



South Mountain Transportation Corridor Study

Citizens Advisory Team
Technical Report Summary

Draft Noise Report

Why study noise levels in the Environmental Impact Statement (EIS)?

Before answering this question, another question must be answered and that is 'What is noise?' For the purposes of this project, noise is defined as unwanted or excessive sound. In many ways, under this definition, noise is undesirable but it is, by fact, a real by-product of today's way of life. Noise can be intrusive and annoying. It can interfere with sleep, work, or recreation. Noise, in today's society, comes from many sources; a vacuum cleaner for example can be disruptive to a family member who is trying to read a book. But it is recognized that transportation noise is perhaps the most pervasive and difficult source to avoid in society today. Noise from airplanes flying overhead, from trains passing by, from motorized boats on a lake, and from cars and trucks traveling on the nation's roads and highways have become a daily part of our lives. And of these, highway traffic noise is admittedly a major contributor to overall transportation noise.

Therefore, the construction and operation of a freeway of the magnitude of a project like the South Mountain Freeway will introduce a major noise source into an area where such noise may not have existed in the past. And therefore, understandably, a project like the South Mountain Freeway, will cause great concern to those that live and play in close proximity to the project. It could pass by residences, schools, parks, churches and a variety of land uses that would be particularly sensitive to the noise generated by such a project. The study team, using federal and state guidance, analyzes how a project like the South Mountain Freeway would increase noise levels to adjacent areas and for those areas that warrant protection from the expected noise, proposes ways for ADOT and FHWA to reduce those levels to acceptable levels.

What kind of impacts would occur from construction?

There is no question construction of a project of this size will generate unwanted or excessive sound – *noise*. Bulldozers, graders, dump trucks, cranes, steamrollers and other heavy construction equipment operating at or around the same time can generate a great deal of noise to adjacent areas. It is highly unlikely a project like South Mountain Freeway would be constructed all at one time. Various segments of the freeway would be constructed sequentially. So construction and the related noise for one segment would occur until the segment is completed. Then a new segment of the freeway would undergo construction and so on until the entire freeway is completed. It is too early to tell how segments for a project like South Mountain Freeway will be sequenced for construction. Planning for construction would occur during the final design phases of the overall project.

How do the build alternatives differ in construction-related impacts?

For any of the alternatives being considered for the South Mountain Freeway, construction techniques and construction sequencing and durations would be relatively the same. Therefore, there would be no distinctive differences in how the project would be constructed. The main difference would be where the construction noise would emanate from in the Western Section of the Study Area, which is dependent upon which of the three alignments eventually is selected for construction.



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What kinds of freeway operational impacts (post-construction) would occur?

Once the freeway is completed and open to traffic, noise at most residential areas within 1,400 feet of the freeway centerline are anticipated to experience noise levels above acceptable levels. As studied using the most scientifically accepted, industry standard noise model, the threshold (with some exceptions) for residential areas is levels above 64 decibels (which would be like listening to a washer/dryer or a vacuum cleaner). Residential areas with projected noise levels above 64 decibels are considered affected and potentially qualify for noise mitigation.

Forty-four locations were monitored to determine the existing noise levels along proposed freeway alignments. Existing noise levels were determined to range from 44 decibels to 64 decibels based upon the results of the monitoring. To determine the noise impacts from the South Mountain Freeway project, 137 locations were selected for modeling what the project noise would be once the freeway is completed. The projected noise levels ranged from 60 decibels to 78 decibels at residential areas near the freeway.

How do the alternatives differ in operational-related impacts?

For any of the alternatives being considered for the South Mountain Freeway, noise impacts on residential and other sensitive properties would be relatively the same. Therefore, there would be no distinctive differences *from traffic* among the alternatives. However, the main difference would be that different residences and other sensitive uses would be affected by freeway noise in the Western Section of the Study Area, depending upon which of the three alignments eventually is selected for construction.

What if the project was not constructed?

In the Western Section, residences that otherwise would be adjacent to any of the three build alternatives would not be subjected to noise from South Mountain Freeway traffic. In the Eastern Section, Ahwatukee residents that otherwise would be adjacent to or near the freeway would not be subjected to noise from South Mountain Freeway traffic. However urban growth is projected to continue and traffic volumes would increase on surface streets as a result. Noise impacts would occur along surface streets.

Are there any specific and/or unique impacts from the build alternatives?

For a project of the magnitude of the proposed South Mountain Freeway, there are no known unique types of noise impacts that would occur from any of the build alternatives. However, as currently proposed, the South Mountain Freeway would pass through the far southern portion of South Mountain Park/Preserve. The freeway in this location would introduce freeway noise in a small portion of the park, which is known for its scenic, natural, passive setting.



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Are there things that could be done to reduce or avoid impacts?

Several things can be done to reduce or avoid noise impacts, including:

- Horizontal alignment changes would reduce or avoid impacts to specific residential areas, but the impacts may be shifted to other residential areas near the new alignment.
- Restricting truck traffic on the future freeway would reduce impacts.
- Reducing speed limits on the future freeway would reduce impacts.
- Noise barriers would reduce impacts at nearby properties.
- Depressing the freeway would reduce impacts at nearby properties, but would likely still require noise barriers in addition to depressing the freeway.

The Arizona Department of Transportation (ADOT) and the Federal Highway Administration (FHWA) will be looking at these types of possible measures to determine what are the most appropriate ways to reduce noise impacts on surrounding communities.

What can be done to reduce construction impacts?

To minimize noise impacts from construction activities, the following measures could be taken by ADOT or its contractor to reduce noise impacts on surrounding areas:

- All exhaust systems on equipment should be in good working order. Properly designed engine enclosures and intake silencers should be used where appropriate.
- Construction equipment should be subject to new product emission standards.
- Stationary, noise-generating equipment should be located as far away from residential areas as possible.
- The public should be adequately notified of construction operations.
- Construct noise barriers first to limit subsequent construction activity within the barriers.

What can be done to reduce noise impacts once the freeway is operating?

Noise barriers would possibly reduce traffic noise impacts at nearby residential areas.

- Noise barriers would range in height from 8 feet to 20 feet high.
- Noise barriers would reduce noise levels to the range of 56 decibels to 68 decibels, although most receivers would have noise levels ranging from 60 decibels to 63 decibels.

Preliminary mitigation measures will be presented in the Draft EIS and will be refined and finalized during the final design process after the EIS process is completed.

Are the conclusions presented in this summary final?

It is quite likely that quantitative findings relative to impacts are subject to change. The reasons for future changes which will be presented to the public during the Draft EIS, Final EIS and Final Design stages are based on the following:



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- Refinement in design features through the design process.
- Updated aerial photography as it relates to rapid growth in the Western Section of the Study Area.
- On-going communications with the City of Phoenix regarding measures to minimize harm to South Mountain Park/Preserve.
- On-going communications with GRIC in regards to granting permission to study action alternatives on GRIC lands.
- Potential updates to traffic forecasts as updated regularly by MAG.
- Potential updates with regards to the special 2005 survey to augment the 2000 Census.
- As design progresses, cost estimates for construction, right-of-way acquisition, relocation and mitigation will be updated on a regular basis.

However, even with these factors affecting findings, it is anticipated the affects would be equal among the alternatives and consequently impacts would be comparatively the same. This assumption would be confirmed if and when such changes were to occur.

As a member of the Citizens Advisory Team, how can you review the entire technical report?

The complete technical report is available for review by making an appointment with Mike Bruder or Ralph Ellis at 602-712-7545.