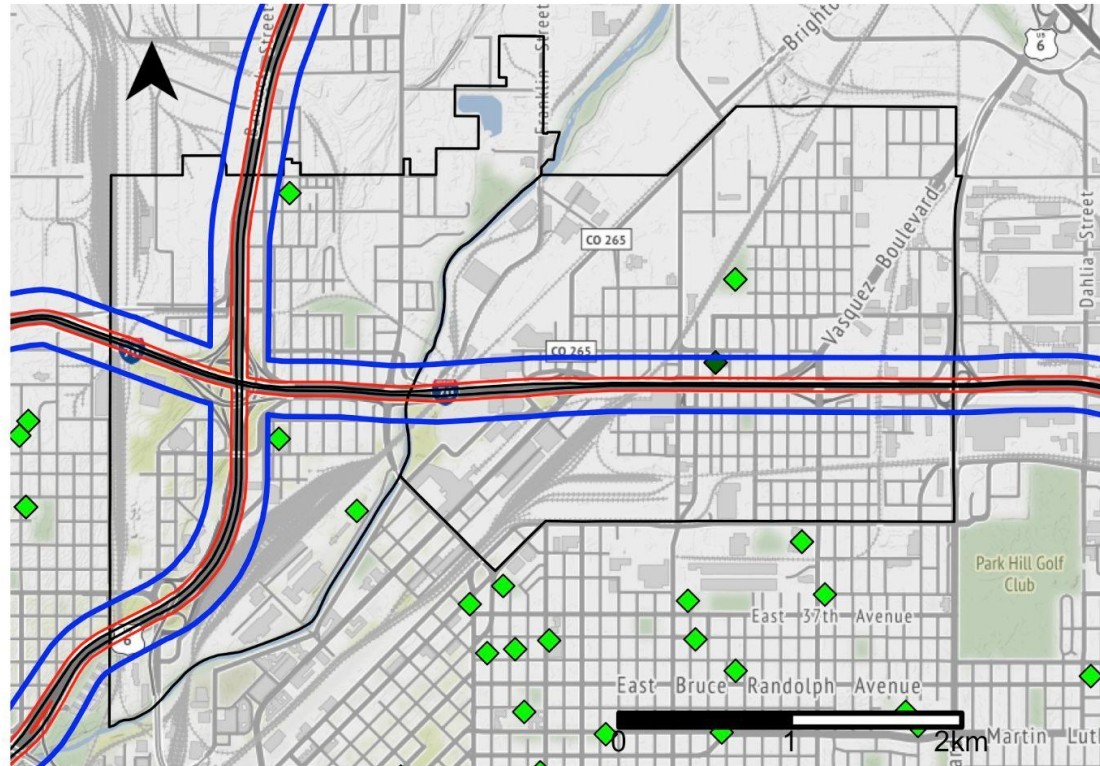
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Distancia Desde la Autopista

- 100 ft
- 500 ft

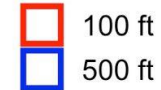
Location
Posición

- Outside/Fuera de 500 ft
- Within/Dentro de 500 ft

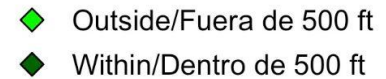
Licensed Childcare Facilities/Instalaciones de cuidado infantil con licencia



Distance from Highway
Distancia Desde la Autopista



Location
Posición

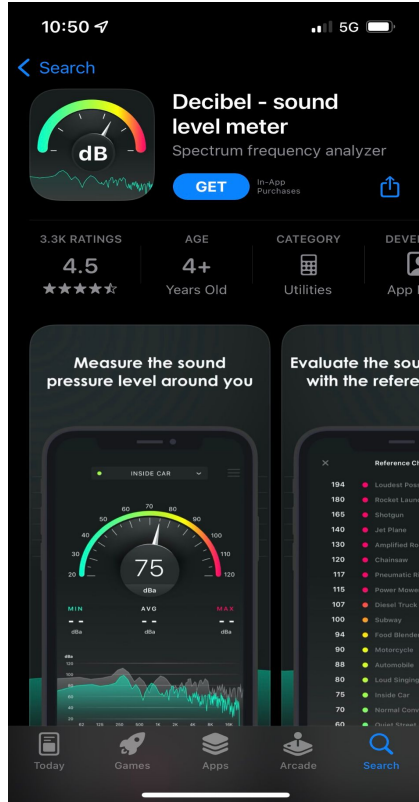


Personal Sound Measuring/Medicion de Sonido Personal

iPhones:

Decibel - sound level meter

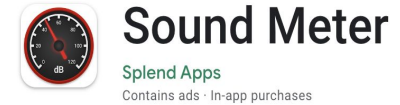
<https://apps.apple.com/us/app/decibel-sound-level-meter/id1485543216>



Android:

Sound Meter (by Splend Apps)

<https://play.google.com/store/apps/details?id=com.splendapps.decibel>



You don't have any devices

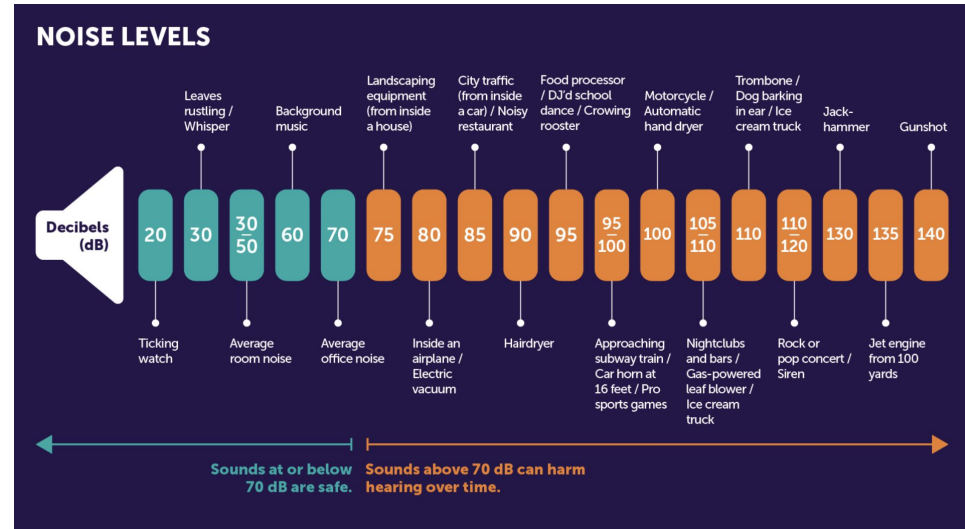
Enjoy this app for free, plus many more free of ads and in-app purchases, with a Google Play Pass subscription. Try free for 1 month. [Learn more](#)



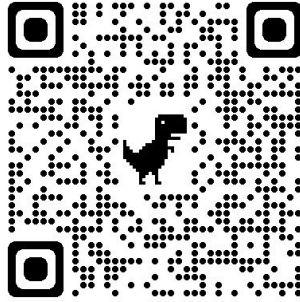


Typical Noise Levels

Noise Source	Noise Level (dBA)
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Freeway Traffic at 50 feet	70-80
Conversational Speech at 5 feet	55-65
Quiet Neighborhood	45-55
Living Room	35-45
Remote Outdoor Location (no wind)	20-30
Threshold of Hearing	0



Noise Measuring Exercise



Ejercicio de Medición de Ruido

This QR code will take you to a noise log where you can record date, time, location, noise level and source. Printed copies will be provided!

Some ideas of sources...

- Train horns
- Movies / TV
- Music
- Highway noise (remember the maps!)

Este código QR lo llevará a un registro de ruido donde puede registrar fecha, tiempo, ubicación, nivel de ruido, y la fuente de ruido. Copias físicas serán distribuidas!

Algunas ideas de fuentes...

- Bocina de tren
- Peliculas/television
- Musica
- Ruido de autopistas (acuerdese de los mapas!)

Possible Agency Partners / Posibles Socios de la Agencia

2014 Health Impact Assessment

(https://www.denvergov.org/content/dam/denvergov/Portals/746/documents/HIA/HIA%20Composite%20Report_9-18-14.pdf) recommends...

- Colorado Parks and Wildlife
 - <https://cpw.state.co.us/>
- Denver Police Department
 - <https://www.denvergov.org/content/denvergov/en/police-department/contact.html>
- Colorado Department of Public Health and Environments (CDPHE)
 - <https://cdphe.colorado.gov/>
- City Council Member Candi CdeBaca
 - <https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Denver-City-Council/Meet-the-Council-Members/Candi-CdeBaca-Council-District-9>