MoPac South

MOPAC SOUTH ENVIRONMENTAL STUDY

NOISE FACT SHEET

PROJECT OVERVIEW

The MoPac Expressway south of Cesar Chavez Street is consistently ranked as one of the most congested roadways in Texas*, attracting up to 179,000 vehicles per day. Expanding population, as well as residential, retail and commercial development are negatively impacting mobility. If we do nothing to address congestion, drivers could spend an additional 35 minutes traveling the corridor by 2035. The Central Texas Regional Mobility Authority (Mobility Authority) is conducting an environmental study to identify a solution that improves safety and mobility for drivers, transit riders, bicyclists and pedestrians in a manner that promotes environmental stewardship and sustainability.

Currently, the Mobility Authority is looking at adding express lane(s) to the existing corridor, as well as other operational, mobility, and safety improvements. We understand there are concerns about traffic noise due to the potential for these proposed improvements to carry higher volumes of traffic. As part of the environmental study, the Mobility Authority is required by the Texas Department of Transportation (TxDOT) and the Federal Highway Administration (FHWA) to prepare and document a Traffic Noise Analysis.

WHAT IS A TRAFFIC NOISE ANALYSIS?

To analyze traffic noise along the corridor, the MoPac South study team will:

- Identify land use activity areas that may be impacted by traffic noise
- Determine existing noise levels
- Predict noise levels 20 years in the future
- Identify possible noise impacts if the proposed improvements are built
- Examine and evaluate ways to reduce noise impacts which may include measures such as sound walls

HOW DO WE MEASURE TRAFFIC NOISE?

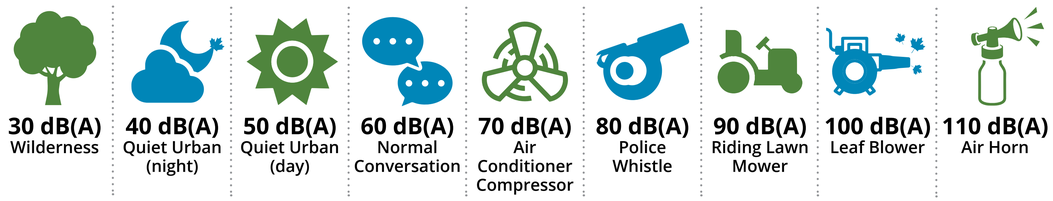
The sound produced by highway traffic comes mainly from tires, engines and heavy truck exhaust stacks. Traffic noise is measured by our noise experts in decibels or "dB." Its volume depends on the number and speed of vehicles, the slope of the nearby terrain, weather patterns, obstructions (e.g., buildings), and the distance between the highway and listener.

There are three additional considerations in how we measure traffic noise:

1) Not all sound can be heard by the human ear. When sound levels are measured, our sound meter equipment adjusts the high and low frequencies of traffic noise to match the way the average person hears them. This adjustment is called A-weighting and is expressed as "dBA."
2) Traffic noise levels are never constant due to the changing number, type and speed of vehicles. Therefore, a single value is used to represent the average or equivalent sound level or "Leq."
3) The human ear can detect the comparative differences in sound levels. For example, a 5 dB(A) increase is a readily perceptible change and a 10 dB(A) increase is perceived as twice as loud.

SOUND LEVEL CHANGE VS. LOUDNESS

COMMON OUTDOOR SOUND/NOISE LEVELS



The Mobility Authority is conducting an environmental study to identify a solution that improves safety and mobility for drivers, transit riders, bicyclists and pedestrians in a manner that promotes environmental stewardship and sustainability.

**2019 STARS 2 - TxDOT Traffic Count Database*

MOPAC SOUTH ENVIRONMENTAL STUDY

NOISE FACT SHEET

HOW DO YOU CONSIDER THE PEOPLE AND PLACES WHO COULD BE IMPACTED BY TRAFFIC NOISE?

In the study, we identify the places that could be impacted by traffic noise and may benefit from reduced noise levels, and we do this by identifying "receptors" and "receivers."

A receptor is a noise sensitive location. A receiver is a representative location of one or more of these noise-sensitive area(s). A receiver may represent multiple receptors.

We use the Federal Highway Authority's (FHWA) Noise Abatement Criteria (NAC), shown in Table 1 below, to identify the dB(A) threshold for specific areas.

Table 1: Noise Abatement Criteria Table

Description of Land Use Activity Areas	FHWA (dB(A) Leq)
Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose	57 (exterior)
Residential	67 (exterior)
Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings	67 (exterior)
Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios	52 (interior)
Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in the areas mentioned above or below	72 (exterior)
Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing	---
Undeveloped lands that are not permitted	---

WHAT CONSTITUTES A TRAFFIC NOISE IMPACT?

The study team determines that a noise impact occurs when predicted noise levels are: 1 dB(A) below, equal to, or above the threshold for a specific activity area.

Here are two examples for a residence:

1) An impact occurs at a person's residence at 66 dB(A) or above, or more than 10 dB(A) higher than existing levels in any activity area.
2) An impact occurs at a person's residence when the existing level is 54 dB(A) and the predicted level is 65 dB(A)—an 11 dB(A) increase.

In either example, noise abatement measures would be considered.

WHAT ARE POTENTIAL MEASURES TO REDUCE NOISE IMPACTS?

A noise abatement measure is any action taken to reduce the impact of noise from highway traffic on an activity area. The traffic noise abatement measure used most often are noise barriers, which we also call sound walls. These are structures built between the noise source (e.g., the highway) and the impacted activity area to reduce noise levels.

Sound walls will be evaluated along the MoPac South corridor to determine whether they are warranted and whether they would be a reasonable and feasible method to reduce noise for receivers.

When is a sound wall considered reasonable and feasible?

To be considered reasonable, a sound wall must:

1) Reduce traffic noise by 7 dB(A) for at least one receptor
2) Be cost effective
3) Consider input from affected residents and adjacent property owners

To be considered feasible, a sound wall must:

1) Not be anticipated to pose any major design, construction, maintenance, or safety problems
2) Provide a noise reduction of 5 dB(A) reduction in the levels of traffic noise projected for the road's design year (typically 20 years after the road is built) for greater than 50% of the first-row impacted receptors
3) Benefit a minimum of two impacted receptors

In addition, for a sound wall to be considered feasible, there must be no other traffic related noise sources in the area that would negate the ability of a traffic noise abatement measure to achieve a substantial reduction in noise levels.

In other words, just because a sound wall could be considered due to a traffic noise increase, that does not guarantee that it will be deemed reasonable and/or feasible to construct.

WHAT HAPPENS NEXT FOR MOPAC SOUTH?

Traffic noise evaluation and noise barrier analysis will begin before the public hearing. We anticipate the public hearing occurring mid-2023. Potential traffic noise impacts for the proposed roadway improvements (the Build Alternative) will be evaluated. The results will be released with the Draft Environmental Assessment as part of the public hearing. This traffic noise evaluation and noise barrier analysis process concludes after the public hearing and any required sound wall workshops with potentially impacted adjacent property owners.

If sound walls are recommended, the study will propose the location, height, and length for maximum benefit to surrounding neighbors. Input from directly adjacent property owners would be considered in the decision-making process for potential sound walls.

The Mobility Authority constructed sound walls on certain sections of the MoPac Expressway north of Cesar Chavez Street. If sound walls are warranted on MoPac South, they would likely be similar in appearance.