

From: Snyder, Deborah <Deborah.Snyder@sumtercountyfl.gov>
Sent: Tuesday, June 20, 2023 3:07 PM
To: Blocker, Kenneth <kenny.blocker@districtgov.org>
Cc: Arnold, Bradley <Bradley.Arnold@sumtercountyfl.gov>; Patel, Shailesh <Shailesh.Patel@sumtercountyfl.gov>; Cohoon, Steven <Steven.Cohoon@sumtercountyfl.gov>
Subject: FY INFO: CR 101 Road Noise Level

Good afternoon Mr. Blocker,

Thank you for your patience in our review of the previous request regarding reduced road noise on CR 101.

The Florida Department of Transportation (FDOT) does not have any new noise reduction pavement designs being considered and/or required. Our Assistant Public Works Director - Construction contacted FDOT's State Materials Engineer, Howie Moseley, P.E., and confirmed this as well. In summary, Mr. Moseley confirmed the Global Tire facility as the only facility in the State that was able to provide the necessary materials in the past. Additionally, Mr. Moseley indicated that one of the primary reasons the specification was pulled from FDOT's Standard Specifications was the lack of results as it related to long term benefits of noise reduction in asphalt. This flaw is further elaborated on the below responses.

As it relates to the change in pavement materials, it is important to first know when traffic noise is often loudest. Contrary to most individuals feelings, the nosiest time of day, as it relates to traffic, is when the traffic is free flowing. This typically occurs just before or just after peak periods. The more congested the roadway is, the less noise is generated by tires and wind from vehicles, which is the primary contributor of traffic noise at higher speeds. Since sounds vary based on speed, vehicle, and other factors, it can be quite difficult to determine what percentage specifically of road noise is contributed to a variables such as engine noise. As an example, the noise reduction when comparing current electric vehicle (EV) sounds to the traditional internal combustion engine (ICE) sounds. Based on a presentation prepared by Lykke M. Iversen, for the Danish Road Directorate, it was concluded that EVs are 4 – 5 decibels (dBA) less noisy than ICEs at low speeds (18.6 miles per hour (MPH) or less). It was also concluded that at higher speeds, the difference between EVs and ICEs significantly decreased as the tire/road noise became dominant.

Sumter County enlisted the assistance of our engineering consultant to generate a general noise model using FHWA's Traffic Noise Model (version 2.5). This model was prepared for a representative area of residences along the east side of CR 101. In particular, the residences immediately east of CR 101 that are located along Idlewood Loop were analyzed. The peak hour traffic volumes recently collected through Sumter County's annual traffic count program (January 19, 2023) were modeled at the posted speed limit of 30 mph. The existing conditions model predicted maximum traffic noise levels of approximately 59-60 dBA at residences adjacent to CR 101. As it relates to an asphalt rubber friction course (ARFC), the Arizona Department of Transportation (ADOT), with approval from FHWA, initiated a Quiet Pavement Pilot Program to understand the acoustic performance over a period of ten years of an ARFC overlay along urban freeways in the Phoenix area. Initially, noticeable reductions in traffic noise levels were observed (e.g., up to an average of 9 dBA depending on the type of measurement performed). However, it was determined that an average of 0.5 dB/year of noise reduction was lost as the ARFC overlay aged. Assuming the best results and as detailed in the study, CR 101 would see a reduction in noise from 59-60 dBA to approximately 50.5 dBA in year one. However, a 1 dBA loss in effectiveness every other year after the initial year of implementation. In this scenario, the effectiveness

of the pavement would be as detailed below. In all scenarios, the use of noise reducing pavement, if permitted, would not equal a 50% or more reduction of all road noise from vehicles operating on the road. Furthermore, the reduction in noise would be temporary.

- Year 1 – 50.5 dB (15% reduction)
- Year 3 – 51.5 dB (13 % reduction)
- Year 5 - 52.5 dB (12 % reduction)
- Year 7 - 53.5 dB (10 % reduction)
- Year 8 - 54 dB (9 % reduction)

As it relates to the installation of a noise wall, using the existing conditions model, a noise wall was added and modeled at varying heights to understand potential noise reductions that could be achieved at the residences adjacent to CR 101. Below is a summary of the average noise reductions that were predicted for noise barriers at different heights. Note that since the residences to the east are in close proximity to CR 101, reductions from the implementation of a noise barrier are anticipated to be noticeable.

- 6-ft Barrier: ~6 dBA (10% reduction)
 - Quiet pavement could exceed this for the first 6 +/- years
- 8-ft Barrier: ~8 dBA (13% reduction)
 - Quiet pavement could exceed this for the first 3 +/- years
- 10-ft Barrier: ~10 dBA (17% reduction)
 - Superior to quiet pavement
- 12-ft Barrier: ~12 dBA (20% reduction)
 - Superior to quiet pavement

As detailed previously, traffic noise varies depending on the amount of traffic on the roadway. The faster vehicles go, the more noise is generated by tire and wind noise off of the vehicles. Please let me know if you have any further questions on the responses.

References:

<https://www.toi.no/getfile.php/1340825-1434373783/mmarkiv/Forside%202015/compettforedrag/Lykke%20-Silent%20Urban%20Driving.pdf>

https://apps.azdot.gov/files/ADOTLibrary/publications/project_reports/pdf/spr577-2.pdf

Sincerely,



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www.sumtercountyfl.gov

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From: Arnold, Bradley
Sent: Monday, May 15, 2023 7:45 AM
To: 'Blocker, Kenneth' <kenny.blocker@districtgov.org>; Snyder, Deborah <Deborah.Snyder@sumtercountyfl.gov>
Cc: Duckett, Carrie <Carrie.Duckett@districtgov.org>; @County Commissioners <CountyCommissioners@sumtercountyfl.gov>
Subject: RE: Follow up: CR 101 Road Noise Level

Kenny,

One of the issues of a CDD Supervisor contacting our staff without keeping you in the loop (therefore me in the loop) is the inability to ensure a timely response is provided as Ms. Snyder's attention was diverted to Meggison Road.

The first part of the response from Ms. Snyder will be confirmation that FDOT is mandating a new paving design (this was considered some time ago with incorporation of rubber from tires and abandoned) – hence the Global Tire company locating to Sumter County then their profit center abruptly removed through a strike of a pen on an approved design.

The second part of the response from Ms. Snyder will be confirmation that a change in the pavement material constitutes >50% of all road noise from vehicles operating on the road (this includes engine/exhaust noise).

The third part of the response from Ms. Snyder will be a comparison of the differential of the noise from the CDD constructing a wall for its residents to abate noise from the road and the properties across the road (i.e. pavement change vs. a wall).

My response as the three parts are being prepared is we are in the process of a change in movement on the roads of CR 101, 102, 103, and 104 that would reduce the afternoon/evening traffic movements which was the formal basis of the residents issue during public and its relationship with noise.

Please expect a response by the end of June.

Bradley

From: Blocker, Kenneth <kenny.blocker@districtgov.org>
Sent: Monday, May 15, 2023 7:35 AM

To: Snyder, Deborah <Deborah.Snyder@sumtercountyfl.gov>
Cc: Arnold, Bradley <Bradley.Arnold@sumtercountyfl.gov>; Duckett, Carrie <Carrie.Duckett@districtgov.org>
Subject: FW: Follow up: CR 101 Road Noise Level

Good Morning,
Chairman Ray asked if we would follow up with his email to see if any response had been formulated.

Thank you,
Kenny

The Villages®

Community Development Districts

Kenneth C. Blocker, District Manager

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From: Duckett, Carrie <Carrie.Duckett@districtgov.org>
Sent: Friday, May 12, 2023 5:25 PM
To: Blocker, Kenneth <kenny.blocker@districtgov.org>
Subject: Fwd: Follow up: CR 101 Road Noise Level

Sent from my iPhone

Begin forwarded message:

From: "Farlow, Jennifer" <Jennifer.Farlow@districtgov.org>
Date: May 12, 2023 at 5:20:30 PM EDT
To: "Duckett, Carrie" <Carrie.Duckett@districtgov.org>
Subject: Fwd: Follow up: CR 101 Road Noise Level

Sent from my iPhone

Begin forwarded message:

From: "Ray, Bill (District Board)" <Bill.Ray@districtgov.org>
Date: May 12, 2023 at 4:13:46 PM EDT
To: "Farlow, Jennifer" <Jennifer.Farlow@districtgov.org>
Subject: Fw: Follow up: CR 101 Road Noise Level

From: Ray, Bill (District Board) <Bill.Ray@districtgov.org>
Sent: Tuesday, April 18, 2023 8:02 PM
To: Snyder, Deborah <Deborah.Snyder@sumtercountyfl.gov>
Subject: Re: Follow up: CR 101 Road Noise Level

Thanks. Also, I gave you the incorrect location that parallels CR101. The street in The Villages is Idlewood Loop, Villages of Summerhill.

From: Snyder, Deborah <Deborah.Snyder@sumtercountyfl.gov>
Sent: Tuesday, April 18, 2023 11:48 AM
To: Ray, Bill (District Board) <Bill.Ray@districtgov.org>
Cc: Patel, Shailesh <Shailesh.Patel@sumtercountyfl.gov>; Cohoon, Steven <Steven.Cphoon@sumtercountyfl.gov>
Subject: Follow up: CR 101 Road Noise Level

Hi Mr. Ray,

We will research your request and respond to you in about two weeks.

Please know Sumter County does not install noise walls of any kind. All walls installed are on private property and are installed by the homeowners association or property owners association.

Please let me know if you have questions.

Sincerely

Sent from my Verizon, Samsung Galaxy smartphone

Deborah Snyder
Director
Public Works
Board of Sumter County Commissioners
Tel: 352-689-4400
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www.sumtercountyfl.gov

----- Original message -----

From: "Ray, Bill (District Board)" <Bill.Ray@districtgov.org>
Date: 4/18/23 10:46 AM (GMT-05:00)
To: "Snyder, Deborah" <Deborah.Snyder@sumtercountyfl.gov>
Subject: CR 101 Road Noise Level

I'm Bill Ray, a CDD3 supervisor. At a recent Sumter County meeting regarding land zoning, a large number of Village residents, that live along CR 101 in the villages of Glenbrook, raised a significant concern about decibel level noise coming from CR 101 after the noise wall and berm was removed a while ago. The traffic level is increasing so the amount of noise is increasing. Based on Sumter County supervisor responses, it appears no noise barriers will be replaced.

I've done some research, regarding reducing road noise levels. I shared the information at that meeting. From what I've discovered, the state of Florida has started using a new road paving product that significantly reduces road noise. It stated that the state has started using the new paver instead of noise walls and berms as it works better that they do.

Based on the residents concerns, I thought it might be useful for you to look into this with the state, and if cost effectively reasonable, consider using it to pave over that relatively short section of CR 101. It would give you an opportunity to evaluate the new product, consider its use elsewhere in the county and potentially help resolve the residents concern.

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