

Georgetown University Campus Plan 2011-2020

Zoning Commission Case No. 10-32

Conrad J. DeWitte, Jr.
Foxhall Village Home Owner

Testimony in Opposition to Georgetown University's Campus Plan

June 6, 2011

Dear Zoning Commissioners:

My name is Conrad DeWitte. I live in Foxhall Village on the western edge of Glover Archbold Park at 1613 44th Street. I purchased my home two years ago at a premium specifically because it is on a quiet street and backs up to a National Park. I saw the university as a good neighbor to have and the university's use of its property on the other side of the park as quiet. I do not like air conditioning. My home does not have it. When it is warm enough, my windows are open. I sleep with my upstairs bedroom windows open. My bedroom faces the park.

My bedroom is about 370 feet from the northern most point of the university's proposed bus loop road. Based on my independent research, the sound in my bedroom from the university buses will be about 54-58 dB(A). This is equivalent to the upper bound sound of a normal conversation. Based on the university's present bus schedule¹, Monday through Friday bus traffic will be about every ten minutes, will begin at 4:45 am, end at midnight, and will be practically continuous for about three hours in the morning and three hours in the late afternoon. In addition, on Saturday from 11:30 am to 6 pm, buses will run about every half hour. This noise will disturb my sleep and other use and enjoyment of my home. I object to the impact that the bus loop road noise will have on my home.

I prepared the noise analysis found at Exhibit F to Mr. Avery's testimony. I have attached a copy of this exhibit without appendices to my written statement. I welcome questions regarding these calculations.

I am also concerned about the future use of the loop road to service the yet un-discussed new hospital. The university's interpretation of the scenic easement suggests that once built, "Park Road" could be opened to all vehicular traffic and operated as a de-facto 42nd Street connecting Reservoir and Canal Roads. This would become the major traffic artery for the

¹ See Exhibit C to June 2, 2011 written testimony of Robert Avery, Board President, Foxhall Community Citizen's Association.

university and create completely different traffic patterns at Reservoir and Canal Roads. This would lead to an even greater objectionable impact on my property.

There is a second alternative to the proposed bus loop road. Call it the "Tondorf Loop."² This route has the advantage of using roadways that already exist. No roads would need to be constructed or widened. In fact, if it wanted to, the university could begin using this route as soon as it repairs the section of Tondorf Road it has blocked off during construction of its New Science Building.

The university has proposed that Tondorf Road become a pedestrian-only mall. This is unrealistic because Tondorf Road services one of the two entrances for the parking structure located underneath the Student Union, as well as dumpsters for Reiss Hall, Harbin Hall, and the Davis Center. There are already sidewalks on Tondorf Road; students and vehicular traffic can continue to share this road.

Thank you for your consideration.

Sincerely,

A handwritten signature in dark ink, reading "Carl J. Reulbach, Jr." in a cursive style.

² Attached to my testimony is a copy of Exhibit U to the university's campus plan showing this route in red. This diagram was also provided in Exhibit A to Mr. Avery's June 2, 2011 written testimony.

Exhibit A



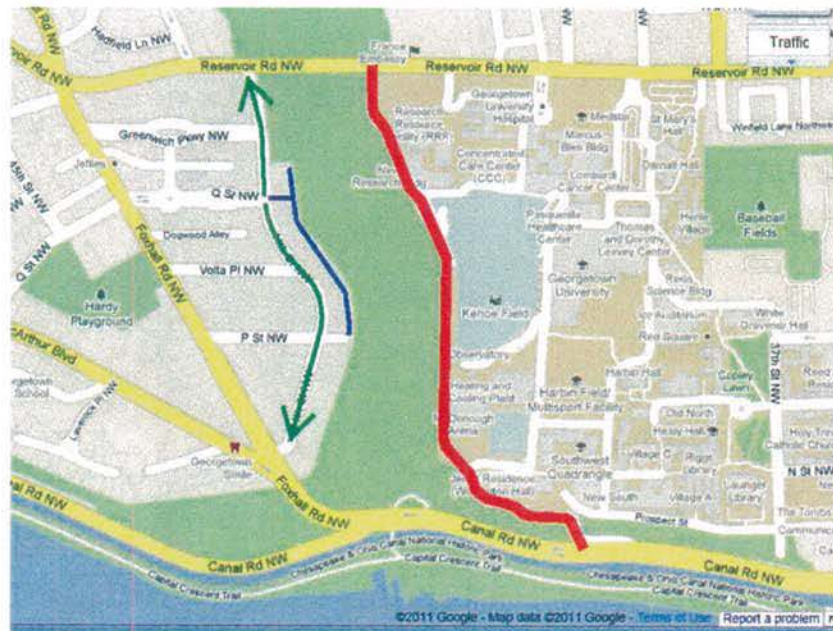
View of the park from my second floor bedroom. **1**

- Proximity of my home to the proposed Bus Loop Road.
- At its closest point, my home is about **370 feet** from the proposed bus loop road.



Bus Noise In My Bedroom

Tested Condition	Notations	STURAA Test Average Measured Noise Level dB(A)	Calculated Noise Level Center of Park Average ($r_2=160$ feet) dB(A)	Calculated Noise Level Western Edge of Park ($r_2=320$ feet) dB(A)	Calculated Noise Level CJD Bedroom ($r_2=370$ feet) dB(A)
accelerating from a constant speed	right side of bus	72.9	62.8	56.8	55.5
accelerating from a constant speed	left side of bus	74.8	64.7	58.7	57.4
accelerating from a standstill	right side of bus	72.8	62.7	56.7	55.4
accelerating from a standstill	left side of bus	74.8	64.7	58.7	57.4
low idle, vehicle stationary	ON: accessories and air conditioning	56.6	46.5	40.5	39.2
wide open throttle, vehicle stationary	ON: accessories and air conditioning	71.8	61.7	55.7	54.4
low idle, vehicle stationary	OFF: accessories and air conditioning	57.8	47.7	41.7	40.4
wide open throttle, vehicle stationary	OFF: accessories and air conditioning	72.0	61.9	55.9	54.6
fast idle	test bus not equipped	n/a	n/a	n/a	n/a

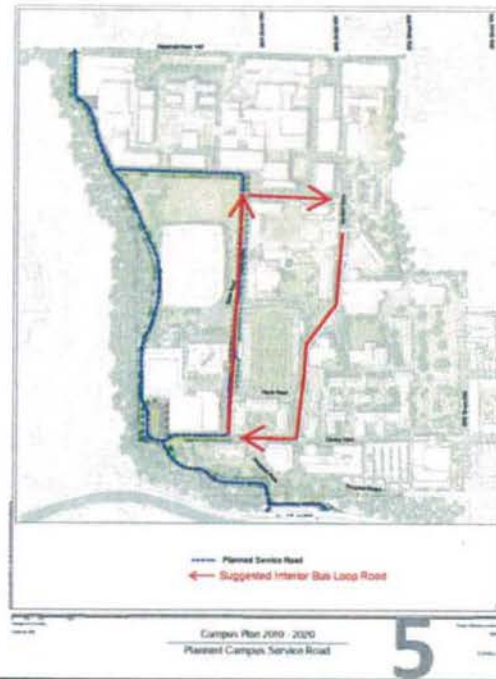


New 42nd Street Shown in **RED**.

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Option B:

The
Tondorf Loop



Tondorf Road looking south. This portion excavated during construction of the New Science Building can be replaced.

6



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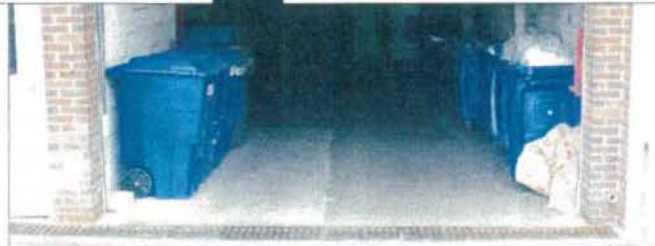
View of Tondorf Road facing south. Entrance to parking structure under the Student Union on right.



Reiss Hall Dumpster.



Davis Center & Harbin Hall Dumpsters.



Harbin Hall Recycling.

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Picture of Tondorf Road looking north between the Bunn Intercultural Center (on right) and the New Science Building. This picture shows the current sidewalk along Tondorf Road along the side of the Bunn Intercultural Center. Buses and pedestrians can share Tondorf Road.



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Exhibit B

Georgetown University Campus Plan 2011-2020

Zoning Commission Case No. 10-32

Exhibit Prepared By:
Conrad J. DeWitte, Jr., Esq.
Foxhall Village Resident and Property Owner

June 2, 2011

Analysis of Noise from Buses Along Proposed Park Bus Road

Currently, there is no bus traffic along the eastern ridge of Glover-Archbold Park. It is undeniable that the diesel-powered bus traffic will produce noise and exhaust on the eastern edge of the park where currently there is none. As indicated by the presentation of parties opposed to the university's campus plan, there is concern that the increase in noise and exhaust from bus traffic will likely become objectionable to neighboring properties including the park and private property along the western ridge of the park.

Georgetown University operates buses manufactured by Blue Bird Corporation. These buses appear to be the All American Rear Engine model. Appendix A provides a specification for the latest model of the Blue Bird All American Rear Engine bus. Pennsylvania State University performed a STURAA Test¹ on the All American in 2003. *See* Appendix B. This report, prepared under contract for the U.S. Government provides relevant data regarding noise generated by the university's GUTS buses. *See* Appendix B, at 96-101. This report also provides relevant data regarding exhaust generated by the university's GUTS buses. *See* Appendix B, at 75-89.

The Exterior Noise Test portion of the All American STURAA Test measured the noise levels generated when the bus was (1) accelerating at full throttle from a constant speed at or below 35 mph and just prior to transmission upshift; (2) accelerating at full throttle from standstill; and (3) stationary, with the engine at low idle, high idle, and wide open throttle. Appendix B, at 96. The test procedures were in accordance with SAE Standards SAE J366b, Exterior Sound Level for Heavy Trucks and Buses, including the placement of the microphone at 50 feet from the vehicle being measured. *See* Appendix B, at 96; Appendix C, at 7.2-5.

¹ The Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA) states that no new bus model may be acquired under the Federal Transit Administration Act of 1964 unless a bus of such model has been tested at a bus testing facility. The bus testing facility shall be capable of testing a bus for maintainability, reliability, safety, performance, structural integrity, fuel economy, and noise. *See* 49 U.S.C. § 5318 (2009).

These measurements were taken in decibels, dB(A), which is a logarithmic scale. Generally, a 10 dB(A) increase in noise is equivalent to a doubling of the sound as perceived by a human.² The following chart summarizes the data presented in the All American STURAA report:

Tested Condition	Ambient Noise Level dB(A)	Notations	STURAA Test Average Measured Noise Level dB(A)
accelerating from a constant speed	43.8	right side of bus	72.9
accelerating from a constant speed	43.8	left side of bus	74.8
accelerating from a standstill	44.1	right side of bus	72.8
accelerating from a standstill	44.1	left side of bus	74.8
low idle, vehicle stationary	43.0	ON: accessories and air conditioning	56.6
wide open throttle, vehicle stationary	43.0	ON: accessories and air conditioning	71.8
low idle, vehicle stationary	43.0	OFF: accessories and air conditioning	57.8
wide open throttle, vehicle stationary	43.0	OFF: accessories and air conditioning	72.0
fast idle	n/a	test bus not equipped	n/a

See Appendix B, at 96-100.

From these measurements taken at a known distance (50 feet), we can calculate the noise in dB(A) that the buses will make at any distance from their source. A point source S sends out sound waves uniformly in all directions. Sound pressure at a distance r from the source decreases as 1/r. The relationship between a noise level L_1 measured in decibels at a distance r_1 and a noise level L_2 measured decibels at a distance r_2 can be expressed by the following formula³:

$$r_1 = r_2 \cdot 10^{(L_1 - L_2)/20}$$

Taking L_1 to be the data measured at $r_1=50$ feet during the All American STURAA test, we can solve for the sound level in decibels (L_2) to be heard at the center of Glover-Archbold Park. We can also solve for the sound level in decibels (L_2) to be heard at the back doors of the homes that are located on the western side of Glover-Archbold Park. Thus, solving for L_2 in the formula above gives:

$$L_2 = L_1 - \left(20 \cdot \log \frac{r_1}{r_2} \right)$$

² See Decibel Table---Loudness Comparison Chart
<<http://www.sengpielaudio.com/calculator-levelchange.htm>>.

³ See Damping of sound level with distance, available at
<<http://www.sengpielaudio.com/calculator-distance.htm>>.

The average distance from the proposed loop road to the center of Glover-Archbold Park (r_{2G-AP}) is about 160 feet. *See* Appendix D. The average distance from the proposed loop road to the back of the homes on the western side of Glover-Archbold Park ($r_{2FOXHALL}$) is 320 feet. *See* Appendix D. Using these distances, the STURAA noise test data measured at $r_1=50$ feet (*see* Appendix C, at 7.2-5), and the formula above, we can calculate the sound level of the buses at the center of the park and at back of the homes at the western edge of the park, as follows:

Tested Condition	Notations	STURAA Test Average Measured Noise Level dB(A)	Calculated Noise Level Center of Park Average ($r_2=160$ feet) dB(A)	Calculated Noise Level Western Edge of Park ($r_2=320$ feet) dB(A)
accelerating from a constant speed	right side of bus	72.9	62.8	56.8
accelerating from a constant speed	left side of bus	74.8	64.7	58.7
accelerating from a standstill	right side of bus	72.8	62.7	56.7
accelerating from a standstill	left side of bus	74.8	64.7	58.7
low idle, vehicle stationary	ON: accessories and air conditioning	56.6	46.5	40.5
wide open throttle, vehicle stationary	ON: accessories and air conditioning	71.8	61.7	55.7
low idle, vehicle stationary	OFF: accessories and air conditioning	57.8	47.7	41.7
wide open throttle, vehicle stationary	OFF: accessories and air conditioning	72.0	61.9	55.9
fast idle	test bus not equipped	n/a	n/a	n/a

All of the three main test conditions discussed above are relevant to the university's proposed bus road. As proposed, GUTS buses will travel north of Kehoe Field west toward Glover-Archbold Park. *See* Appendix D (showing the proposed park loop road in red). Buses will then make a left turn onto the park-side loop road. The eastern ridge of Glover-Archbold Park is not a constant grade. This portion of the road would start out flat, and then descend, and then become flat again, and then descend again. Thus, upon entering the park portion of the loop road, the bus will need to accelerate. After accelerating out of the turn the bus will again need to accelerate as the road levels out behind the Yates Field House. Presumably, these portions of the GUTS bus travel are equivalent to "accelerating at full throttle from a constant speed at or below 35 mph." Next, the GUTS bus will travel north along the eastern ridge of Glover-Archbold Park. Presumably this portion of the GUTS bus travel is equivalent to "stationary, with engine at low idle, high idle, and wide open throttle." Finally, depending on the conditions on the park-side loop road, the GUTS buses will occasionally have to stop to allow for wildlife or other vehicle traffic and then accelerate. This portion of GUTS bus travel is equivalent to "accelerating at full throttle from standstill." Thus, the noise measurement at each test condition shown in the chart

above is relevant to whether the proposed bus loop road will likely becoming objectionable to neighboring property because of noise and traffic.

As noted above, the sound from the bus engine varies depending on the side the engine is placed; the right side of the bus is quieter. Note, however, that the Penn State Test measurements were taken at a location with no reflecting surfaces nearby. Appendix B, at 112. The bus loop road along the Glover-Archbold Park, however, has a continuous reflective surface along its' eastern side, composed of earth at the most northern and southern portions, and concrete---in the form of the back of the Yates Field House in the middle. These surfaces will reflect the sound from the left (noisier) side of the buses into the park, increasing the overall calculated noise in the park from the buses. Also, the noise from the buses will echo throughout Glover-Archbold Park valley.

Finally, while some of this noise may be dampened by the leaf canopy in the summer months, in the Fall, Winter, and Spring, when all the trees have no leaves, the noise will not be dampened. The Zoning commission should give great weight to the overall noise levels in the winter months, when school is in session and there are no leaves on the trees. This will be the time when maximum noise from the buses.

To put the calculated numbers in perspective, in the center of Glover-Archbold Park and at the western edge of Glover-Archbold Park, the sound of the buses while moving will fall into the range of normal conversation (i.e. 45-60 dB(A)). See Appendix E, at 3; Appendix F. This noise is incompatible with a National Park, which right now is only filled with the noise from rustling leaves (15 to 20 dB(A)), the occasional bird call (44dB(A)), rainfall (50 dB(A)), and thunder (120 dB(A)). Thus, these calculations provide substantial evidence that the proposed bus loop road will likely becoming objectionable to neighboring property because of noise and traffic.