Construction of Noise Wall 1
Sardis Church Road Extension
STP00-0000-00(566), P.I. No. 0000566
Bibb County, Georgia

Project Description

Proposed project STP00-0000-00(566) would extend Sardis Church Road east to US 129/SR 247. From the recently constructed I-75 interchange eastward, the proposed connector/extension would follow along existing Sardis Church Road to approximately 1,100 feet east of Goodall Mill Road where it would turn southeasterly on new location, crossing Houston Road. It would continue south, crossing South Walden Road, approximately 1,200 feet east of Houston Road, before it continues further south and then southeast of Walden Station Drive. The project would cross the Central of Georgia Railroad and Industrial Highway (US 41) by bridge approximately 1,400 feet southwest of the Avondale Mill Road intersection with Industrial Highway. The roadway would continue traveling southeasterly on new alignment to a point where the project alignment intersects the southernmost alignment of Avondale Mill Road, located just southwest of the Middle Georgia Regional Airport. From there, the road would extend easterly along the existing Avondale Mill Road alignment to the project terminus at US 129/SR 247.

Noise Wall Analysis

Two methods are used for predicting a noise impact. The first is a comparison of predicted noise levels with the noise abatement criteria established by Title 23 of the Code of Federal Regulations Part 772 (23 CFR Part 772). A 67 dBA Leq criterion has been established for schools, libraries, residences, churches, playgrounds and recreational areas, and a 72 dBA Leq criterion has been established for commercial and industrial activities. Any predicted noise levels that approach or exceed the applicable noise abatement criterion is considered an impact. For the purposes of this study, approach means within 1 dBA of the noise abatement criterion. The second method occurs when the future predicted traffic noise levels substantially increase over existing noise levels. A substantial increase is defined as a future predicted traffic noise level of 15 dBA or more over existing levels.

Under the proposed project, a total of 46 receivers would be impacted. Of these, 15 receivers were predicted to be impacted on the basis of approaching or exceeding the applicable noise abatement criteria, and 31 receivers were predicted to be impacted on the basis of a substantial increase in noise. In accordance with 23 CFR 772, noise abatement measures for reducing or eliminating noise impacts along the proposed corridor were evaluated for all noise sensitive sites which exceed the noise abatement criteria. The only feasible abatement alternative for this project is noise walls. Six noise walls were investigated to abate the impacted receivers and one was determined to be both feasible and reasonable.

Barriers are considered feasible when:

- *Noise reduction:* a calculated noise reduction of at least 5 dB(A) must be achievable for a minimum of one impacted receiver. Each noise receiver which receives a 5 dB(A) reduction (whether classified as impacted or not) is considered to be a benefited receiver.
- *Constructability*: a noise abatement measure must be able to be constructed using reliable and common engineering practices.
- *Safety and Maintainability*: an exterior noise abatement measure should conform to the

AASHTO Green Book and Roadside Design Guide and should be accessible to maintenance personnel and not prevent access to other highway appurtenances (e.g., drainage structures). The maximum barrier height that can feasibly be maintained is 30 feet.

- *Access:* an abatement measure must allow sufficient access to adjacent properties.

The below criteria are considered for each feasible noise abatement measure to evaluate reasonableness. The first two must be satisfied before contacting property owners and residents:

- *Noise Reduction:* at least one benefited receptor must receive a minimum noise level reduction of 7 dB(A) – i.e., the noise reduction design goal.
- *Cost Effectiveness:* Using a $20 per square foot cost for the required noise barrier, the total cost must not exceed a $55,000 average allowance per benefited receptor.
- *Property Owners and Residents:* The decision to provide abatement will be made in collaboration with property owners and tenants of a benefited receptor. A noise barrier will only be constructed if at a minimum 50% plus one of the respondents vote in favor of noise abatement.

Six noise walls were investigated to abate the 46 impacted receivers in the project area. Five of the walls were deemed either not feasible because they could not provide an adequate insertion loss, or not reasonable because they would exceed the allowable cost to construct. One wall (Noise Wall 1) was determined to be both feasible and reasonable and is described below and shown on the attached map.

Noise Wall 1

Noise Wall 1 was investigated along the northbound lanes of Sardis Church Road Extension just south of where the road veers away from existing Sardis Church Road. The barrier was modeled to abate 16 impacted receivers. With a length of 2,205 feet and heights varying from six to 17 feet, the barrier could benefit all of the impacted receivers and three additional receivers that were not predicted to be impacted. The estimated cost for the construction of the barrier is $626,640 and the barrier has an allowable cost (based on benefit) of $1,045,000. Therefore, the barrier is both feasible and reasonable to construct.