Attachments

2019 Traffic Analysis Technical Memo

Berlin Myers Parkway – Phase 3 from US 17A to SC 165

Project ID 23349

Dorchester County, South Carolina

August 27, 2019

Introduction

This 2019 Traffic Analysis Technical Memo is intended to supplement a broader environmental assessment effort related to the selection of a preferred alternative to construct Phase 3 of the Berlin G. Myers Parkway, in Dorchester County. The memo discusses the use of the most recent Charleston Area Transportation Study (CHATS) regional travel demand model to estimate design year traffic volumes within the study area to assess the overall need for the proposed capacity project. The memo also discusses the methodology used to determine the net change in volume-to-capacity ratios created by several potential alternatives that will be used in the environmental assessment screening process.

Berkeley-Charleston-Dorchester Council of Governments (BCDCOG) conducts a regional planning process for the metro-Charleston area and uses the results to inform the CHATS travel demand model (TDM)[1]. Through its regional planning process, the BCDCOG identified western Dorchester County and the Town of Summerville as areas of sustained long-term population growth in the 2018 update to the CHATS model. The 2015 population estimates within the CHATS urbanized area of Dorchester County (including the Town of Summerville) were 127,300 people. The current projections for population growth within the urbanized area of the County through 2040 are an additional 74,300 persons, bringing the total population to 201,600 people. Figure 1 illustrates the concentrations of anticipated population growth in the urbanized area of Dorchester County. The highest concentration of growth is projected to occur in unincorporated areas of Dorchester County south and west of the Town of Summerville. The 2008 Dorchester County Comprehensive Plan (last reviewed by Dorchester County in 2013) also identifies a managed growth area east of the Great Cypress Swamp, between US 17A and Bacons Bridge Road (SC 165).

As population growth increases in this largely undeveloped area, maintaining adequate roadway network connectivity through the Town of Summerville and Dorchester County becomes more important. In particular, traffic from new developments south and west of the Town would travel to nearby I-26 interchanges currently located at Nexton Parkway (Exit 197), US 17A (Exit 199A & B), College Park Road (Exit 203) and US 78/University Boulevard (Exit 205A & B). Primary routes to these nearby interchanges from western and southern Dorchester County consist of US 17A, Bacons Bridge Road (SC 165), SC 61, Dorchester Road (SC 642), and Orangeburg Road.

[1] A regional travel demand model is a computer simulation tool that is utilized by designated metropolitan planning organizations (MPOs) to support the preparation of Long Range Transportation Plans (LRTPs). The LRTP process includes an assessment of the effects of long-term regional population and employment growth on existing infrastructure. The product of this process is a document that serves as a guide for decision-making related to future transportation projects. The BCDCOG is the designated MPO for the metro-Charleston area and carries out the urban transportation planning process for the Charleston Area Transportation Study (CHATS).

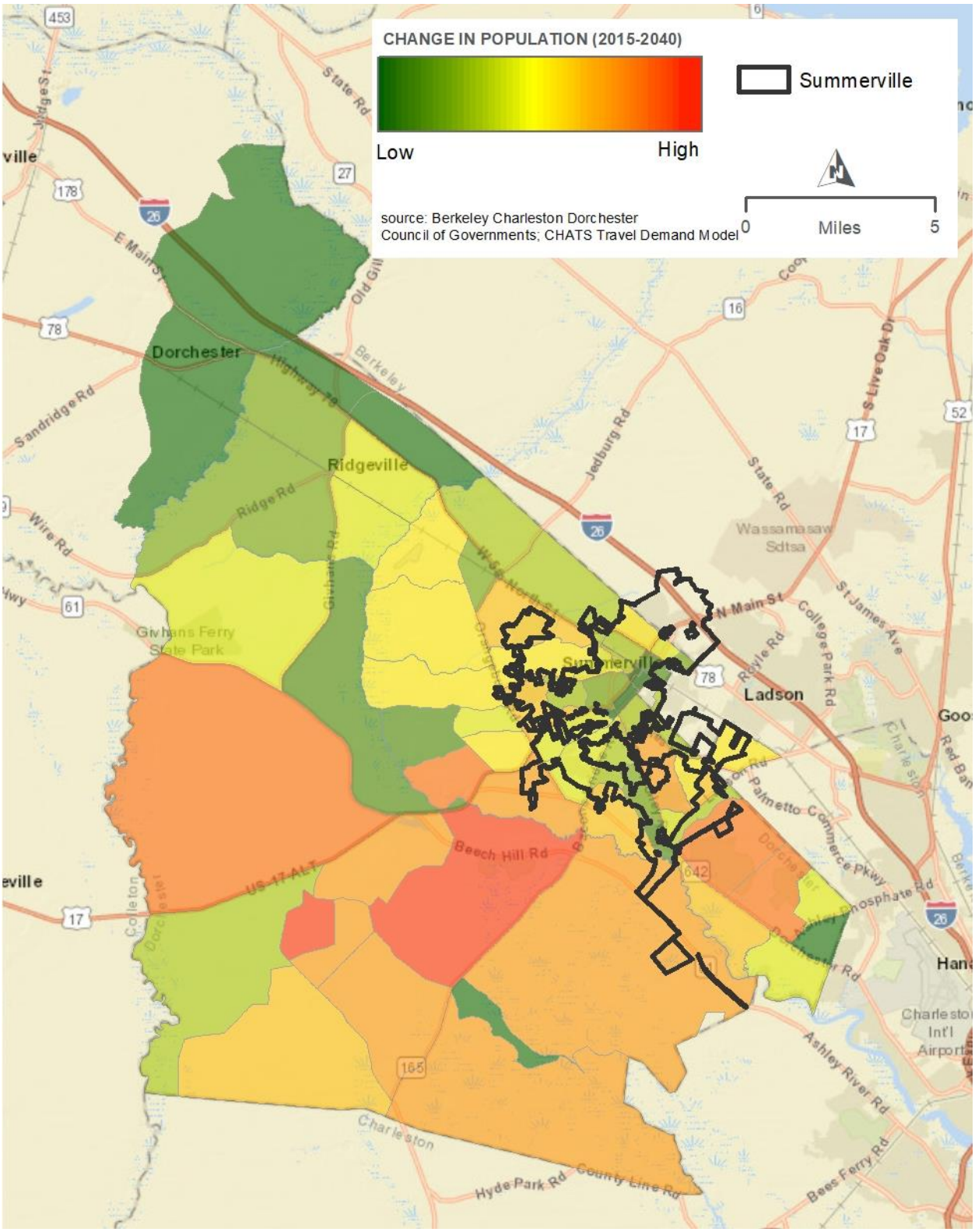


Figure 1. Urbanized Area of Dorchester County Population

Several projects have been constructed near the project area since the 2006 EA. Bacons Bridge Road/SC 165 and Dorchester Road/SC 642 were widened from two to four lanes between 2014 and 2018 to provide additional roadway capacity in southern Dorchester County. These projects were identified in the CHATS model as necessary long-term improvements to meet the anticipated traffic growth that is projected for the area.

Similarly, growth is projected in southwestern Dorchester County to the west of US 17A. Because of this projected growth, there is a need to provide a link from the anticipated growth areas along US 17A to I-26. One of the primary routes between this growth area and I-26 is US 17A, which is a two-lane roadway through the Town of Summerville with a posted 40 mph speed limit, but has numerous driveways and surrounded by residences and businesses. US 17A also travels through the Town's Historic District. Without an alternate connection between western Dorchester County, the Town, and I-26, existing roadway networks would become increasingly congested and may require improvements. In particular, providing an alternate route to US 17A is critical because US 17A is already demonstrating increased crash rates and is anticipated to exceed congested levels of traffic by 2040, which is discussed in detail in subsequent chapters of this memo. Completing Phase 3 of Berlin Myers Parkway and providing an alternate route around the Town and US 17A would provide a needed connection and enhanced roadway network for the growing populations in Dorchester County.

Congestion Mitigation

The CHATS model has identified growing congestion levels on existing roads in the vicinity of the existing Berlin Myers Parkway. Numerous traffic studies were completed as part of the 2006 EA to assess the need and function of the project. Due to the length of time that lapsed since that traffic study, SCDOT has re-evaluated the need for the project in this Supplemental EA, considering recently completed roadway and interstate projects, current BCDCOG plans and models, and recent traffic growth projections.

Level of Service and Volume-Capacity Ratios

Since one of the purposes of the project is to relieve traffic congestion along existing roads, the capacity of the existing roadways within the study area is an important consideration. Two factors used in analyzing capacity for roadways are the volume-to-capacity ratio (V/C) and level of service (LOS).

The concept of LOS uses qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers. LOS A indicates free flowing traffic, while LOS F is characterized by stop-and-go conditions. The descriptions of individual LOS characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. FHWA and the American Association of State Highway and Transportation Officials (AASHTO) define various LOS as follows:

LOS A: Free flow with individual users virtually unaffected by the presence of others in the traffic stream.

LOS B: Stable flow with a high degree of freedom to select speed and operating conditions but with some influence from other users.

LOS C: Restricted flow which remains stable but with significant interactions with others in the traffic stream. The general level of comfort and convenience declines noticeably at this level.

LOS D: High–density flow in which speed and freedom to maneuver are severely restricted and comfort and convenience have declined even though flow remains stable.

LOS E: Unstable flow at or near capacity levels with poor levels of comfort and convenience.

LOS F: Forced flow in which the amount of traffic approaching a point exceeds the amount that can be served, and queues form, characterized by stop-and-go waves, poor travel times, low comfort and convenience, and increased accident exposure.

The amount of traffic that can be served under the stop-and-go conditions of LOS F are generally accepted as being lower than at LOS E; consequently, LOS E is the value which corresponds to the maximum, or capacity, flow rate on the facility. For most design or planning purposes, target LOS rates range from B to D since they assure a more acceptable LOS to facility users. **LOS A is rarely achieved on modeled roads in urbanized areas and therefore is not typically considered a target. In some cases in highly-urbanized areas such as downtown**

Summerville, an LOS of D or better is not achievable and any improvement in volume to capacity (V/C) ratios is considered a metric of project success.

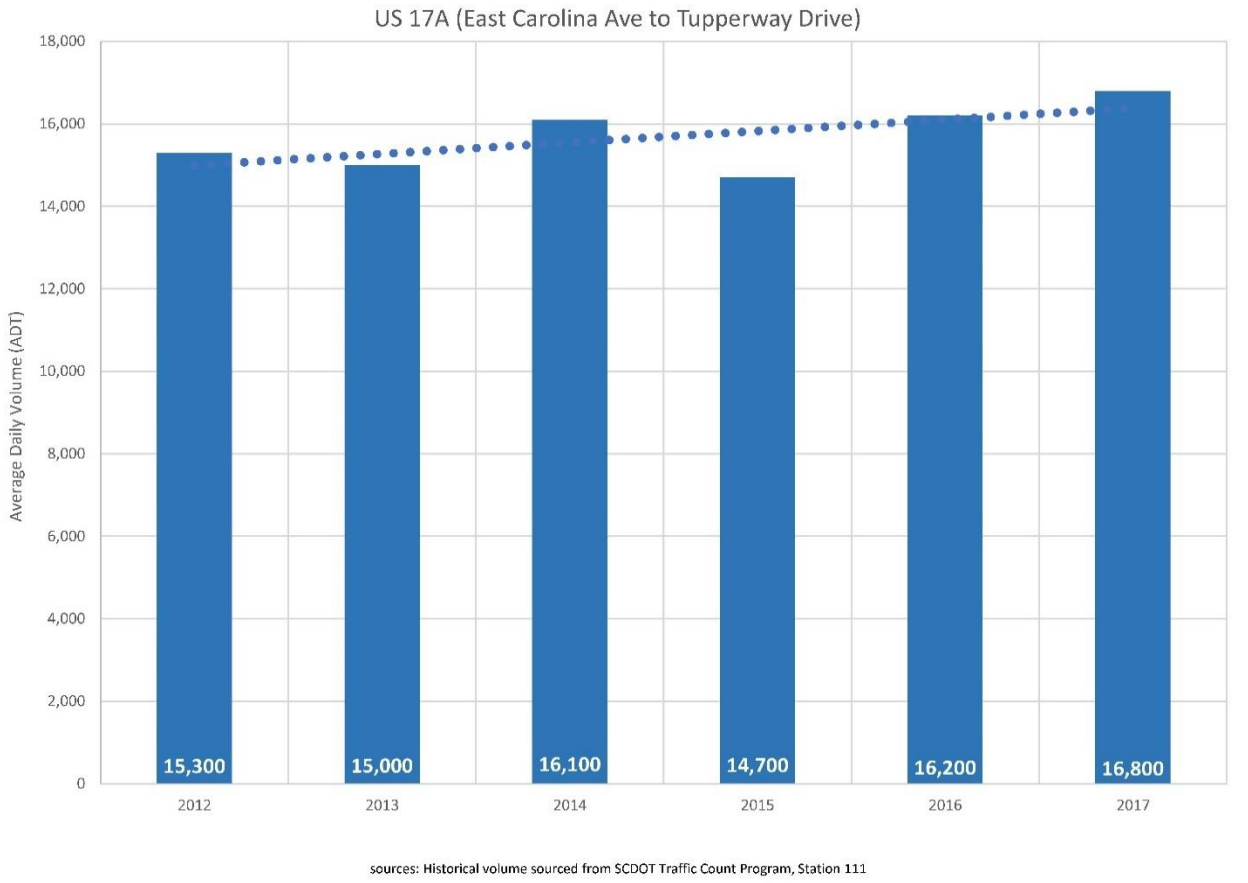
The V/C ratio is the volume to capacity ratio or the degree of congestion of a transportation facility. SCDOT has established a correlation between V/C ratios and LOS for roadway segments. Lower V/C ratios (0.00-0.30) correlate with LOS A, or free-flowing traffic and higher V/C ratios (>1.00) correlate with LOS F, or stop-and-go traffic. The general range of daily LOS, and the corresponding V/C ratios are shown below:

Volume to capacity ratio (V/C ratio) is the degree of congestion of a transportation facility. The higher the V/C ratio, the more congested the roadway.

- A – 0.00 - 0.30
- B – 0.31 - 0.50
- C – 0.51 - 0.70
- D – 0.71 - 0.83
- E – 0.84 - 0.99
- F – 1.00 or greater

Average Daily Traffic

Average daily traffic (ADT) for the past five years is increasing in the vicinity of the proposed project, as shown on Figure 2 through Figure 5. The recent five-year data represents a rebound of a more long-term trend of declining traffic volumes which began sometime between 2008 and 2009 and is likely attributed to the economic recession. Prior to this declining trend, traffic volumes had been increasing year-to-year, as evidenced by yearly SCDOT traffic counts dating back to 2002.



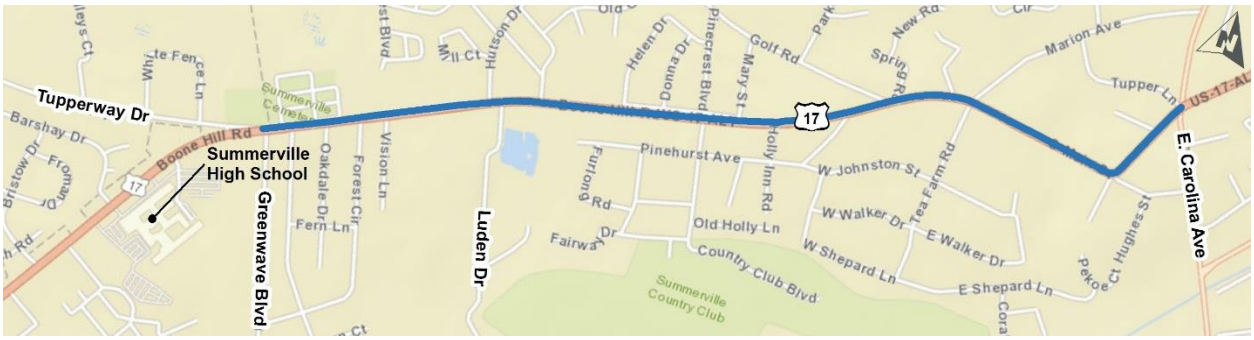


Figure 2. ADT between 2012 and 2017 on US 17A (between E. Carolina Ave. and Tupperway Drive)

On US 17A, SCDOT traffic data shows a trend of increasing vehicle volume east of Tupperway Drive (Figure 2**Error! Reference source not found.**). Variations in yearly data can occur, as evidenced by the lower volume in 2015. Looking at traffic volumes over a multi-year period of time helps identify whether dips like this are part of a trend, or are outliers from the norm. In this case, the 2015 volume appears to be an outlier, as the five-year trend is showing a general increase.

The daily volume on this segment of US 17A is approaching the general maximum service volume for a two-lane arterial road, which is approximated as being between 19,000 and 20,000 vehicles per day. Beyond that maximum service volume, operations would decline to a LOS F, congestion would form at intersections, crash rates may rise, and delays would increase.

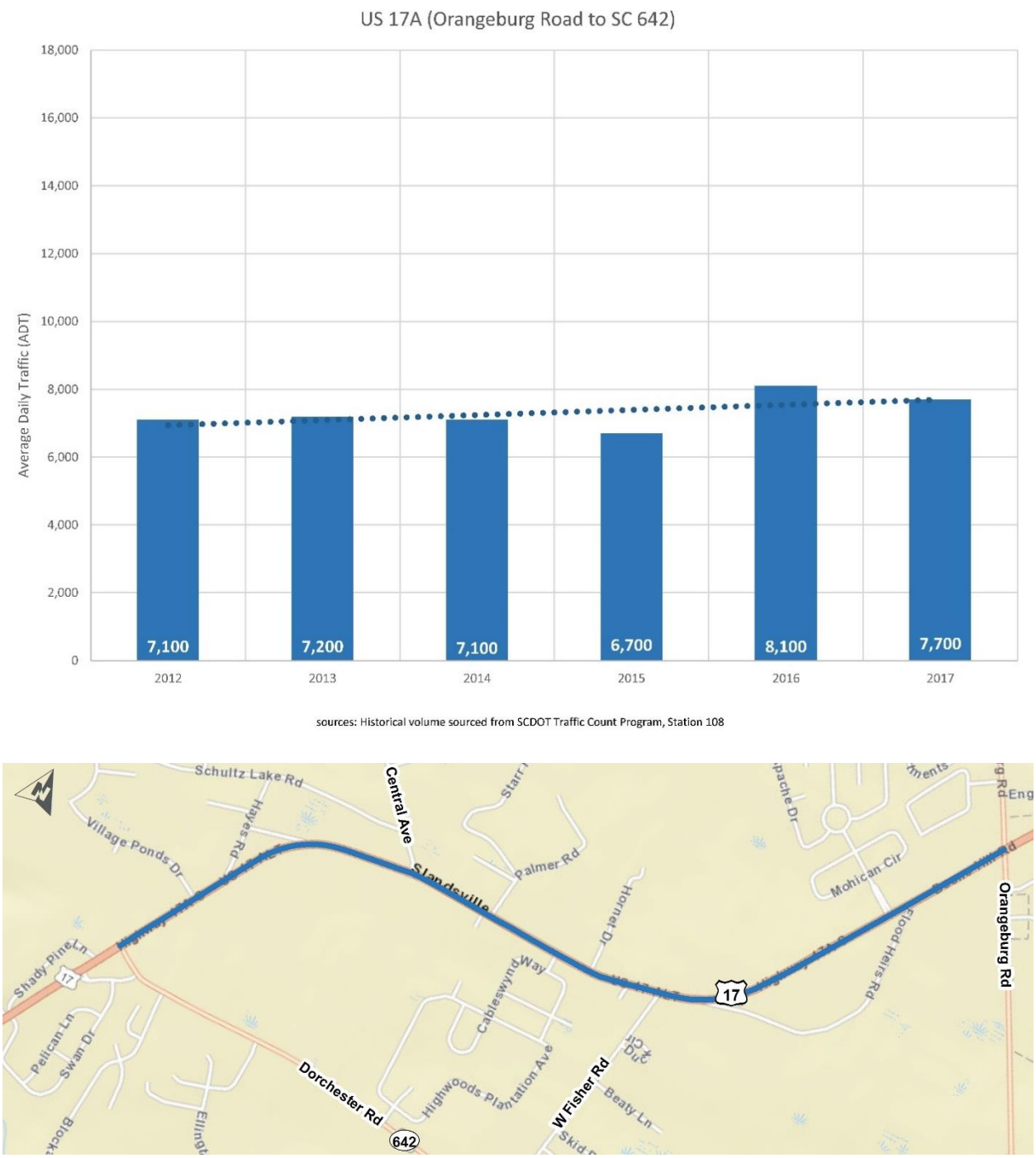
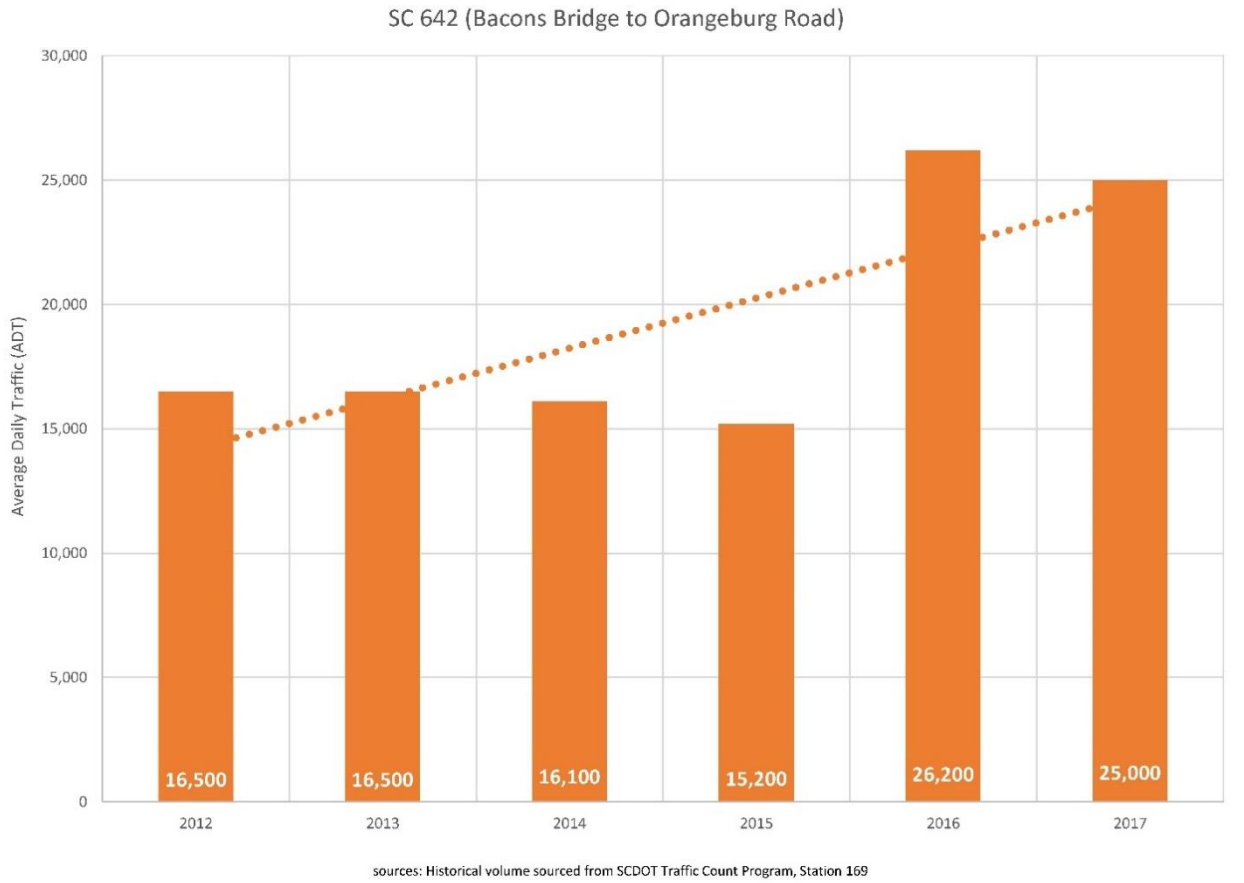


Figure 3. ADT between 2012 and 2017 on US 17A (between Orangeburg Road and SC 642)

On US 17A between Orangeburg Road and Dorchester Road (SC 642), SCDOT traffic data is represented by increasing traffic as well (Figure 3). Volumes here are lower than on US 17A east of Orangeburg Road. However, the overall trend shows growth over the most recent five-year period.



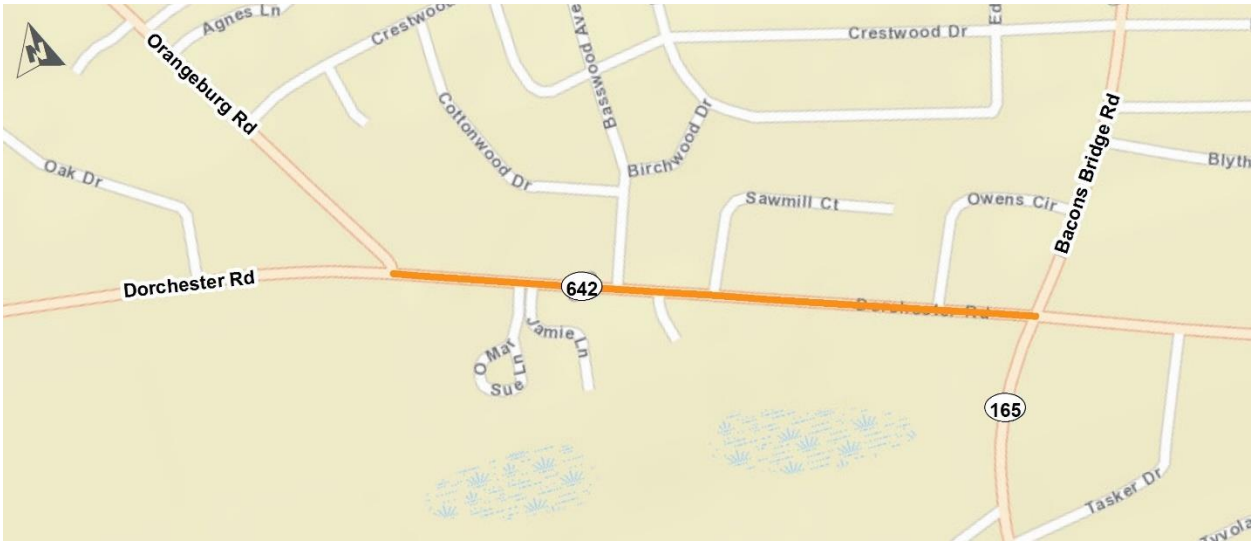
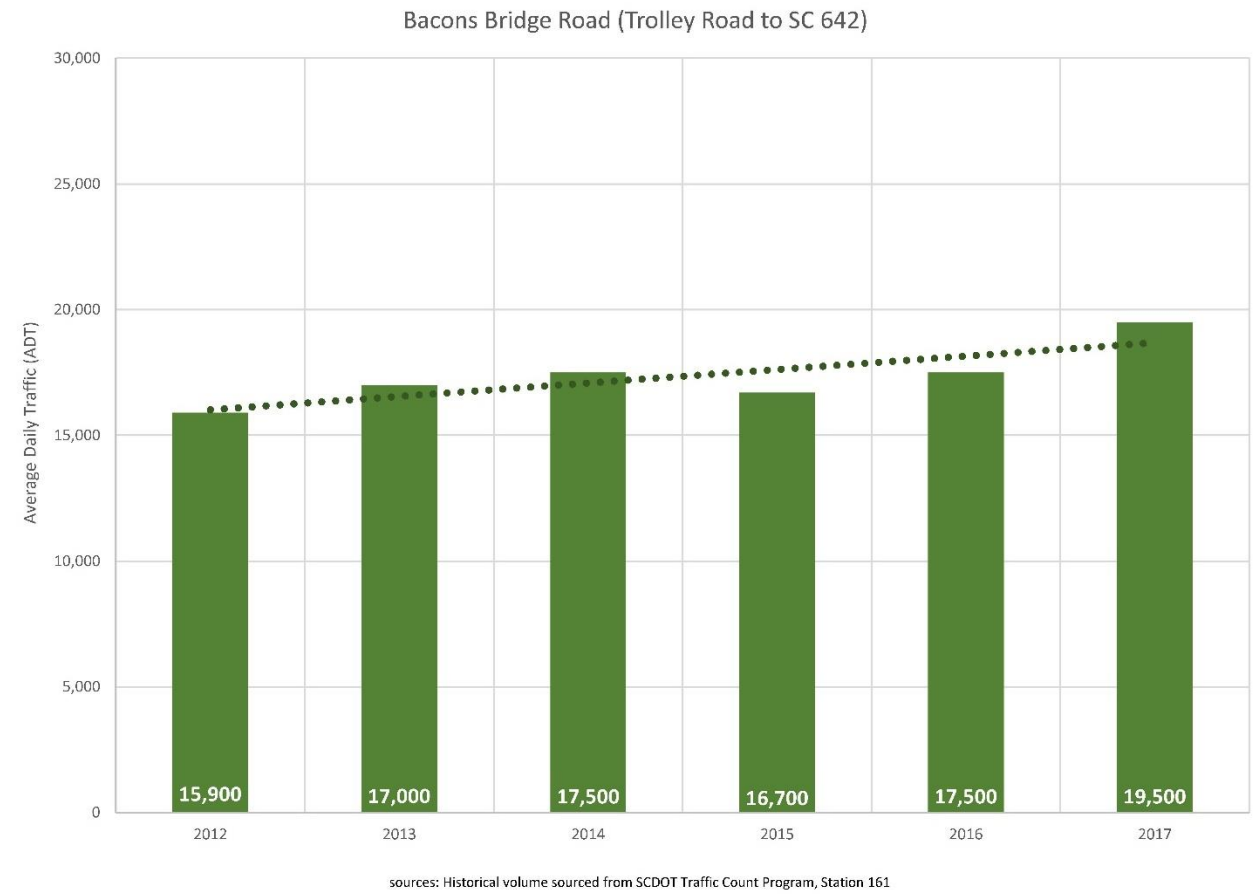


Figure 4. ADT between 2012 and 2017 on SC 642 (between SC 165/Bacons Bridge Rd. and Orangeburg Rd.)

Dorchester Road (SC 642) traffic between Bacons Bridge Road (SC 165) and Orangeburg Road was relatively flat until the widening of Dorchester Road from two lanes to four lanes was completed in 2014 (see Figure 4). Upon completion, traffic volumes increased by approximately 10,000 vehicles per day.



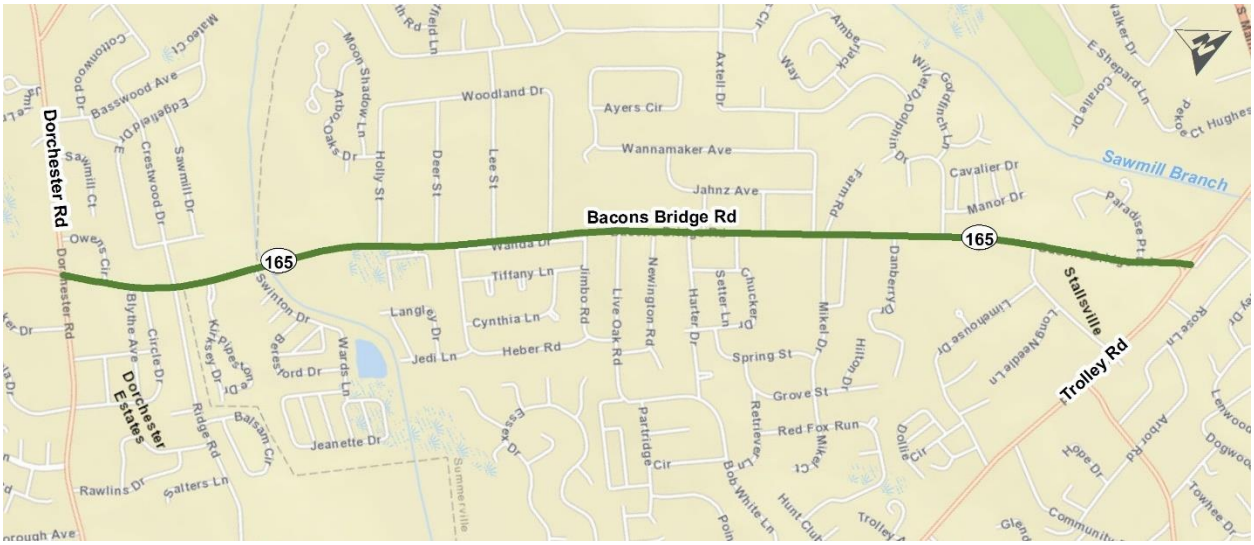


Figure 5. ADT between 2012 and 2017 on SC 165/Bacons Bridge Road (between Trolley Road and SC 642)

Traffic along the Bacons Bridge Road (SC 165) corridor is also increasing based on data from the past five years (Figure 5). Additional capacity was created along Bacons Bridge Road in 2015 when the route was widened from two lanes to four lanes.

Updated Traffic Conditions

Traffic studies were completed as part of the original EA to assess the need and function of the final phase of the Berlin Myers Parkway. Due to the length of time that lapsed since that traffic study, an updated traffic analysis was conducted to consider the following:

- Recently completed nearby widening projects, such as Dorchester Road and Bacons Bridge Road, and interstate projects, such as Sheep Island Parkway interchange
- Updates to the base year and 2040 travel demand model socioeconomic assumptions
- Updates to the Existing Plus Committed (E+C) roadway network

BCDCOG conducted several runs of its regional travel demand model, including a 2030 and a 2040 scenario. The output from those model runs was used to inform the traffic analysis which is summarized in this section.

Methodology

The CHATS model (developed by BCDCOG) was used as the primary tool to evaluate the magnitude of current and future congestion within the study area. The CHATS model is used to estimate the network-wide effects of adding a new road to the system. The model also provides a validated (by BCDCOG) long-term forecast for population and employment growth within the region.

Volume-to-capacity (V/C), daily traffic, and daily LOS were the primary model output metrics that were used to evaluate the need for the proposed project. The travel demand model was run under the following future year scenarios:

- 2040 socioeconomic conditions, with the Existing + Committed (E+C) projects road network (does not include Berlin Myers Parkway Phase 3)
- 2040 socioeconomic conditions with the Existing + Committed projects road network, and Berlin Myers Parkway Phase 3

The CHATS travel demand model includes an E+C network which incorporates the existing roads and all projects under construction, completely programmed, or partially funded within the BCDCOG region. This network also accounts for recently completed projects.

The methodology for this traffic analysis identifies the 2040 LOS and V/C ratios for roads within the vicinity of the proposed project. Berlin Myers Parkway Phase 3 does not fall within the CHATS E+C model network. Instead, the E+C network is used as a base, and Berlin Myers Parkway Phase 3 project was added for the purpose of understanding how it influences traffic levels, V/C ratios, and traffic routes on the base network.

Existing + Committed Projects

The traffic study was updated to account for recently completed projects, such as Dorchester Road widening, Bacons Bridge Road widening, and Sheep Island Parkway interchange on I-26. The traffic study also includes projects that are included in the BCDCOG Transportation Improvement Program and are committed to occur prior to 2040. This step of the analysis was used to analyze existing and future congestion levels within the project area based on current and 2040 conditions.

What is an Existing Plus Committed (E+C) Roadway Network?

The E+C network in the BCDCOG is the existing transportation infrastructure plus projects under construction, completely programmed, or partially funded.

The CHATS travel demand model includes an E+C network and accounts for recently completed projects (Figure 6). Important projects within the study area that are also included in the travel demand model network are:

- SC 642/Dorchester Road four-lane widening from US 17A to Old Trolley Road - complete
- SC 165/Bacons Bridge Road five-lane widening from Old Trolley Road to Ashley Ridge High School - complete
- Maple Street Extension/Nexton Parkway and interchange with I-26 (Exit 197) - complete
- US 78 four-lane widening from Old Orangeburg Road to W Richardson Ave – committed
- Old Orangeburg Road four-lane widening from Jedburg Road to SC 642/Dorchester Road – committed

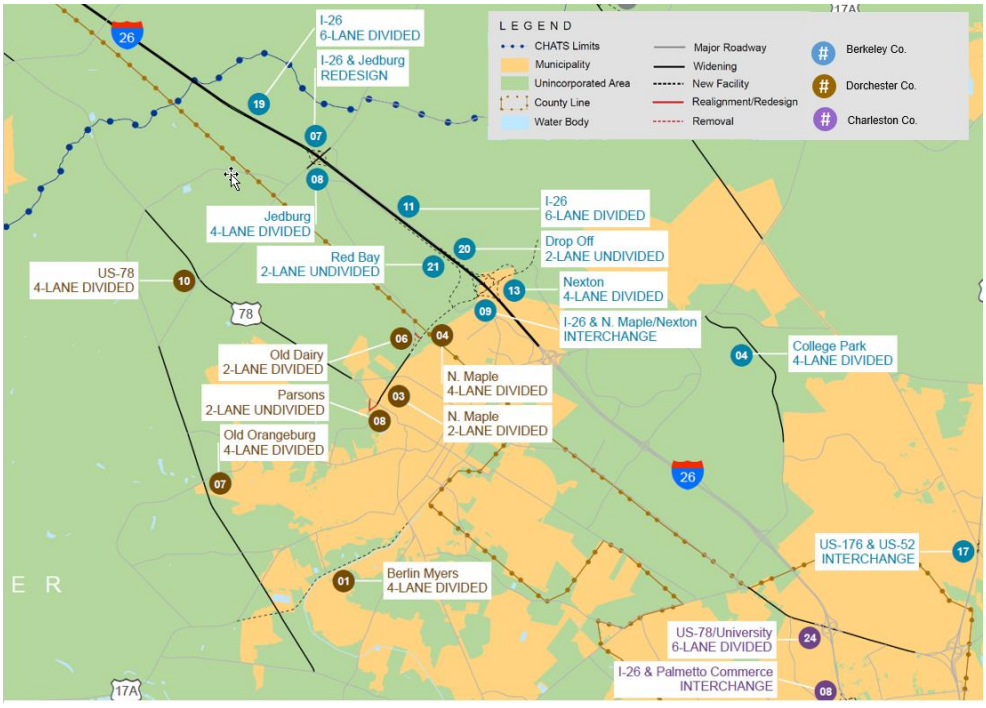


Figure 6. BCDCOG Existing+Committed Project Map of Summerville and Surrounding Area
Source: BCDCOG

The E+C projects network was used because, at the time of this analysis, the BCDCOG is undertaking a Long Range Transportation Plan (LRTP) update. This process will culminate in an adopted list of long range transportation projects, and a corresponding travel demand model network that incorporates these projects. This list of LRTP projects has not been formally adopted at this time, and therefore the most reasonable model network available for use is the E+C network.

2040 No-Build Travel Demand Model Output

The updated traffic study shows an increase in V/C ratios (i.e., an increase in congestion) on the existing roadway network between 2015 and 2040. As vehicle demand on a road approaches its capacity, drivers experience congestion that increases in both magnitude and duration, resulting in longer and less reliable travel times and potentially higher crash rates. According to the updated traffic analysis, the travel demand model demonstrates that the three arterial roads in the study area would be operating beyond capacity by 2040, including US 17A, SC 642 (Dorchester Road), and SC 165 (Bacons Bridge Road). Additional segments of these roadways would be within the LOS E range, approaching their respective capacities.

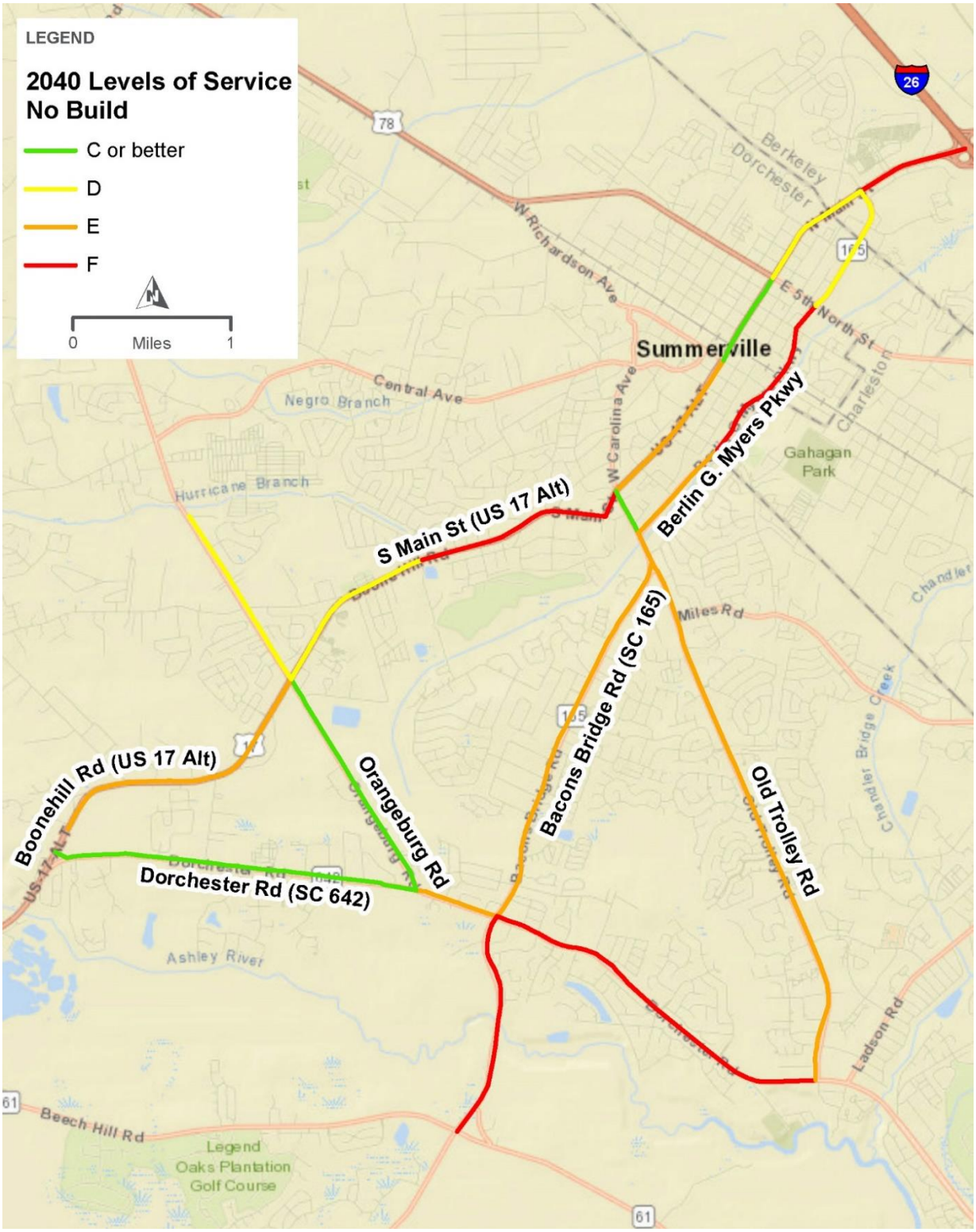


Figure 7. 2040 No Build Level of Service

Crash Rates and Driver Safety

The 2006 EA document presented crash data from a four-year period of time between January 2001 and December 2004. Crash reporting technology and database management have changed significantly since the 2006 EA was prepared. As part of this Supplemental EA, recent crash data has been gathered from January 2015 to December 2017 was also provided by the SCDOT Office of Traffic Engineering Safety and provided for comparison. The data from both time periods is reported in Table 1 and Table 2, respectively.

Table 1. Crash data for area roads, January 2001 to December 2004

Road	Beginning milepost	Ending milepost		Primary Contributing Factor of Accidents			Crash Severity		
			Total Number of Accidents	Rear-end	Angle	Other	Fatal	Injury	Property damage
SC 642 (Dorchester Rd.)	0.00	2.94	86	45	22	19	0	25	61
SC 165 (Bacons Bridge Rd.)	10.40	12.86	312	158	110	44	0	86	226
US 17A	10.84	14.20	201	130	43	28	1	43	157

Source: SCDOT.

Table 2. Crash data for area roads, January 2015 to December 2017

Road	Beginning milepost	Ending milepost		Primary Contributing Factor of Accidents			Crash Severity		
			Total Number of Accidents	Rear-end	Angle	Other	Fatal	Injury	Property damage
SC 642 (Dorchester Rd.)	0.00	2.94	114	47	41	26	3	18	93
SC 165 (Bacons Bridge Rd.)	10.40	12.86	232	102	91	39	1	50	181
US 17A	10.84	14.20	398	243	95	60	3	78	317

Source: SCDOT.

The SCDOT crash data provided in Table 2 is given for a three-year period as opposed to the crash data in the EA (Table 1), which was provided for a 4-year period. To evaluate the relative crash exposure on each road segment within the study area, crash rates, or crashes per 100 million vehicle miles traveled, were developed. This metric not only normalizes crashes on each road by vehicle volume, but also provides a valuable way to compare to statewide averages for

similar functional classes roads. Table 3 provides those crash rates, injury rates, and fatality rates, and offers the comparative statewide rate. The functional class of each road in the study area is used to select a similar statewide functional class crash rate. This rate has been prepared by SCDOT Office of Traffic Engineering Safety. Injury and Fatality rates are on a statewide basis only, and are taken from the most recent SCDOT Traffic Collision Fact Book for 2016.

Table 3. Crash Rates per 100 million vehicle miles traveled (VMT), by year

Road	Functional Classification	Statewide (by Functional Classification)			2001-2004			2015-2017		
		Crash Rate	Injury Rate	Fatality Rate	Crash Rate	Injury Rate	Fatality Rate	Crash Rate	Injury Rate	Fatality Rate
SC 642 (Dorchester Rd.)	Principal Arterial	461.65	113.30	1.87	239.04	69.49	0.00	318.78	50.33	8.39
SC 165 (Bacons Bridge Rd.)	Major Collector	452.63	113.30	1.87	532.12	146.68	0.00	481.16	103.70	2.07
US 17A	Principal Arterial	461.65	113.30	1.87	342.16	73.20	1.70	874.74	171.43	6.59

Note: Red text indicates the crash rate, injury rate, or fatality rate is greater than the statewide average.

Between 2001 and 2004, the only corridor exceeding the current statewide average crash rate was Bacons Bridge Road. This was prior to the widening of this road. The 2015 to 2017 data shows that while the crash rate has declined on Bacons Bridge Road, it is still higher than the average, for minor arterial roadways.

The US 17A crash rate has shown a large increase in crash exposure since the 2001-2004 time period. This rate has more than doubled, and now exceeds the statewide average for principal arterials. The corridor is largely suburban in character, and is two lanes wide with infrequent turn lanes. Residential and commercial driveways are present along much of the corridor, contributing to both angled and rear end crash risks. Angled crashes that occur at moderate to high speeds can lead to higher crash severity as well.

Injury rates have declined on both SC 642 and SC 165, but have increased on US 17A since the 2006 EA. Injuries occur on US 17A at a rate higher than the statewide average for the reported time period. The fatality rate on all three corridors has trended higher since the 2001 to 2004 time period. These rates are all higher than the statewide average, which was reported in the 2016 South Carolina Traffic Collision Fact Book as being 1.87 crashes per 100 million VMT.

The safety data presented above indicates approximately 83 percent of the inventoried crashes have been the result of rear-end or angle collisions, which most often occur during vehicular turning movements. Volume of traffic and traffic congestion are usually contributing factors to these types of crashes. If this project is completed, traffic congestion would be improved on many of the surrounding roadways, which should result in fewer rear-end and angled collisions.

Alternatives Screening Process

Six alternatives were evaluated in this process. Those alternatives are:

Alternative 1-3: construct a limited access roadway on new alignment

Alternative 4: widen portions of SC 642 (Dorchester Road) and SC 165 (Bacons Bridge Road) from two lanes to five lanes

Alternative 5: widen US 17A from two lanes to five lanes beginning at Fisher Road and continuing to E. Carolina Avenue (S-64) and widening E. Carolina Avenue from US 17A to the existing Berlin Myers Parkway (SC 165)

Alternative 6: modify Alternative 1-3 to include bridging all of the wetlands as a part of the design to avoid and/or minimize impacts to wetlands

One of the purposes of this project is to reduce congestion on existing road network for current and future projections. This is measured using the volume-to-capacity (V/C) metric, which is derived from the regional travel demand model. V/C is a ratio that represents both a road's inherent capacity to move traffic and the anticipated traffic demand that is or will be placed on it. If the demand on a given road is greater than its capacity, the road's V/C ratio will be greater than 1.0, indicating that it is over-capacity. This metric becomes a useful tool for not only observing locations where over-capacity conditions may take place, as well as for describing the magnitude of improvement or decline in congestion with various comparative alternatives.

Table 4 summarizes the 2040 TDM output for each alternative and references link average daily traffic (ADT), volume-to-capacity ratios (V/C) and level of service (LOS). Table 5 shows the net change in V/C ratio for each alternative, as compared with the no-build model run.

Table 4. 2040 Road segment ADT, LOS, and V/C ratios, by Alternative

Road and Segment	No Build			Alternatives 1, 2, 3 & 6			Alternative 5		
	ADT	LOS	V/C Ratio	ADT	LOS	V/C Ratio	ADT	LOS	V/C Ratio
US 17 A									
Berlin Myers Parkway to US 78	30100	D	0.82	28800	D	0.79	34500	E	0.94
US 78 to E. Richardson Avenue	16100	B	0.44	15100	B	0.41	20100	C	0.55
E. Richardson Avenue to E. Carolina Avenue	14700	E	0.86	14000	D	0.83	26300	D	0.78
E. Carolina Avenue to Luden Drive	22300	F	1.32	15800	E	0.93	32800	E	0.97
Luden Drive to Orangeburg Road	13000	D	0.77	8300	B	0.49	24300	D	0.72
Orangeburg Road to proposed Berlin Myers Parkway	21300	E	0.94	11200	B	0.49	26700	C	0.59
Proposed Berlin Myers Parkway to SC 642	21300	E	0.94	24500	F	1.08	21500	E	0.95
SC 642/Dorchester Road									
Old Trolley Rd to SC 165/Bacons Bridge Rd	51300	F	1.1	49800	F	1.07	49900	F	1.07
SC 165/Bacons Bridge Rd to Orangeburg Rd	40800	E	0.87	34500	D	0.74	34400	D	0.74
Orangeburg Rd to US 17A	19800	C	0.50	14700	B	0.37	15600	B	0.39
SC 165/Bacons Bridge Road									
Old Trolley Rd to SC 642/Dorchester Road	33400	E	0.90	25200	C	0.68	31300	E	0.84
SC 642/Dorchester Road to SC/Ashley River Rd	45700	F	1.23	44300	F	1.19	45300	F	1.22
Orangeburg Road									
Central Avenue to Tupperway Drive	27100	D	0.72	22500	C	0.59	21300	C	0.56
Tupperway Dr to US 17 A	27400	D	0.73	25500	C	0.68	22300	C	0.59
US 17 A to proposed Berlin Myers Pkwy Phase 3	21000	C	0.55	20500	C	0.54	18800	C	0.50
Proposed Berlin Myers Pkwy Phase 3 to SC 642/Dorchester Road	21000	C	0.55	19800	C	0.52	18800	C	0.50
Berlin Myers Parkway Phases 1 & 2									
US 17A to US 78	31300	D	0.82	33400	E	0.87	31900	D	0.83
US 78 to Gahagan Road	43000	F	1.13	46200	F	1.21	42400	F	1.11
Gahagan Road to E. Carolina Avenue	35300	E	0.92	38200	E	0.99	31000	E	0.81

* highest modeled ADT within the segment

Table 5. 2040 Road Segment V/C Ratio Comparison to No Build, by Alternative

Road and Segment	V/C Ratio			% Change versus No Build	
	No Build	Alternatives 1, 2, 3 & 6	Alternative 5	Alternatives 1, 2, 3 & 6	Alternative 5
US 17 A					
Berlin Myers Parkway to US 78	0.82	0.79	0.94	-3.7%	+14.6%
US 78 to E. Richardson Avenue	0.44	0.41	0.55	-6.8%	+25.0%
E. Richardson Avenue to E. Carolina Avenue	0.86	0.83	0.78	-3.5%	-9.3%
E. Carolina Avenue to Luden Drive	1.32	0.93	0.97	-29.5%	-26.5%
Luden Drive to Orangeburg Road	0.77	0.49	0.72	-36.4%	-6.5%
Orangeburg Road to proposed Berlin Myers Parkway	0.94	0.49	0.59	-47.9%	-37.2%
Proposed Berlin Myers Parkway to SC 642	0.94	1.08	0.95	+14.9%	+1.1%
SC 642/Dorchester Road					
Old Trolley Rd to SC 165/Bacons Bridge Rd	1.1	1.07	1.07	-2.7%	-2.7%
SC 165/Bacons Bridge Rd to Orangeburg Rd	0.87	0.74	0.74	-14.9%	-14.9%
Orangeburg Rd to US 17A	0.50	0.37	0.39	-26.0%	-22.0%
SC 165/Bacons Bridge Road					
Old Trolley Rd to SC 642/Dorchester Road	0.90	0.68	0.84	-24.4%	-6.7%
SC 642/Dorchester Road to SC/Ashley River Rd	1.23	1.19	1.22	-3.3%	-0.8%
Orangeburg Road					
Central Avenue to Tupperway Drive	0.72	0.59	0.56	-18.1%	-22.2%
Tupperway Dr to US 17 A	0.73	0.68	0.59	-6.8%	-19.2%
US 17 A to proposed Berlin Myers Pkwy Phase 3	0.55	0.54	0.50	-1.8%	-9.1%
Proposed Berlin Myers Pkwy Phase 3 to SC 642/Dorchester Road	0.55	0.52	0.50	-5.5%	-9.1%
Berlin Myers Parkway Phases 1 & 2					
US 17A to US 78	0.82	0.87	0.83	+6.1%	+1.2%
US 78 to Gahagan Road	1.13	1.21	1.11	+7.1%	-1.8%
Gahagan Road to E. Carolina Avenue	0.92	0.99	0.81	+7.6%	-12.0%

Alternative 5, which proposes a widening of US 17A between W. Fisher Road and Richardson Avenue, would yield mixed results with respect to congestion mitigation. A widening of US 17A would increase the direct capacity on the section that is widened, resulting in a net improvement to LOS and V/C. Predictive model results indicate that Alternative 5 would not alleviate growing congestion levels on Bacons Bridge Road, however. 2040 modeled average daily traffic (ADT), V/C ratios, and the % improvement in V/C ratios (i.e., reduction in congestion) over No Build conditions are reported in Table 4 and Table 5. A positive % Improvement in V/C Ratio value indicates that an Alternative would provide a net reduction to congestion. A negative value indicates that an Alternative would provide an increase in V/C ratios, yielding conditions closer to capacity and increased congestion.

Alternative 5, or the widening of US 17A, would have little impact on the LOS of Bacons Bridge Road but would improve congestion conditions on parts of US 17A. Alternative 5 is also likely to reduce overall traffic volume on Berlin Myers Parkway Phases 1 & 2 while conversely increasing overall traffic volume on US 17A, which would lead to a decrease in LOS on the section of US 17A between E. Richardson Avenue and the signal at Berlin Myers Parkway.

Alternatives 1, 2, 3, and 6 have comparable alignments and were evaluated as a proposed project in the updated traffic study (see Section 0). The results of the traffic analysis did not distinguish between Alternatives 1, 2, 3, and 6, but instead evaluated the effects of a new, limited access roadway on the surrounding roadway network.

Alternatives 1, 2, 3, and 6 would benefit both local traffic and through traffic by reducing congestion on much of the existing roadway network. There is a consistent reduction in overall V/C ratios on US 17A as a result of a new alignment, and similar effects are modeled on Bacons Bridge Road and Dorchester Road. The net change in V/C ratios, as well as the net change in LOS, is reported in Table 4 and Table 5.

One location where V/C ratios are likely to increase with Alternatives 1, 2, 3, and 6 is on US 17A between the terminus of the proposed parkway and Dorchester Road (SC 642). This segment acts as a convergence of the diverted traffic on the parkway and traffic that remains on US 17A. It should be noted that a proposed project on this segment is included as an unfunded project in the latest update to the LRTP.

The forecast model also indicates that around 2,000 - 3,000 additional vehicles per day will shift to the current section of Berlin Myers Parkway, as traffic is diverted off US 17A by the proposed Alternative alignments.

Note that in Table 4 a decrease in V/C ratio is considered an improvement and an increase is considered to be a decline in service. This is the primary metric used to compare Alternatives for congestion-reducing potential. On average, a new alignment (Alternatives 1, 2, 3 & 6) provide greater benefits to the system's congestion levels than Alternative 5. The exception to this is that with a new alignment, the existing Berlin Myers Parkway may see greater volumes of traffic with a new alignment (Alternatives 1, 2, 3, or 6) than with a widening of US 17 A (Alternative 5).

The model results demonstrate that a new alignment Alternative (1, 2, 3, or 6) would improve operating conditions on area roads by up to 47 percent. Other notable benefits of a new alignment Alternative are:

- Traffic volume and corresponding congestion on US 17A is notably improved between E. Carolina Avenue and the proposed Berlin Myers Parkway intersection. A new alignment for an extension of Berlin Myers Parkway would, on average, improve congestion levels on this 3.3-mile segment of US 17A by nearly 38 percent, which would help extend the life of the existing highway, as it passes through a constrained residential area.

- SC 642/Dorchester Road also experiences an improvement in V/C ratios and LOS between Bacons Bridge Road and US 17A. This segment of Dorchester Road is projected to experience an average of 21 percent less congestion.

- SC 165/Bacons Bridge Road, between Old Trolley Road and SC 642/Dorchester Road is projected to be operating at an LOS E, with 90 percent capacity utilization. By completing a new alignment extension of Berlin Myers Parkway, congestion levels are projected to drop 28 percent, which is comparable to LOS C conditions.

To help illustrate the results in Table 4 and Table 5, the LOS for the area roads within the study area are shown on three individual maps on the following pages. Figure 8 illustrates, the daily LOS under No Build conditions by year 2040. Figure 9 provides the daily LOS with Alternatives, 1, 2, 3, or 6 while Figure 10 provides the daily LOS with Alternative 5.

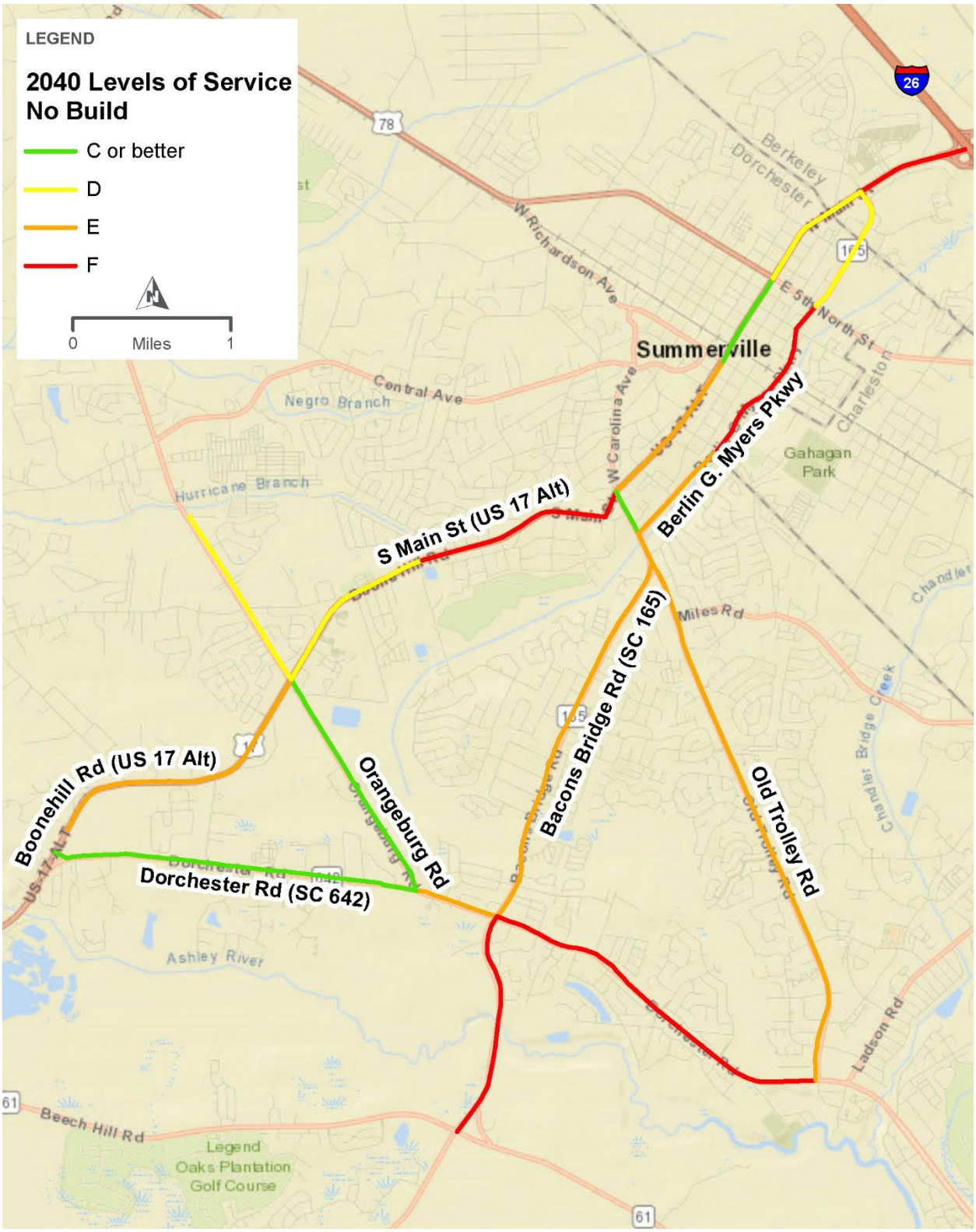


Figure 8. 2040 No Build Level of Service

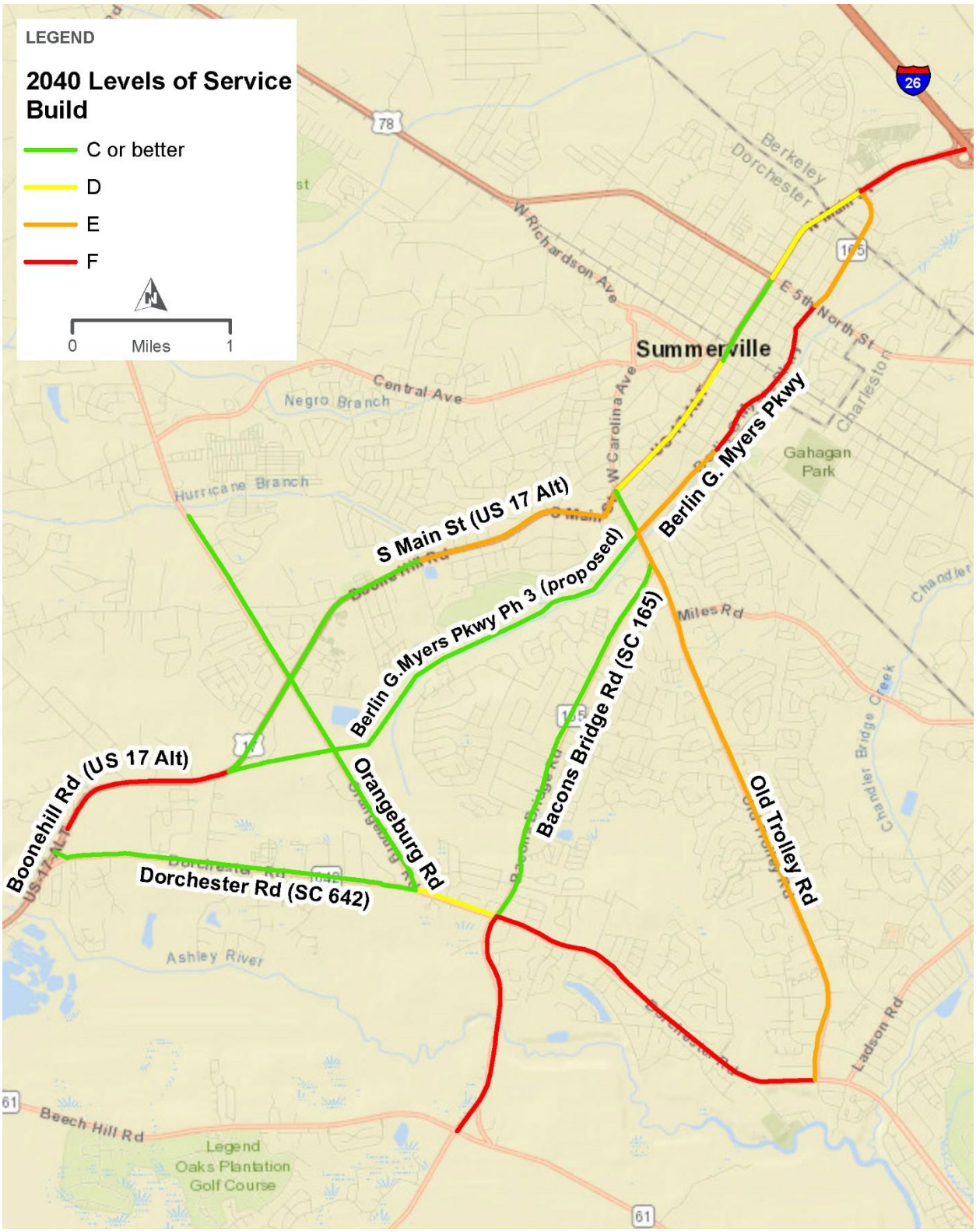


Figure 9. 2040 LOS, Alternatives 1, 2, 3, and 6 (Berlin Myers Parkway Phase 3)

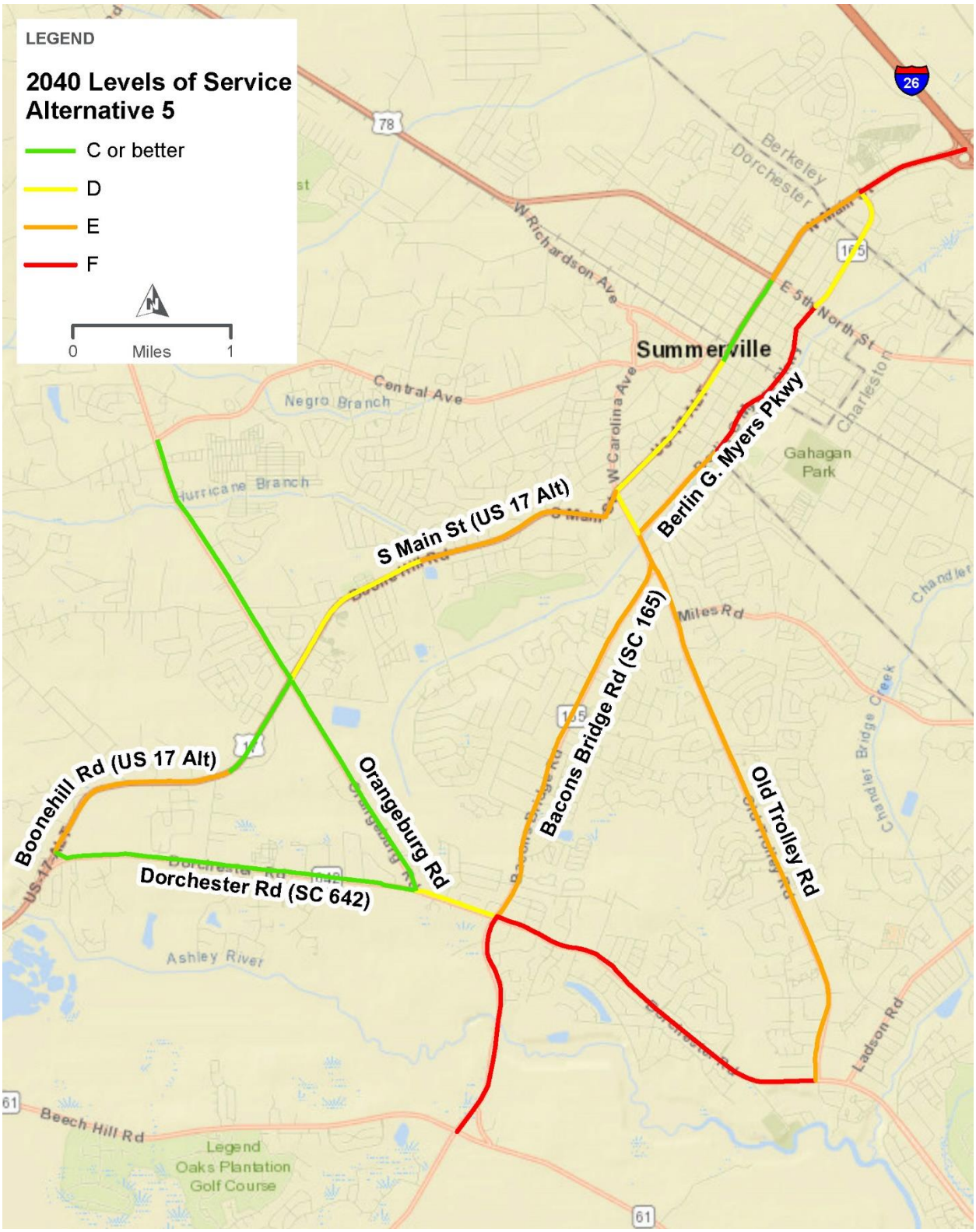


Figure 10. 2040 LOS, Alternative 5 (US 17A Widening)

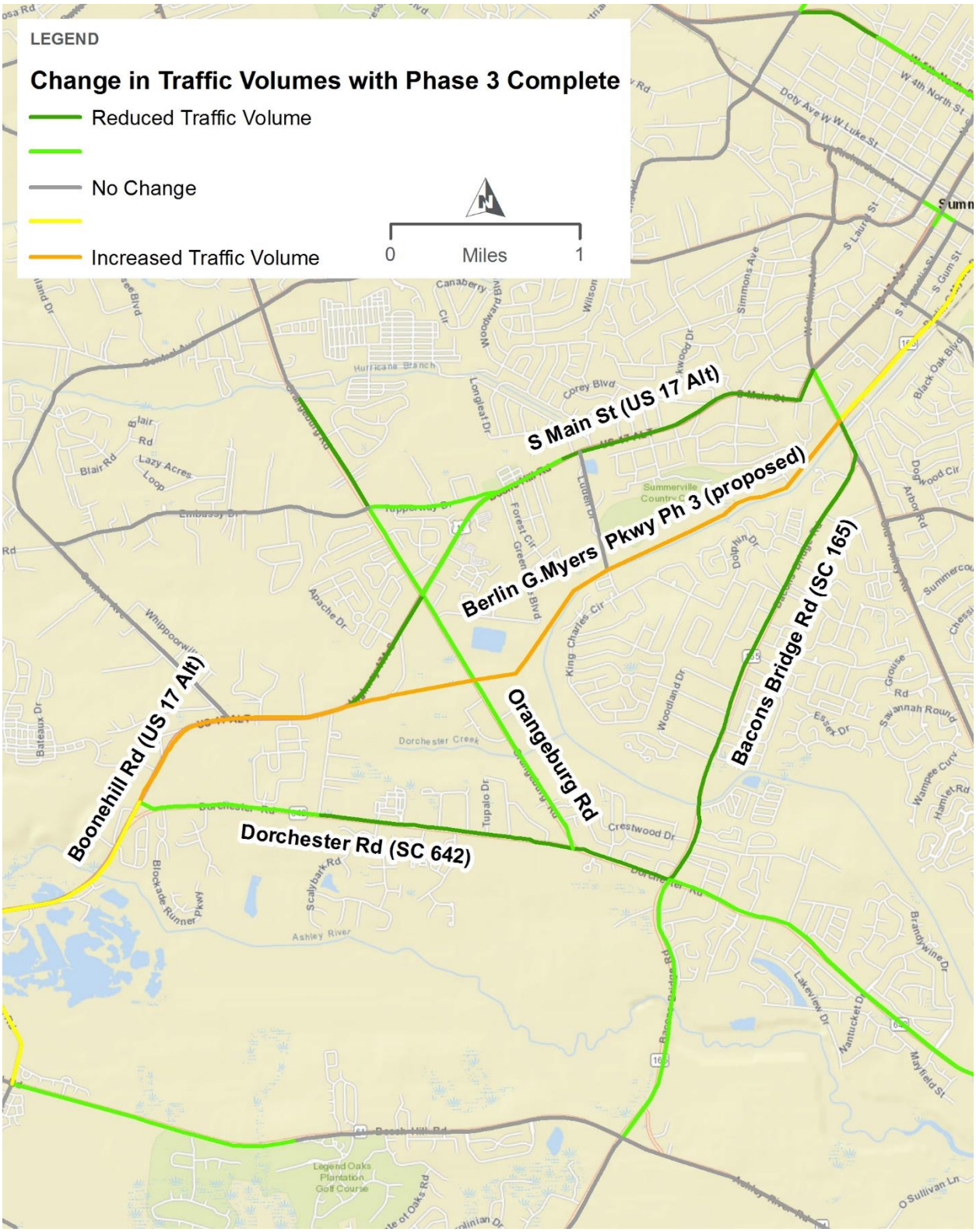


Figure 11. Change in Traffic Volumes with Phase 3 of Berlin Myers Parkway Complete

Figure 11 shows the amount of daily traffic that is projected to be diverted from US 17A, Dorchester Road, and Bacons Bridge Road to Berlin Myers Parkway with a new alignment Alternative. If Phase 3 of the Berlin Myers Parkway is not constructed, several of the area's roads are projected to realize substantial increases in the V/C ratio, resulting in longer delays. Completion of the Phase 3 of the Berlin Myers Parkway would improve traffic flow on many of these roads with V/C ratios being reduced. Although several roads would still be at a LOS F, the predicted V/C ratios would improve with the construction of this project and the delays would be shorter than those that would occur without the project. The exception is US 17A between the proposed Berlin Myers Parkway—Phase 3 and Dorchester Road is anticipated to operate at a LOS F for 2040 design year traffic volumes. Based on traffic growth estimates in the CHATS model, this segment of US 17A is approximated to reach LOS F between 2035 and 2037.

The current Berlin Myers Parkway would also experience a shift in some traffic with the completion of Phase 3. The reason behind this shift is that traffic coming from western Dorchester County would no longer need to use US 17A and could stay on the Parkway to reach arterials such as US 78 or US 17A near the I-26 interchange, or vice versa. This does introduce a drop in overall LOS on this section of Berlin Myers Parkway, however this shift does have an indirect benefit on US 17A, where more frequent driveways, traffic signals, pedestrians, and other conflict points are present. Additionally, crash data on the section of US 17A parallel to the proposed the Berlin Myers Parkway Phase 3 alignment suggests that the corridor has a crash rate higher than the statewide average. The crash rates provided in Chapter 2.3 are normalized by vehicle miles traveled. A reduction in the yearly vehicle miles traveled on US 17A would have a positive effect on the number of crashes that would occur there, as compared with a No Build scenario in which the Berlin Myers Parkway Phase 3 alignment is not constructed.

Overall, the roadway network in the Town of Summerville and western Dorchester County would have reduced congestion and crash exposure (measured as vehicle miles traveled) on those roads which have frequent driveways and intersections as a result of the completion of Phase 3 of Berlin Myers Parkway.

"Noise Impact Technical Report" for

Proposed Berlin Myers Parkway – Phase 3

Final Report – July 2016

Noise Impact Technical Report – Berlin Myers Parkway Phase 3
For South Carolina Department of Transportation (SCDOT) &
Dorchester County Sales Tax Transportation Authority (DCSTTA)
Summerville, SC

D&F Job No. 12252.00 / Phase No. 0011

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Executive Summary

The South Carolina Department of Transportation (SCDOT) and the Dorchester County Sales Tax Transportation Authority (DCTA) are proposing the construction of a roadway on new location between U.S. Highway 17A and SC 165 in Dorchester County, South Carolina. This will be the third and final phase of the Berlin Myers Parkway project to provide a limited access roadway from Interstate 26 to the southwest side of the Town of Summerville.

The noise evaluation for the Berlin Myers Parkway Phase 3 looked at potential receivers located in the adjacent residential neighborhoods on either side of the proposed roadway along the Sawmill Branch. One hundred seventy receivers were modeled in the Traffic Noise Model (TNM) program using the 2040 forecasted traffic volumes provided. These included 14 receivers along the Sawmill Branch Multi-Use Trail based on the estimated number of users of the trail. The TNM program determined that there were thirty-six (36) receivers that were impacted based on SCDOT policy criterion. Isolated impacted receivers generally do not warrant evaluation for noise abatement because of cost effectiveness.

The TNM program identified 36 impacted receivers including all 14 receivers along the multi-use trail. Two impacted receivers were located on Orangeburg Road at or near the intersection with the new BMP. These would be isolated receivers with driveways and would not warrant evaluating noise abatement measures. Only the neighborhood which included the Thames Avenue, Nelson Court, and the Summerville Villas Apartments had impacts which were not isolated along the new roadway. The other neighborhoods modeled were generally too far away from the new road to be impacted. There was one impacted receiver located at 101 Lucretia Lane with noise level above the NAC. There were 3 other receivers located on Lucretia Lane so a noise abatement measure was evaluated to see if it was warranted.

The noise barrier evaluations conclude that none of the barrier walls met the SCDOT criterion of cost effectiveness, feasibility and reasonableness. Based on the small number of equivalent receivers (14) for the multi-use trail and the distance of the trail (about 1.4 miles from Luden Drive to Carolina Avenue), no barrier wall could be cost effective to benefit receivers along the trail. Therefore, no noise abatement measures are recommended.

1.0 Introduction

The South Carolina Department of Transportation (SCDOT) and the Dorchester County Sales Tax Transportation Authority (DCTA) are proposing the construction of a roadway on new location between U.S. Highway 17A and SC 165 in Dorchester County, South Carolina. This will be the third and final phase of the Berlin Myers Parkway project to provide a limited access roadway from Interstate 26 to the southwest side of the Town of Summerville.

A noise impact analysis has been conducted for the proposed new alignment of the Berlin Myers Parkway – Phase 3 connecting to the existing parkway. In April 2004, Federal Highway Administration (FHWA) released a revised version of the Traffic Noise Model (TNM Version 2.5) and mandated the use of it for all modeling done after October 14, 2004. TNM Version 2.5 was used for the noise analysis on this study.

The design for the major portion of the project will consist of two travel lanes in each direction (12 feet wide outer lane and 12.5 feet wide inner lane) with curb and gutter. The median will be 14 feet wide, consisting of 2 feet of curb and gutter on each side. The total project length is approximately 3.25 miles. The intersection of the Berlin Myers Parkway and E. Carolina Avenue will be a single point urban interchange (SPUI), with northeast and southwest traffic along the parkway traveling over E. Carolina Avenue. The new alignment will have intersections with Luden Drive, Green Wave Boulevard, Orangeburg Road, and US 17A (Boone Hill Road/S. Main Street). See Figure 1 below for the general location of the new roadway.

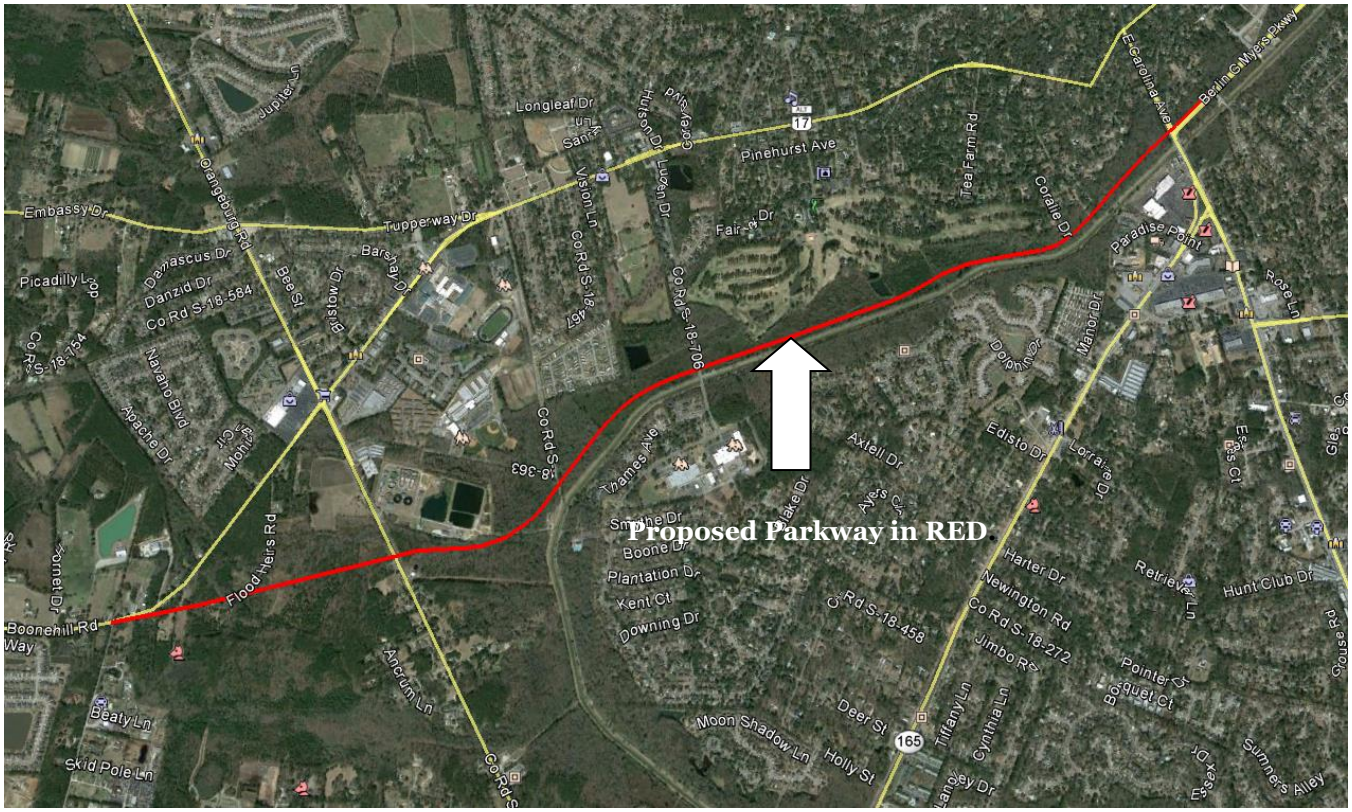


Figure 1: Berlin Myers Parkway Phase 3 General Location Map (proposed new parkway alignment is RED Line)

2.0 Procedures for Noise Analysis

2.1 Field Measurement Locations

The proposed improvement is on new alignment where no road currently exists. Existing noise levels at fourteen receptor locations were measured to include in the TNM program. All field measurements were made so as to obtain the worst hourly noise levels generated from representative noise sources in the area. These measurements were made over 15 minute time periods to represent the $L_{eq}(h)$ at potentially impacted receivers. $L_{eq}(h)$ is the average energy of a sound level over a one-hour period. All field measurement locations were reviewed and approved by the SCDOT Environmental Management Office. The measurement locations were picked to represent the different neighborhoods along both sides of the new proposed parkway.

Table 2.1 gives the date and addresses of the locations where sound levels were measured as well as the measured sound levels. Appendix 2 has aerial photos depicting the fourteen field measurement locations.

2.2 Field Measurements

Since the project is on new alignment, the TNM program was not validated using actual traffic count data input into the noise model program and comparing model results to actual field noise measurements. The field noise measurements were collected so that initial (existing) noise levels could be assigned to all the receivers modeled and a determination could be made if a receiver had a substantial increase in noise level (greater than or equal to a 15 dBA increase). The field noise measurements were obtained using a 3M Quest Technologies SoundPro DL-2 noise meter. The unit was set up for collecting traffic noise readings. The unit was calibrated using a 3M QC-10 Calibrator before and after each reading. A portable weather station unit (Kestrel Model 4000 Pocket Weather Tracker) was used to record weather conditions during the measurements.

The ambient noise levels were recorded at fourteen locations for comparison to future noise levels predicted by the noise model. Measurement were conducted on June 3rd and 4th, 2015. The noise measurement record sheets for the field measurements can be found in appendices. The field measurements are listed in Table 2.1.

2.3 Traffic Data

Version 2.5 of the Traffic Noise Model (TNM), a Federal Highway Administration (FHWA) traffic noise prediction model, was used in the analysis to compare existing and future $L_{eq}(h)$ noise levels. Traffic parameters, roadway characteristics, and receiver locations were used to estimate $L_{eq}(h)$ noise levels expected to occur in the area of the new BMP alignment by the year 2040. Traffic data for the future 2040 "build" situation was modeled. Traffic parameters used in this study are listed in Table 2.2. The forecasted traffic volumes for the 2040 design year were provided by Mr. Ed Owens of HDR|ICA. He obtained the information from the Berkeley-Charleston-Dorchester Council of Governments (BCDCOG). A copy of the map with the forecasted volumes for 2040 can be found in the appendices. The map also provided the forecast number of trucks in each total volume. Mr. Owens requested that all trucks be considered "heavy" trucks in the TNM program.

Table 2.1

Date and Location of Field Noise Level Measurements

Area ID#	Date	Time Measured	Property Location	Measure $L_{eq}(h)$ dBA
1	June 4, 2015	0706-0721	105 Hughes Street	50.5
2	June 4, 2015	0852-0907	400 Elizabeth Street	48.9
3	June 3, 2015	0928-0943	101 Lucretia Lane	50.0
4	June 4, 2015	0800-0815	Paradise Lakes - #300	54.2
4	June 4, 2015	0816-0831	Paradise Lakes - #205	54.1
5	June 3, 2015	1246-1301	503 Cavalier Drive	49.2
6	June 3, 2015	1211-1226	224 Chipping Sparrow Dr.	47.7
7	June 3, 2015	1211-1226	205 Willet Drive	48.1
8	June 3, 2015	1403-1418	212 Amberjack Way	46.6
9	June 3, 2015	1442-1457	75 King Charles Circle	45.1
10	June 4, 2015	1053-1108	Golf Course #13 Tee	44.8
11	June 3, 2015	1520-1535	217 Thames Ave.	45.1
12	June 4, 2015	1007-1022	Huntsman Circle MHP	49.7
13	June 4, 2015	1556-1611	381 Orangeburg Road	59.1
14	June 4, 2015	1623-1638	116 Flood Heirs Road	51.3

Table 2.2

Parameters for Berlin Myers Parkway Phase 3 Used in TNM – 2040 BUILD

Traffic Information					
Berlin Myers Parkway Phase 3 New Alignment	**Units**	**Year - 2040 BUILD**			
		Parkway between Carolina & Richardson	**Parkway between Main & Orangeburg**	**Parkway between Orangeburg & Luden**	**Parkway Between Luden & Carolina**
Average Daily Traffic (ADT)	*Vehicles/Day*	36,500	23,000	25,400	26,900
Traffic in Both Directions					
Design Hourly Volume (K%) of ADT	*%*	8	8	8	8
Design Hourly Volume	*Vehicles/Hour*	2,920	1,840	2,032	2,152
Traffic in One Direction					
Design Hourly Volume	*Vehicles/Hour*	1,460	920	1,016	1,076
Travel Lane Volume (60%)	*Vehicles/Hour*	876	552	610	646
Passing Lane (40%)	*Vehicles/Hour*	584	368	406	430
Vehicle Distribution					
Heavy Trucks	*%*	10	11	10	10
Medium Trucks	*%*	0	0	0	0
Automobiles	*%*	90	89	90	90
Speed Limits					
Throughout the roadway	*Miles/Hour*	45	45	45	45

Because there are two lanes of traffic in each direction, the traffic was split 60/40 with 60% of the traffic in the travel lane (right lane) and 40% of the traffic in the passing lane (left lane).

2.4 Traffic Noise Impacts

Noise impact is determined by comparing future Leq(h) with the proposed project to: (1) a set of Noise Abatement Criteria (NAC) for particular land use categories, and (2) existing sound levels in terms of Leq.

The FHWA noise standards contained in 23 CFR 772 and SCDOT's traffic noise abatement policy state that traffic noise impacts require consideration of abatement when worst-hour Leq(h) approach (within 1 dB) or exceed the NAC listed in Table2. 3. The "approach" level is sometimes referred to as the impact criterion.

The FHWA noise standards and SCDOT's traffic noise abatement policy also define impacts to occur if there is a substantial increase in design year sound levels. A substantial increase in design year sound levels occurs when predicted design year traffic noise levels substantially exceed the existing noise levels by 15 dB or more in the design year.

To determine if highway noise levels are compatible with various land uses, FHWA has developed noise abatement criteria and procedures to be used in the planning and design of highways. The abatement criteria and land use types are defined by specifications in 23 CFR 772 and are used to identify noise levels at which noise abatement measures must be considered. A summary of the FHWA Noise Abatement Criteria (NAC) for defined land use types is presented in Table 2.3 below. All receivers identified in the project corridor fell into Category B or C.

Table 2.3

Noise Abatement Criteria (NAC) in 23 CFR 772

Activity Category	Leq(h)	Description of Activity Category	# of Receivers per Category	# of Impacted Receivers per Category
A	57	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 serve its intended purpose.	--	--
B	67	Residential. *	154	21
C	67	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, Section 4(f) sites, schools, television studios, trails, and trail crossings. *	16	15
D	52	(Interior) 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.	--	--
E	72	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F. *	--	--
F	--	Agriculture, airports, bus yards, emergency services, industrial logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.	--	--
G	--	Undeveloped lands that are not permitted.	--	--

* - Includes undeveloped lands permitted for this activity.

2.5 Receiver/Receptor Locations

Mainly residences were identified as potential receiver/receptors in the various neighborhoods along the study area. Receiver locations were also placed along the Sawmill Branch Multi-Use Trail located on the south side of the BMP roadway and one receiver location was placed at the adjacent Summerville Country Club golf course at the tee box on golf hole #13 which was the closest point at the golf course to the proposed roadway. One receiver location was also placed at the Newington Plantation community swimming pool area located off King Charles Circle. As noted in the above table, residences are categorized as Activity Category B and the adjacent walking trail, swimming pool area, and golf course are categorized as Activity C. A total of 170 receivers were included in the noise study. These included 154 residences (Category B), 1 golf course receiver (Category C), 1 community swimming pool area (Category C), and 14 receiver locations along the Sawmill Branch Multi-Use Walking Trail (Category C). See Appendix 5 for aerial photos which depict the receiver locations used in the noise evaluation.

To determine the number of receivers to use along the Sawmill Branch Multi-Use Trail, we contacted Summerville's Town Engineer & Director of Public Works, Mr. Russ Cornette, to obtain an estimate of the number of users there were along the walking trail in the vicinity of the Berlin Myers Parkway Phase 3. Mr. Cornette stated that they estimated that 100 people per day use the walking trail. Using the current SCDOT Traffic Noise Abatement Policy document, the equivalent number of residents was calculated. Using the example on page 15 of that document with 100 estimated visitors of the walking trail, the equivalent # of residents is 14. Fourteen receiver points were spread along the walking trail in the study area.

The residences included in the TNM were those located along the streets that ran adjacent to the Sawmill Branch on the south side of the branch and the new roadway. These included residences located on the following streets: King Charles Circle, Thames Avenue, Bonita Court, Amberjack Way, Outrigger Court, Willet Drive, Goldfinch Lane, Chipping Sparrow Drive, Anhinga Court, Cavalier Drive, Countess Drive, Hidden Palms Boulevard, and Sunnyside Way. One residence was modeled at the beginning of the project on Flood Heirs Road, four houses were modeled on Orangeburg Road, and four mobile homes were modeled on Huntsman Circle off Green Wave Boulevard. Four additional houses were included in the model that were located on Garden Hill Road east of E. Carolina Avenue.

3.0 Results

3.1 Noise Impact Results

For the proposed new alignment, future noise was estimated using the TNM. Per the SCDOT definition a traffic noise impact occurs when predicted traffic noise levels:

(a) Approach or exceed their respective NAC listed in 23 CFR 772 (SCDOT defines "approach" as within 1 dBA of the FHWA noise abatement criteria for the applicable land use category, or

(b) Indicate that projected traffic noise levels "substantially exceed" over existing levels. SCDOT has defined "substantially exceed" or substantial increase as an increase in noise levels of 15 dBA or more in the design year over the existing noise level, or

(c) When both conditions (a) and (b) occur.

This does not imply that receivers that do not meet the above criteria will not experience an increase in noise levels. These criteria are simply used to guide FHWA and the SCDOT in determining when noise abatement measures must be evaluated.

Using the forecasted 2040 traffic data for the BMP, the TNM model determined that there were 36 receivers which met the definitions of noise impacts listed above.

- 2 receivers had noise impacts only because of predicted noise levels approaching or above the NAC of 66 dBA
- 24 receivers noise impacts only because of substantial increases in noise levels above 15 dBA
- 10 impacted receivers met both criteria

Appendix 6 shows the TNM receiver data, traffic data, and roadway data used in the TNM program to predict the noise levels for the receivers modeled. The summary table in Appendix 8 lists all the receivers modeled including address, Dorchester County tax map number, approximate project station number, approximate distance to the centerline of the new road, existing sound level, "Build" sound level based on forecasted 2040 traffic levels, and whether the receiver was impacted and why.

The 2 receivers that were impacted because of only approaching or exceeding the NAC were located on Orangeburg Road at the intersection with the BMP. The remaining impacted receivers that were approaching or exceeding the NAC were located along the Sawmill Branch Multi-Use Trail which is located on the south side of the BMP.

The 24 impacted receivers with only substantial increases in noise levels were seventeen (17) receivers located along the neighborhood streets (Thames Avenue, Nelson Court, and the apartment buildings at the Summerville Villas Apartments, six (6) receivers located along the Sawmill Branch Multi-Use Trail, and one (1) receiver on Elizabeth Street. All of these impacted receivers had noise levels below the NAC.

The 10 impacted receivers that met both criteria were located at the tee box area for golf hole#13 at the Summerville Country Club Golf Course, at 101 Lucretia Lane, and at eight (8) locations along the Sawmill Branch Multi-use Walking Trail.

Appendix 5 has maps showing the locations of all modeled receivers. Receivers depicted in the color green were unimpacted receivers. Receivers depicted in the color yellow were the impacted receivers.

Table 3.1 gives the approximate distance of a receiver from the centerline of the nearest travel lane for different land use types for different sections of the roadway where the noise level approaches the Noise Abatement Criteria (NAC) based on the results of the noise model. Sound contours in the three different sections of the roadway were used to estimate these distances. Sound contours should only be used for planning purposes. They cannot be used to determine actual noise impacts. The sound contour diagrams can be found in Appendix 7.

Table 3.1

Noise Abatement Criteria Given By FHWA

Noise Abatement Criteria Noise Level (dBA)	**Distance from Centerline of Nearest Travel Lane to Noise Contour "Approaching" NAC (ft.)**		
	Land Use Type		
Roadway Section	**A (57)**	**B & C (67)**	**E (72)**
BM Parkway between Main & Orangeburg	555	167	148
BM Parkway between Orangeburg & Luden	700	280	250
BM Parkway Between Luden & Carolina	720	282	252

3.2 Consideration of Abatement

On a normal Type I Project, when traffic noise impacts are identified, noise abatement must be considered and evaluated for feasibility and reasonableness. In abating traffic noise impacts, a highway agency shall give primary consideration to exterior areas where frequent human use occurs. In accordance with 23 CFR 772.13(c), the noise abatement measures described in this section were considered as a means to reduce or eliminate the traffic noise impacts. Note that the use of quieter pavements is not accepted by FHWA as a noise abatement measure for Federal-aid highway projects. Also, planting of vegetation or landscaping is not an acceptable noise abatement measure because only dense stands of evergreen vegetation that are at least 100 feet deep will provide a small amount of noise reduction.

In order for noise barriers to be included in the project plans, they must be determined to be both feasible and reasonable in accordance with SCDOT's traffic noise abatement policy.

Feasibility generally deals with the ability to achieve a minimum noise reduction as well as engineering considerations. If found feasible, a barrier is next examined for reasonableness. Reasonableness includes meeting a noise reduction goal, passing a cost-effectiveness test where the cost of the noise barrier is weighed against the benefits, and being wanted by the owners and residents of the benefited properties.

Feasibility has two components:

a. Acoustic Feasibility: According to SCDOT's policy, a noise reduction of at least 5 dBA must be achieved for 75% of those receivers determined to be impacted for the noise abatement measure to be acoustically feasible.

b. Engineering Feasibility: Engineering considerations such as topography, safety, drainage, utilities, maintenance, and the need to maintain access for affected properties must not preclude construction of an effective noise barrier.

Reasonableness has these components:

a. Cost effectiveness: The allowable cost of the abatement will be based on $35 per square foot. This construction cost will be divided by the number of benefited receivers. If the cost per benefited receiver is less than $30,000 then the barrier is determined to be cost effective.

b. Noise Reduction Design Goal: It is SCDOT's policy that a noise reduction of at least 8 dBA must be achieved for at least 80% of those receivers determined to be benefitted. A noise reduction of 5 dBA determines a receiver to be benefited.

Noise abatement barriers analyzed were placed within the right-of-way approximately 55 feet from the centerline of the roadway. The SCDOT limits the maximum sound barrier wall height to 25 feet. Barrier walls were evaluated at heights of 20 feet, and 25 feet. The SCDOT cost of $35/ft^2 was used for cost effectiveness evaluation. Noise reductions of at least 8 dBA for 80% of the benefited receivers are required to be considered reasonable.

Where an impacted receiver is isolated it has been found that barrier construction is not feasible from a cost standpoint. The cost effectiveness limitation of $30,000 for one impacted receiver would limit the size of the barrier wall to only 857 square feet. A noise reduction of 5 dBA (to be benefited) or 8dBA (to meet the Noise Reduction Design Goal) could not be achieved with a wall of this size limitation. Also breaks in a noise barrier for multiple access points (driveways) make the barriers ineffective in reducing noise levels. The barrier analysis below shows that the maximum height barrier allowed by SCDOT of 25 feet does not provide adequate noise reductions for most receivers modeled.

3.3 Barrier Analysis

Based on the noise impact results the main area that would warrant evaluation for a noise barrier is the section of roadway nearest the Thames Avenue, Nelson Court, and Summerville Villas Apartments which are located west of the Luden Drive area. To get the maximum coverage of the impacted receivers a barrier would be placed on the south side of the BMP roadway just east of the intersection with Green Wave Boulevard near Station 175+00 and ending just west of the bike path turnaround near Station 196+00. The approximate length of the barrier would be 2100 feet. This barrier would aim to benefit the five receivers along the walking trail and the receivers located on Thames Avenue, Nelson Court, and the building at the Summerville Villas Apartments. A total of 34 receivers could potentially be benefited. As noted in the TNM results table, the only receivers in this area to have impacts approaching the NAC were locations along the Sawmill Branch Multi-Use Trail. All the other impacts were because of substantial increase in noise level above background levels. The background noise level in the neighborhoods was 45.1 dBA. The modeled noise levels in the neighborhoods ranged from 58.5 dBA to 62.5 dBA.

Table 3.2 below shows the summary of the barrier analysis for this area with predicted noise levels with a 20 foot barrier wall and 25 foot barrier wall. As directed by HDR|ICA, for this evaluation the barrier wall was placed

approximately 55 feet from the centerline of the roadway where it would be outside the guard rail and generally near the toe of the slope.

Table 3.2

Barrier Wall Analyses for Thames Avenue Area Wall West of Luden Drive

TNM Receiver ID (Address)	Existing Sound Levels (dBA)	Sound Levels Without Barrier (dBA)	With 20 ft. Barrier (dBA)	Noise Reduction (dBA)	With 25 ft. Barrier (dBA)	Noise Reduction (dBA)
178 THAMES AVE	45.1	60.8	59.8	-1.0	59.8	-1.0
181 THAMES AVE	45.1	62.5	60.9	-1.6	60.8	-1.7
183 THAMES AVE	45.1	61.8	59.5	-2.3	59.3	-2.5
185 THAMES AVE	45.1	60.8	57.9	-2.9	57.7	-3.1
187 THAMES AVE	45.1	60.0	57.1	-2.9	57.0	-3.0
189 THAMES AVE	45.1	59.4	56.4	-3.0	56.2	-3.2
191 THAMES AVE	45.1	60.9	56.6	-4.3	56.2	-4.7
193 THAMES AVE	45.1	60.2	55.5	-4.7	55.5	**-5.1**
197 THAMES AVE	45.1	59.4	55.0	-4.4	54.7	-4.7
107 NELSON CT	45.1	59.8	54.9	-4.9	54.5	**-5.3**
109 NELSON CT	45.1	60.1	54.9	**-5.2**	54.5	**-5.6**
110 NELSON CT	45.1	60.1	54.6	**-5.5**	54.1	**-6.0**
108 NELSON CT	45.1	59.9	54.1	**-5.8**	53.5	**-6.4**
106 NELSON CT	45.1	59.0	53.7	**-5.3**	53.2	**-5.8**
205 THAMES AVE	45.1	59.1	53.1	**-6.0**	52.6	**-6.5**
207 THAMES AVE	45.1	58.5	53.1	**-5.4**	52.6	**-5.9**
209 THAMES AVE	45.1	59.4	53.4	**-6.0**	52.8	**-6.6**
211 THAMES AVE	45.1	59.8	53.5	**-6.3**	52.9	**-6.9**
213 THAMES AVE	45.1	60.5	54.0	**-6.5**	53.3	**-7.2**
215 THAMES AVE	45.1	60.5	54.2	**-6.3**	53.6	**-6.9**
217 THAMES AVE	45.1	60.4	54.5	**-5.9**	54.0	**-6.4**
219 THAMES AVE	45.1	61.3	55.3	**-6.0**	54.8	**-6.5**
221 THAMES AVE	45.1	60.4	55.4	**-5.0**	55.0	**-5.4**
APT BLDG 1 @ 350 LUDEN DR	45.1	61.9	57.7	-4.2	57.5	-4.4

APT BLDG 2 @ 350 LUDEN DR	45.1	61.6	59.2	-2.4	59.1	-2.5
APT BLDG 3 @ 350 LUDEN DR	45.1	62.1	60.9	-1.2	60.9	-1.2
APT BLDG 4 @ 350 LUDEN DR	45.1	60.2	56.5	-3.7	56.2	-4.0
APT BLDG 5 @ 350 LUDEN DR	45.1	59.9	57.4	-2.5	57.2	-2.7
APT BLDG 6 @ 350 LUDEN DR	45.1	59.9	58.6	-1.3	58.6	-1.3
WT-1 (Sawmill Branch Trail)	45.1	62.7	62.6	-0.1	62.6	-0.1
WT-2 (Sawmill Branch Trail)	45.1	67.6	67.1	-0.5	67.1	-0.5
WT-3 (Sawmill Branch Trail)	45.1	64.0	55.5	**-8.5**	54.7	**-9.3**
WT-4 (Sawmill Branch Trail)	45.1	65.7	56.0	**-9.7**	54.8	**-10.9**
WT-5 (Sawmill Branch Trail)	45.1	63.6	56.6	**-7.0**	56.0	**-7.6**
Bold = originally impacted receiver				**Bold** = Benefited Receiver		

The above summary shows that the 20 foot barrier wall had 16 total benefited receivers with at least a 5 dBA reduction in noise level and only 2 receivers with a noise level reduction of at least 8 dBA. The 25 foot barrier wall had 18 benefited receivers and again only 2 receivers with at least an 8 dBA reduction.

One more barrier was evaluated for the impacted receiver located at 104 Lucretia Lane which had a predicted noise level of 67.8 dBA (above the NAC). There were four houses along Lucretia Lane which could possibly be benefited with a barrier wall. A wall was placed approximately 55 feet from the centerline from Station 246+00 to Station 254+20 (approximately 820 feet long). See the barrier wall analysis in Table 3.3 below.

As described in section 2.5 above, the Sawmill Branch Multi-Use Trail had fourteen receiver points spread along the trail where the trail was near the BMP. For example the length of the trail near the BMP between Luden Road and Carolina Avenue was about 1.4 miles or ~7,400 feet. Evaluating a barrier along the whole trail would be useless since the cost per benefitted receiver would be so much greater than the criteria for reasonableness to be cost effective (less than $30,000 per benefitted receiver). The estimated cost for a 7,400 foot barrier wall at 20 feet tall at $35/ft2 would be $5,180,000. This sum divided by 9 potential benefitted receivers along that section would equate to $575,555/benefitted receiver which would not be cost effective.

Table 3.3

Barrier Wall Analyses for Lucretia Lane Area

TNM Receiver ID (Address)	Project ~Station #	Existing Sound Levels (dBA)	Sound Levels Without Barrier (dBA)	With 20 ft. Barrier (dBA)	Noise Reduction (dBA)	With 25 ft. Barrier (dBA)	Noise Reduction (dBA)
104 LUCRETIA LANE	248+00	50.0	63.9	58.4	**-5.5**	57.6	**-6.3**
102 LUCRETIA LANE	250+00	50.0	60.7	56.5	-4.2	55.7	**-5.0**
100 LUCRETIA LANE	253+00	50.0	61.1	57.9	-3.2	57.4	-3.7
101 LUCRETIA LANE	254+00	50.0	68.0	63.8	-4.2	63.5	-4.5

Bold = originally impacted receiver

Bold = Benefited Receiver

The above summary shows that the 20 foot barrier wall had only one benefited receiver which was not originally impacted. The 25 foot barrier had 2 benefited receivers again which were not originally impacted receivers. There were no benefited receivers with a noise reduction of at least 8 dBA (Noise Reduction Goal) with either barrier wall.

The tables below summarize the barrier wall evaluations for both areas and whether the walls meet the SCDOT criterion for acoustic feasibility, reasonableness for cost effectiveness, and reasonableness for meeting the SCDOT's Noise Reduction Design Goal.

Appendix 9 shows the locations of the barrier walls analyzed above. The Thames Avenue barrier wall and the Lucretia Lane barrier wall are depicted on the maps.

Table 3.4
Barrier Evaluation Summary – Thames Avenue Area

Barrier Analysis for Thames Ave. Area Walls
Wall Length (ft.): 2100
Total Number of Impacts: 22

Wall Height (feet)	Total Area (sq. ft.)	Total Wall Cost @$35/ft2 $	Number of Benefited Receivers (>/=5dBA)	Cost per Benefited Receiver $	Meets Criterion for Cost Effectiveness $30,000 Limit (YES/NO)	Meets Criterion for Acoustic Feasibility: Are 75% Impacted Rec. Benefited? (YES/NO)	Number of Receivers (>/=8 dBA)	Reasonableness Percentage of Receivers at least 8 dBA per Benefited Rec.	Meets Criterion for Reasonableness of at least 80% (YES/NO)
20	42,000	1,470,000	16	91,875	NO	NO (73%)	2	12.50%	NO
25	52,500	1,837,500	18	102,083	NO	YES (82%)	2	11%	NO

Table 3.5
Barrier Evaluation Summary – Lucretia Lane Area

Barrier Analysis for Lucretia Lane Area Walls
Wall Length (ft.): 820
Total Number of Impacts: 1

Wall Height (feet)	Total Area (sq. ft.)	Total Wall Cost @$35/ft2 $	Number of Benefited Receivers (>/=5dBA)	Cost per Benefited Receiver $	Meets Criterion for Cost Effectiveness $30,000 Limit (YES/NO)	Meets Criterion for Acoustic Feasibility: Are 75% Impacted Rec. Benefited? (YES/NO)	Number of Receivers (>/=8 dBA)	Reasonableness Percentage of Receivers at least 8 dBA per Benefited Rec.	Meets Criterion for Reasonableness of at least 80% (YES/NO)
20	16,400	574,000	1	574,000	NO	NO	0	0%	NO
25	20,500	717,500	2	358,750	NO	NO	0	0%	NO

3.4 Statement of Likelihood

Based on the noise barrier evaluations of the Thames Avenue area and the Lucretia Lane area, SCDOT does not intend to install highway traffic noise abatement measures in the form of barrier walls. None of the barrier walls met the SCDOT criterion of cost effectiveness, feasibility and reasonableness. Based on the small number of equivalent receivers for the multi-use trail and the distance of the trail (about 1.4 miles from Luden Drive to Carolina Avenue), no barrier wall could be cost effective to benefit receivers along the trail. Therefore, no noise abatement measures are recommended.

3.5 Construction Noise

Construction noise should not hinder or annoy normal community functions as construction usually occurs during weekday, daylight hours. The contractor would be required to comply with OSHA regulations concerning noise attenuation devices on construction equipment.

If the proposed project is constructed, temporary increases in noise levels would occur during the time period that construction takes place. Noise levels due to construction, although temporary, can impact areas adjacent to the project.

Construction operations are typically broken down into several phases, including clearing and grubbing, earthwork, erection, paving, and finishing. Although these phases can overlap, each has its own noise characteristics. The major sources from construction would be the heavy equipment operated at the site. However, other construction site noise sources would include hand tools, stationary sources and haul trucks supplying and removing materials. SCDOT's *2007 Standard Specifications for Highway Construction* includes references to construction noise.

These SCDOT specifications are generalized for noise nuisance avoidance. Detailed specifications for consideration for inclusion into the proposed project's construction documents *could* consist of the following:

- Construction equipment powered by internal combustion engine shall be equipped with a properly maintained muffler.
- Air compressors shall meet current USEPA noise emission exhaust standards.
- Air powered equipment shall be fitted with pneumatic exhaust silencers.
- Stationary equipment powered by an internal combustion engine shall not be operated within 150 feet of noise sensitive areas without a portable noise barrier placed between the equipment and noise sensitive sites. Noise sensitive sites include residential buildings, motels, hotels, schools, churches, hospitals, nursing homes, libraries, and public recreation areas.
- Portable noise barriers shall be constructed of plywood or tongue and groove boards with a noise absorbent treatment on the interior surface (facing the equipment).
- Powered construction equipment shall not be operated during traditional evening and/or sleeping hours within 150 feet of a noise sensitive site, to be decided either by local ordinance and/or agreement with the SCDOT.

3.6 Coordination with Local Officials

SCDOT has no authority over local land use planning and development and can only encourage local officials and developers to consider highway traffic noise when planning, zoning, and developing property near existing and proposed highway corridors. In order to help local officials and developers consider highway traffic noise in the vicinity of this proposed Type I project and to help minimize the possibility of noise-incompatible development of undeveloped land along the project, SCDOT informs them of the predicted 2040 future noise levels and the distances from the project needed to ensure that noise levels remain below the NAC for each type of land use.

Table 3.1 shows the distances to the 67 and 72 dBA impact criteria, which will be provided for planning, zoning, and development purposes in the vicinity of the proposed project. The levels are based on the 2040 traffic volume in the project area. This detailed noise analysis will also be incorporated into the environmental assessment for the project and be made available for review during the public comment period.

4.0 Conclusions

The noise evaluation for the Berlin Myers Parkway Phase 3 looked at potential receivers located in the adjacent residential neighborhoods on either side of the proposed roadway along the Sawmill Branch. One hundred seventy receivers were modeled in the TNM program using the 2040 forecasted traffic volumes provided. These included 14 receivers along the Sawmill Branch Multi-Use Trail based on the estimated number of users of the trail. The TNM program determined that there were thirty-six (36) receivers that were impacted based on SCDOT policy criterion. Isolated impacted receivers generally do not warrant evaluation for noise abatement because of cost effectiveness.

The TNM program identified 36 impacted receivers including all 14 receivers along the multi-use trail. Two impacted receivers were located on Orangeburg Road at or near the intersection with the new BMP. These would be isolated receivers with driveways and would not warrant evaluating noise abatement measures. Only the neighborhood which included the Thames Avenue, Nelson Court, and the Summerville Villas Apartments had impacts which were not isolated along the new roadway. The other neighborhoods modeled were generally too far away from the new road to be impacted. There was one impacted receiver located at 101 Lucretia Lane with noise level above the NAC. There were 3 other receivers located on Lucretia Lane so a noise abatement measure was evaluated to see if it was warranted.

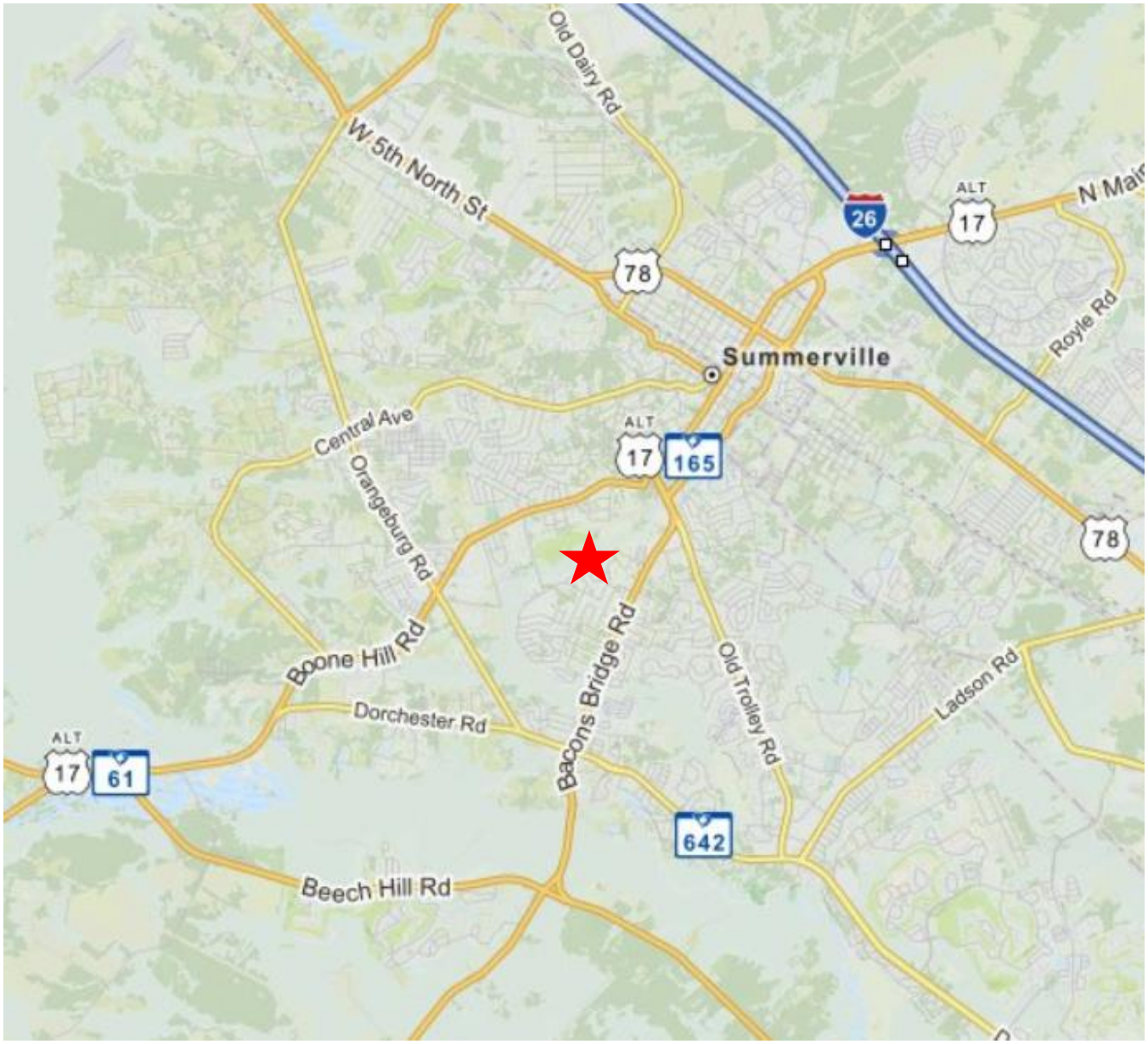
The noise barrier evaluations conclude that none of the barrier walls met the SCDOT criterion of cost effectiveness, feasibility and reasonableness. Based on the small number of equivalent receivers (14) for the multi-use trail and the distance of the trail (about 1.4 miles from Luden Drive to Carolina Avenue), no barrier wall could be cost effective to benefit receivers along the trail. Therefore, no noise abatement measures are recommended.

APPENDICES

APPENDIX 1

Site Location Map

Site Location Map



APPENDIX 2

Field Reading Location Maps

Berlin G. Myers Parkway (New Alignment from Boone Hill Rd. (US 17 Alt.) to Carolina Avenue along Saw Mill Branch).

Approved Field Noise Measurement Locations:

1. Hughes St.
2. Elizabeth St.
3. Lucretia Lane

4. At the end of Paradise Lakes condos along Sunnyside Way below.

5. End of Cavalier Drive (Royal Manor mobile home park)

6. Chipping Sparrow Drive below

7. Willet Drive

8. Amberjack Way below

9. King Charles Circle below

10. At edge of Summerville Country Club golf course.

11. Thames Avenue

12. Mobile homes at end of Huntsman Court.

13. 292 Orangeburg Road

14. 116 Flood Heirs Road

APPENDIX 3

Field Reading Data Sheets

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 205 Willet Drive Date: 6/3/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy after a rain shower

Temperature: 70 °F Relative Humidity: 81 % Barometric Pressure: 29.98 in. Hg

Wind Speed: 0-1 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1145 Stop Time: 1200 Duration: 15 min.

Sound Level $L_{(eq)}$ = 48.1 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 224 Chipping Sparrow Drive Date: 6/3/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy

Temperature: 70 °F Relative Humidity: 86 % Barometric Pressure: 29.97 in. Hg

Wind Speed: 0-2 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1211 Stop Time: 1226 Duration: 15 min.

Sound Level $L_{(eq)}$ = 47.7 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 503 Cavalier Drive Date: 6/3/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy

Temperature: 71 °F Relative Humidity: 89 % Barometric Pressure: 29.96 in. Hg

Wind Speed: 0-4 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1246 Stop Time: 1301 Duration: 15 min.

Sound Level $L_{(eq)}$ = 49.2 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 212 Amberjack Way Date: 6/3/15

Measurements by: Wilson Hunter

General Weather Description: Partly Cloudy & Sunny

Temperature: 77 °F Relative Humidity: 72 % Barometric Pressure: 29.95 in. Hg

Wind Speed: 0-2 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1403 Stop Time: 1418 Duration: 15 min.

Sound Level $L_{(eq)}$ = 46.6 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 75 King Charles Circle Date: 6/3/15

Measurements by: Wilson Hunter

General Weather Description: Sunny

Temperature: 78 °F Relative Humidity: 68 % Barometric Pressure: 29.95 in. Hg

Wind Speed: 0-2 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1442 Stop Time: 1457 Duration: 15 min.

Sound Level $L_{(eq)}$ = 45.1 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 217 Thames Avenue Date: 6/3/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy

Temperature: 80 °F Relative Humidity: 64 % Barometric Pressure: 29.93 in. Hg

Wind Speed: 0-3 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1520 Stop Time: 1535 Duration: 15 min.

Sound Level $L_{(eq)}$ = 45.1 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 381 Orangeburg Rd. Date: 6/3/15

Measurements by: Wilson Hunter

General Weather Description: Sunny

Temperature: 82 °F Relative Humidity: 60 % Barometric Pressure: 29.92 in. Hg

Wind Speed: 0-3 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1556 Stop Time: 1611 Duration: 15 min.

Sound Level $L_{(eq)}$ = 59.1 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 116 Flood Heirs Rd. Date: 6/3/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy

Temperature: 84 °F Relative Humidity: 56 % Barometric Pressure: 29.91 in. Hg

Wind Speed: 0-3 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1623 Stop Time: 1638 Duration: 15 min.

Sound Level $L_{(eq)}$ = 51.3 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: Sunnyside Way – Paradise Lakes #300 Date: 6/3/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy

Temperature: 80 °F Relative Humidity: 60 % Barometric Pressure: 30.02 in. Hg

Wind Speed: 0-1 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1700 Stop Time: 1715 Duration: 15 min.

Sound Level $L_{(eq)}$ = 54.2 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 105 Hughes St. Date: 6/4/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy with light drizle

Temperature: 71 °F Relative Humidity: 84 % Barometric Pressure: 29.98 in. Hg

Wind Speed: 0 mph Wind Direction (from): _____

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 0722 Stop Time: 0737 Duration: 15 min.

Sound Level $L_{(eq)}$ = 51.3 dBA

Description of Audible Noise: _____

Notes (add additional on back of form): _____

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: Sunnyside Way – Paradise Lakes #205 Date: 6/4/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy, very light drizzle for about 7 minutes at end of reading

Temperature: 70 °F Relative Humidity: 81 % Barometric Pressure: 30.02 in. Hg

Wind Speed: 0 mph Wind Direction (from): _____

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 0816 Stop Time: 0831 Duration: 15 min.

Sound Level $L_{(eq)}$ = 54.1 dBA

Description of Audible Noise: _____

Notes (add additional on back of form): _____

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 400 Elizabeth St. Date: 6/4/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy, very light drizzle

Temperature: 71 °F Relative Humidity: 84 % Barometric Pressure: 30.02 in. Hg

Wind Speed: 0-1 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 0852 Stop Time: 0907 Duration: 15 min.

Sound Level $L_{(eq)}$ = 48.9 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 101 Lucretia Lane Date: 6/4/15

Measurements by: Wilson Hunter

General Weather Description: Cloudy

Temperature: 70 °F Relative Humidity: 86 % Barometric Pressure: 30.03 in. Hg

Wind Speed: 0 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 0928 Stop Time: 0943 Duration: 15 min.

Sound Level $L_{(eq)}$ = 50.0 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: 205 Willet Drive Date: 6/4/15

Measurements by: Wilson Hunter

General Weather Description: Sunny & partly cloudy

Temperature: 81 °F Relative Humidity: 68 % Barometric Pressure: 30.03 in. Hg

Wind Speed: 0-3 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1007 Stop Time: 1022 Duration: 15 min.

Sound Level $L_{(eq)}$ = 49.7 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

DAVIS & FLOYD

SINCE 1954

NOISE MEASUREMENT RECORD

Project: Berlin G, Myers Parkway Noise Evaluation Job No.: 12252.00

Measurement Location: Summerville CC Golf Course Tee Box #13 Date: 6/4/15

Measurements by: Wilson Hunter

General Weather Description: Sunny & partly cloudy

Temperature: 78 °F Relative Humidity: 68 % Barometric Pressure: 30.02 in. Hg

Wind Speed: 0-2 mph Wind Direction (from): SW

Noise Measurement Instrument: SoundPro DL-2 Serial No.: BGK120004

Calibrator: 3M QC-10 CALIBRATOR Serial No.: QIK120170

Pre-Calibration Level: 114 dB Post-Calibration Level: 114 dB

Start Time: 1053 Stop Time: 1108 Duration: 15 min.

Sound Level $L_{(eq)}$ = 44.8 dBA

Description of Audible Noise:

Notes (add additional on back of form):

Sketch of Site (show distances to important features, i.e., centerline of road, buildings, driveways, etc.)

N/A

Photograph Numbers: N/A

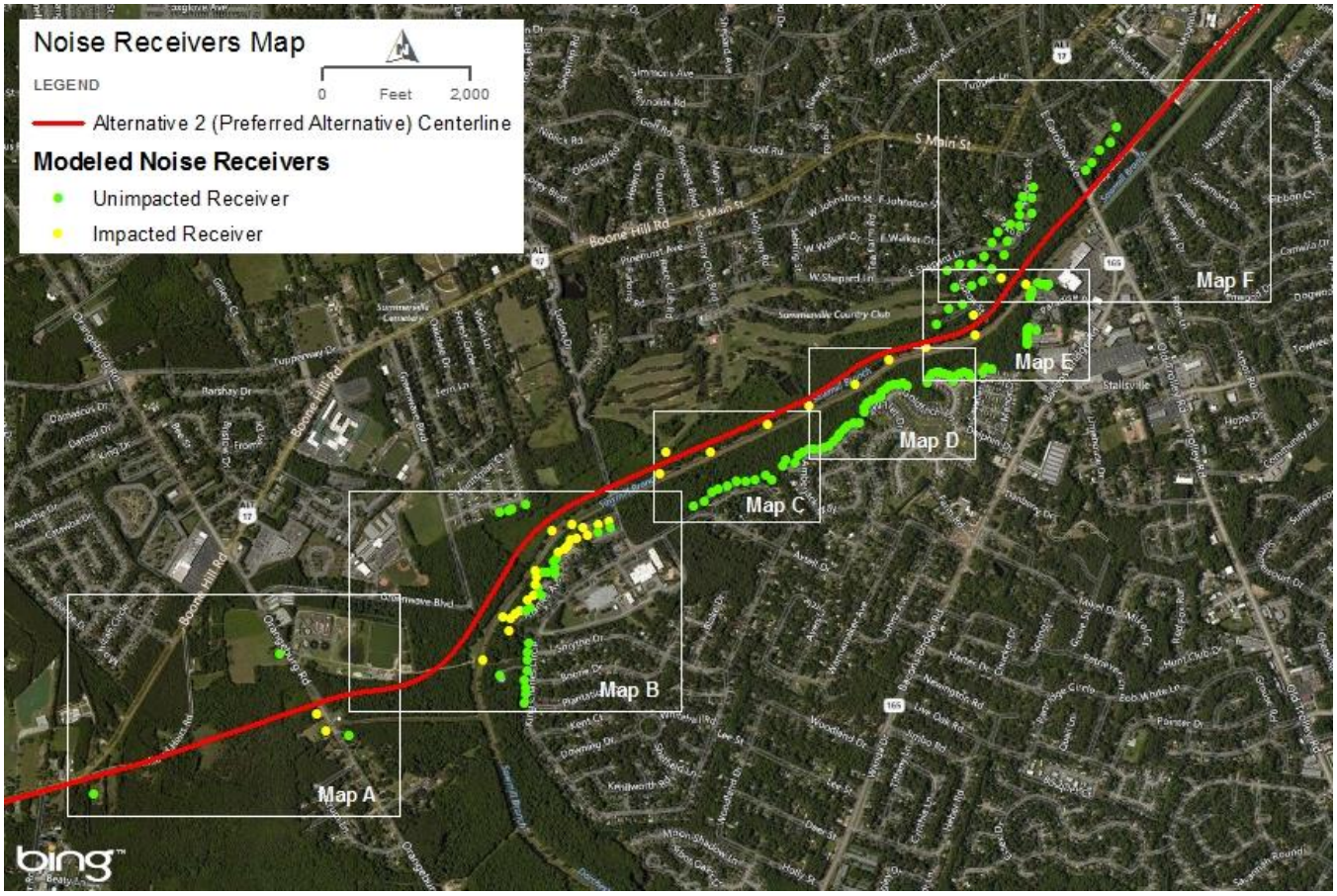
APPENDIX 4

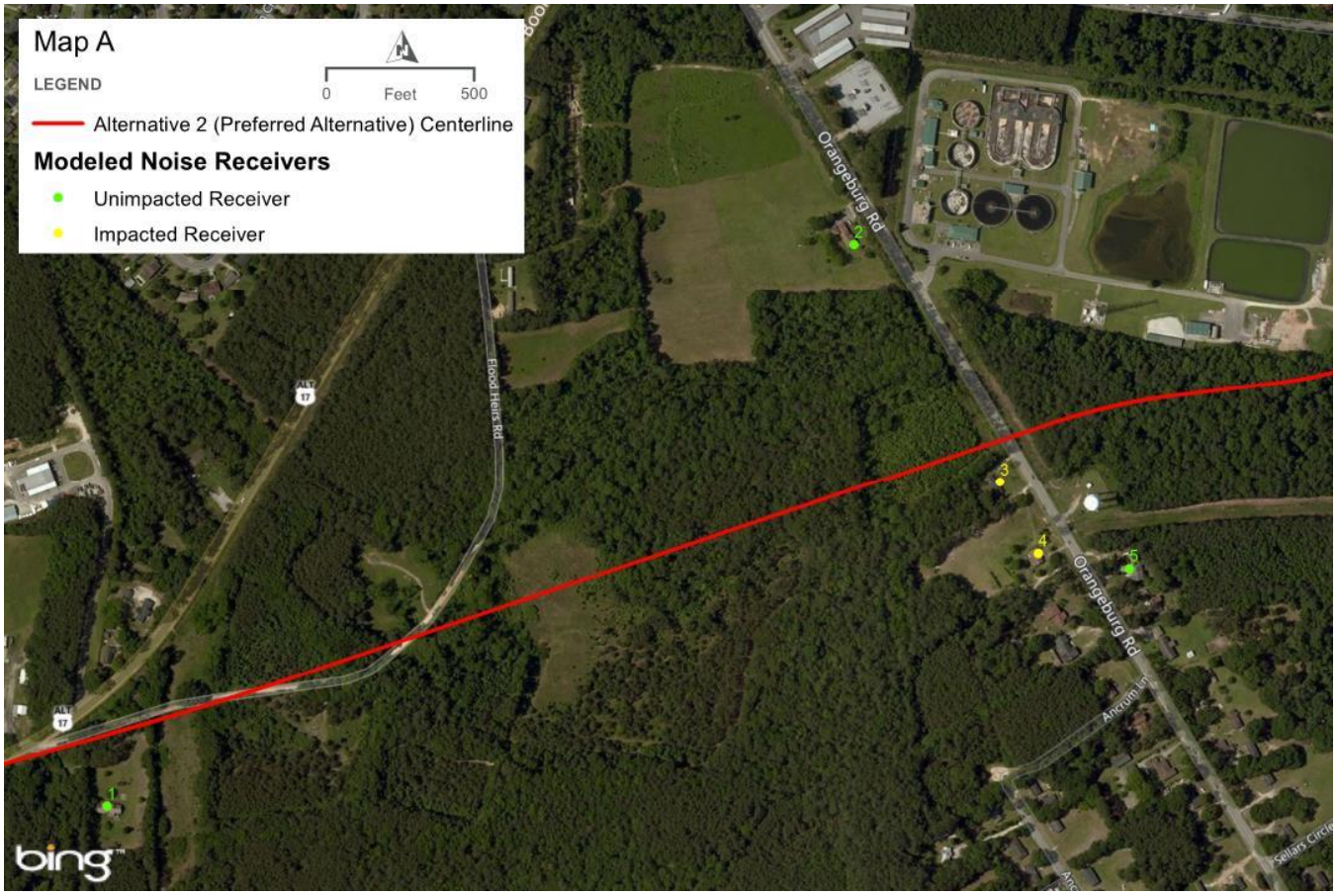
2040 Forecasted Traffic Volumes Map

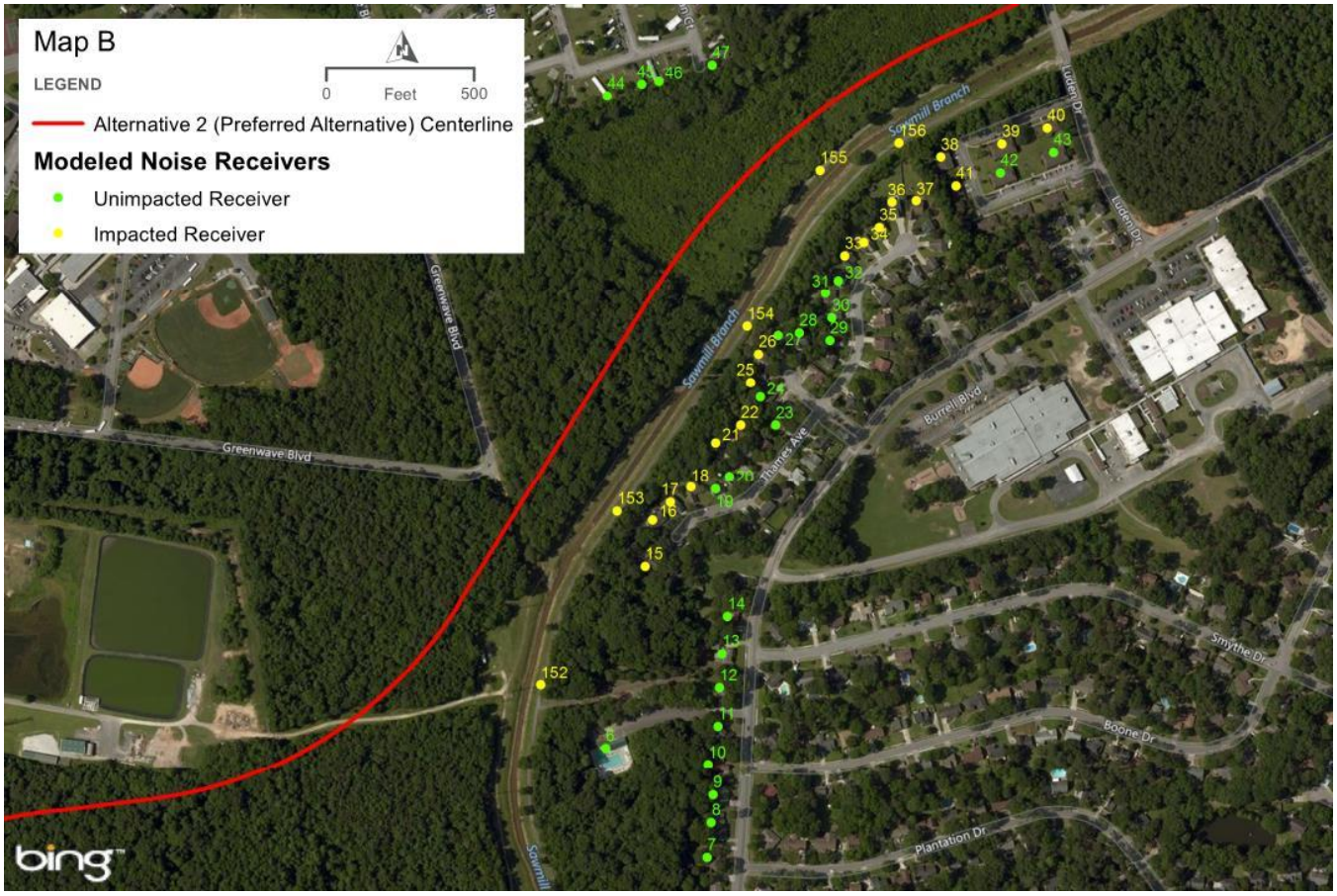

Forecasted Volumes in 2040
Financially-constrained Plan Scenario
1400
24000
500
6576
400
7300
400
8000
300
13300
1900
5800
1600
11400
700
11083
1700
25800
1000
14400
36500
500
11000
1500
22000
700
11700
700
14100
500
6900
50
1100
3232
2800
26900
2300
35400
500
13900
500
13400
300
7000
700
20400
200
3200
200
2700
200
4600
500
5800
2500
25400
1500
21600
1400
25200
2300
29400
200
4500
675
12700
18100
2600
23000
2400
30600
700
10800
1500
21700
3000
29600
3300
35700
1700
15700
2000
27600
1900
21500
2600
24100
2100
26400
1400
13800
1700
16100
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping,

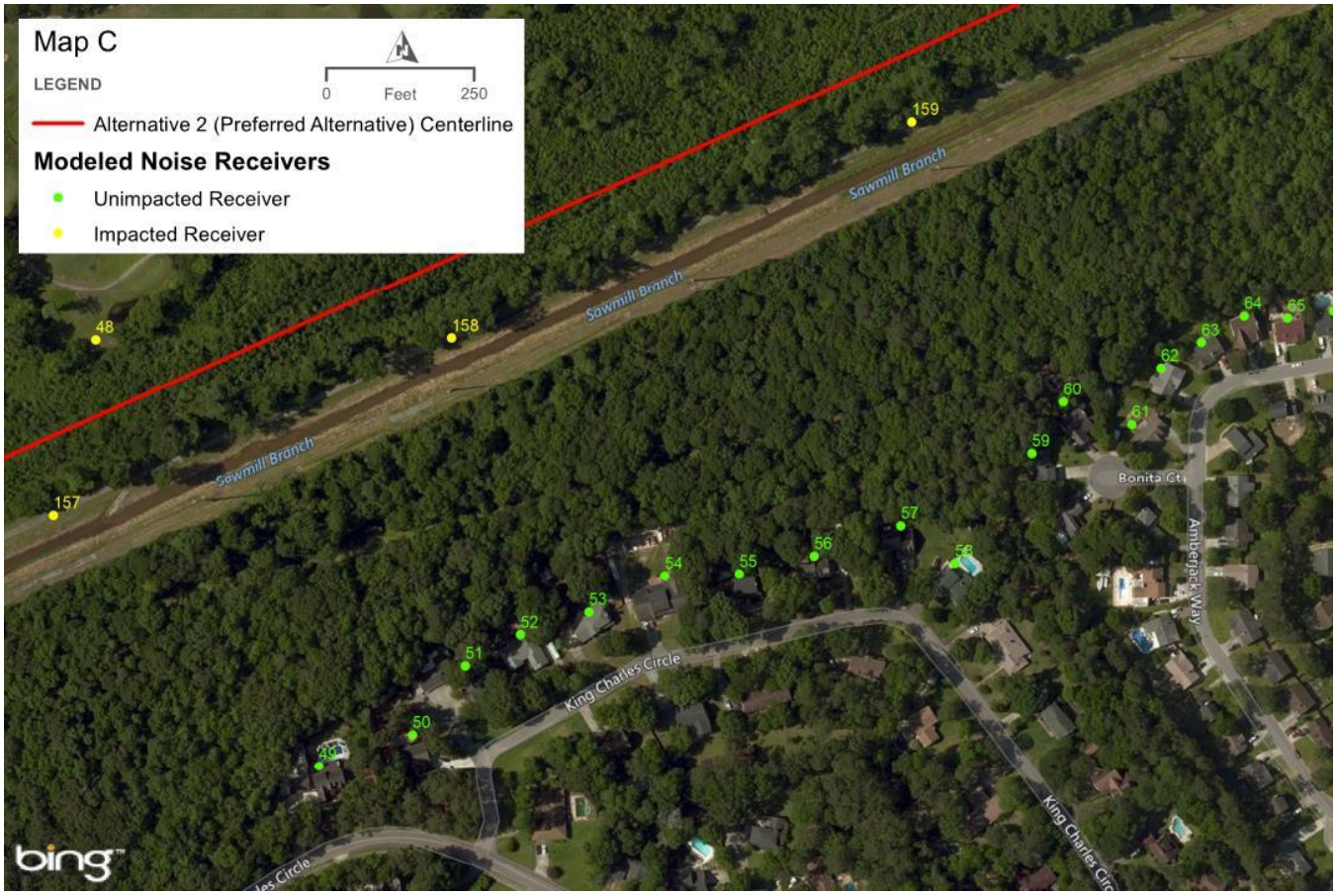
APPENDIX 5

Modeled Receivers & Impacted Receivers Location Maps

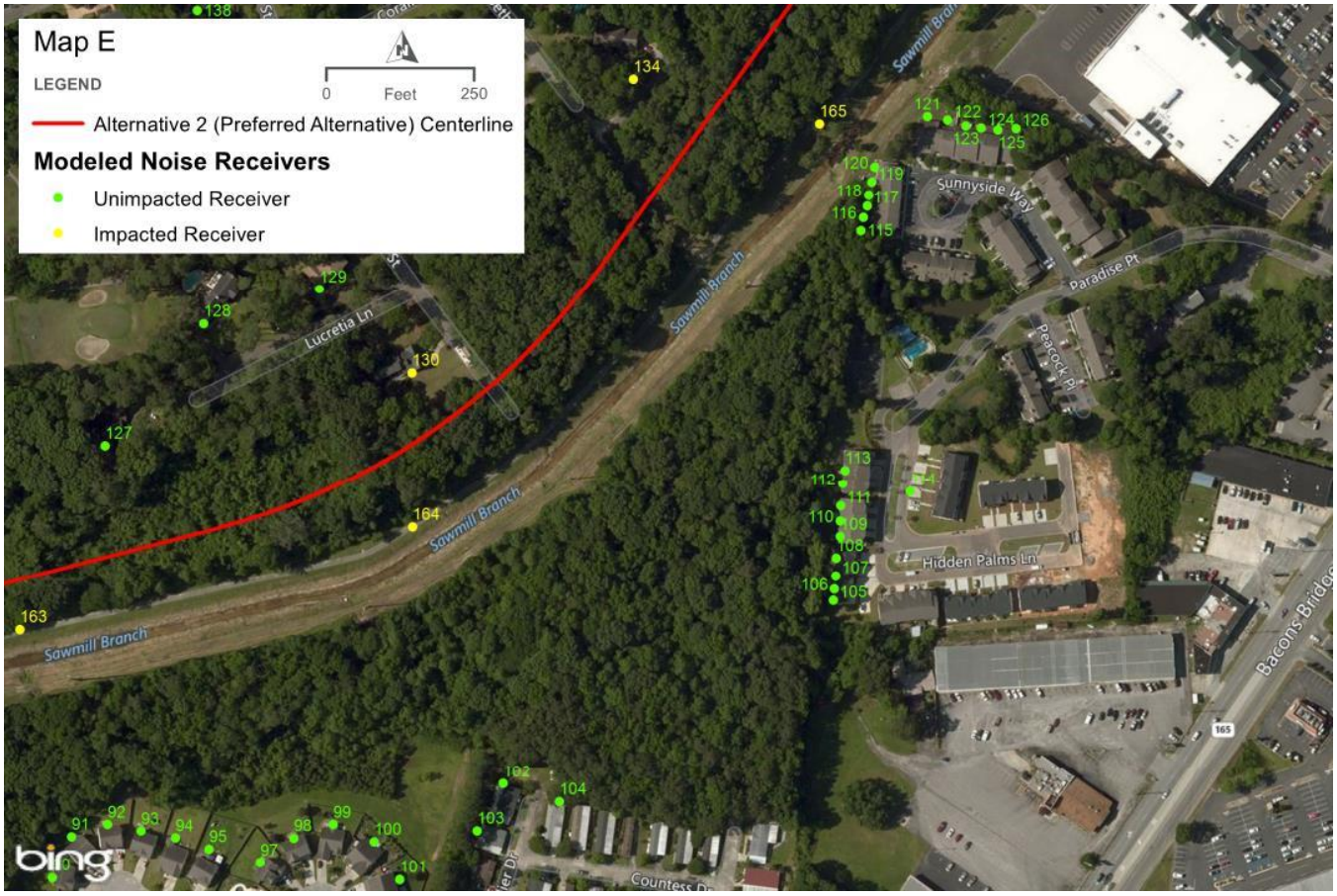

Noise Receivers Map
LEGEND
0 Feet 2,000
Alternative 2 (Preferred Alternative) Centerline
Modeled Noise Receivers
Unimpacted Receiver
Impacted Receiver
Map A
Map B
Map C
Map D
Map E
Map F
bing

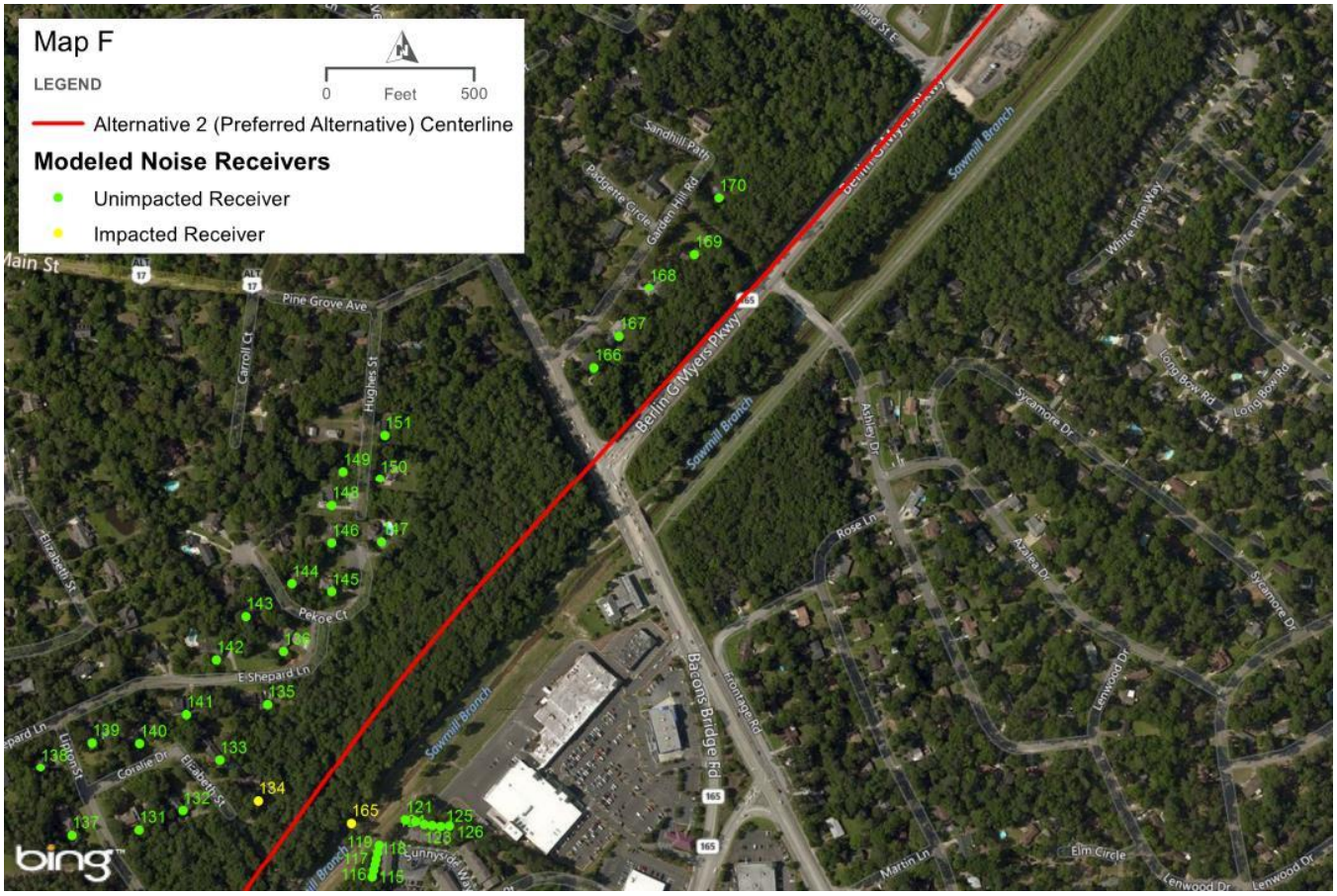

Map A
LEGEND
0 Feet 500
Alternative 2 (Preferred Alternative) Centerline
Modeled Noise Receivers
Unimpacted Receiver
Impacted Receiver
Orangeburg Rd
Flood Helm Rd
Orangeburg Rd
1
2
3
4
5
bing


Map B
LEGEND
0 Feet 500
Alternative 2 (Preferred Alternative) Centerline
Modeled Noise Receivers
Unimpacted Receiver
Impacted Receiver
Greenwave Blvd
Sawmill Branch
Burrell Blvd
Thames Ave
Smythe Dr
Boone Dr
Plantation Dr
Luden Dr
bing


Map C
LEGEND
0 Feet 250
Alternative 2 (Preferred Alternative) Centerline
Modeled Noise Receivers
Unimpacted Receiver
Impacted Receiver
Sawmill Branch
Sawmill Branch
Sawmill Branch
159
158
48
157
64
65
63
62
60
61
59
Bonita Ct
Amberjack Way
57
56
58
54
55
53
52
51
50
49
King Charles Circle
King Charles Circle
bing


Map D
LEGEND
0 Feet 250
Alternative 2 (Preferred Alternative) Centerline
Modeled Noise Receivers
Unimpacted Receiver
Impacted Receiver
Sawmill Branch
Willet Dr
Goldfinch Ln
Chipping Sparrow Dr
Anhinga Ct
Outrigger Ct
Amberjack Way
Dolphin Dr
bing


Map E
LEGEND
0 Feet 250
Alternative 2 (Preferred Alternative) Centerline
Modeled Noise Receivers
Unimpacted Receiver
Impacted Receiver
Sawmill Branch
Lucretia Ln
Sunnyside Way
Paradise Pt
Peacock Pl
Hidden Palms Ln
Bacons Bridge
Countess Dr
bing


Map F
LEGEND
0 Feet 500
Alternative 2 (Preferred Alternative) Centerline
Modeled Noise Receivers
Unimpacted Receiver
Impacted Receiver
Main St
Pine Grove Ave
Carroll Ct
Hughes St
Berlin Gr Myers Pkwy
Sawmill Branch
Sandhill Path
Pidgette Circle
Garden Hill Rd
White Pine Way
Long Bow Rd
Sycamore Dr
Ashley Dr
Rose Ln
Azalea Dr
Lenwood Dr
Elizabeth St
Pekoe Ct
E Shepard Ln
Coralie Dr
Bacons Bridge Rd
Frontage Rd
Martin Ln
Elm Circle
Sunnyside Way
170
169
168
167
166
151
150
149
148
147
146
145
144
143
142
141
140
139
138
137
136
135
134
133
132
131
165
121
125
126
123
119
118
117
116
115
bing

APPENDIX 6

TNM Data Sheets

Davis & Floyd, Inc.
Wilson G. Hunter

26 August 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Job No. 012252.00
RUN: Berlin Myers Parkway Phase 3 Noise Eval
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
116 FLOOD HEIRS RD	1	1	51.3	63.9	66	12.6	15	---	63.9	0.0	8	-8.0
381 ORANGEBURG RD	4	1	59.1	72.6	66	13.5	15	Snd Lvl	72.6	0.0	8	-8.0
353 ORANGEBURG RD	5	1	59.1	67.3	66	8.2	15	Snd Lvl	67.3	0.0	8	-8.0
Newington Plantation Pool Area	10	1	45.1	55.3	66	10.2	15	---	55.3	0.0	8	-8.0
535 KING CHARLES CIR	13	1	45.1	51.0	66	5.9	15	---	51.0	0.0	8	-8.0
537 KING CHARLES CIR	14	1	45.1	51.7	66	6.6	15	---	51.7	0.0	8	-8.0
539 KING CHARLES CIR	15	1	45.1	52.5	66	7.4	15	---	52.5	0.0	8	-8.0
541 KING CHARLES CIR	16	1	45.1	53.0	66	7.9	15	---	53.0	0.0	8	-8.0
543 KING CHARLES CIR	17	1	45.1	53.6	66	8.5	15	---	53.6	0.0	8	-8.0
621 KING CHARLES CIR	18	1	45.1	54.8	66	9.7	15	---	54.8	0.0	8	-8.0
623 KING CHARLES CIR	19	1	45.1	55.5	66	10.4	15	---	55.5	0.0	8	-8.0
625 KING CHARLES CIR	20	1	45.1	55.9	66	10.8	15	---	55.9	0.0	8	-8.0
178 THAMES AVE	22	1	45.1	60.8	66	15.7	15	Sub'l Inc	60.8	0.0	8	-8.0
181 THAMES AVE	23	1	45.1	62.5	66	17.4	15	Sub'l Inc	62.5	0.0	8	-8.0
183 THAMES AVE	24	1	45.1	61.8	66	16.7	15	Sub'l Inc	61.8	0.0	8	-8.0
185 THAMES AVE	25	1	45.1	60.8	66	15.7	15	Sub'l Inc	60.8	0.0	8	-8.0
187 THAMES AVE	26	1	45.1	60.0	66	14.9	15	---	60.0	0.0	8	-8.0
189 THAMES AVE	27	1	45.1	59.4	66	14.3	15	---	59.4	0.0	8	-8.0
191 THAMES AVE	28	1	45.1	60.9	66	15.8	15	Sub'l Inc	60.9	0.0	8	-8.0
193 THAMES AVE	29	1	45.1	60.2	66	15.1	15	Sub'l Inc	60.2	0.0	8	-8.0
197 THAMES AVENUE	30	1	45.1	59.4	66	14.3	15	---	59.4	0.0	8	-8.0
107 NELSON CT	32	1	45.1	59.8	66	14.7	15	---	59.8	0.0	8	-8.0

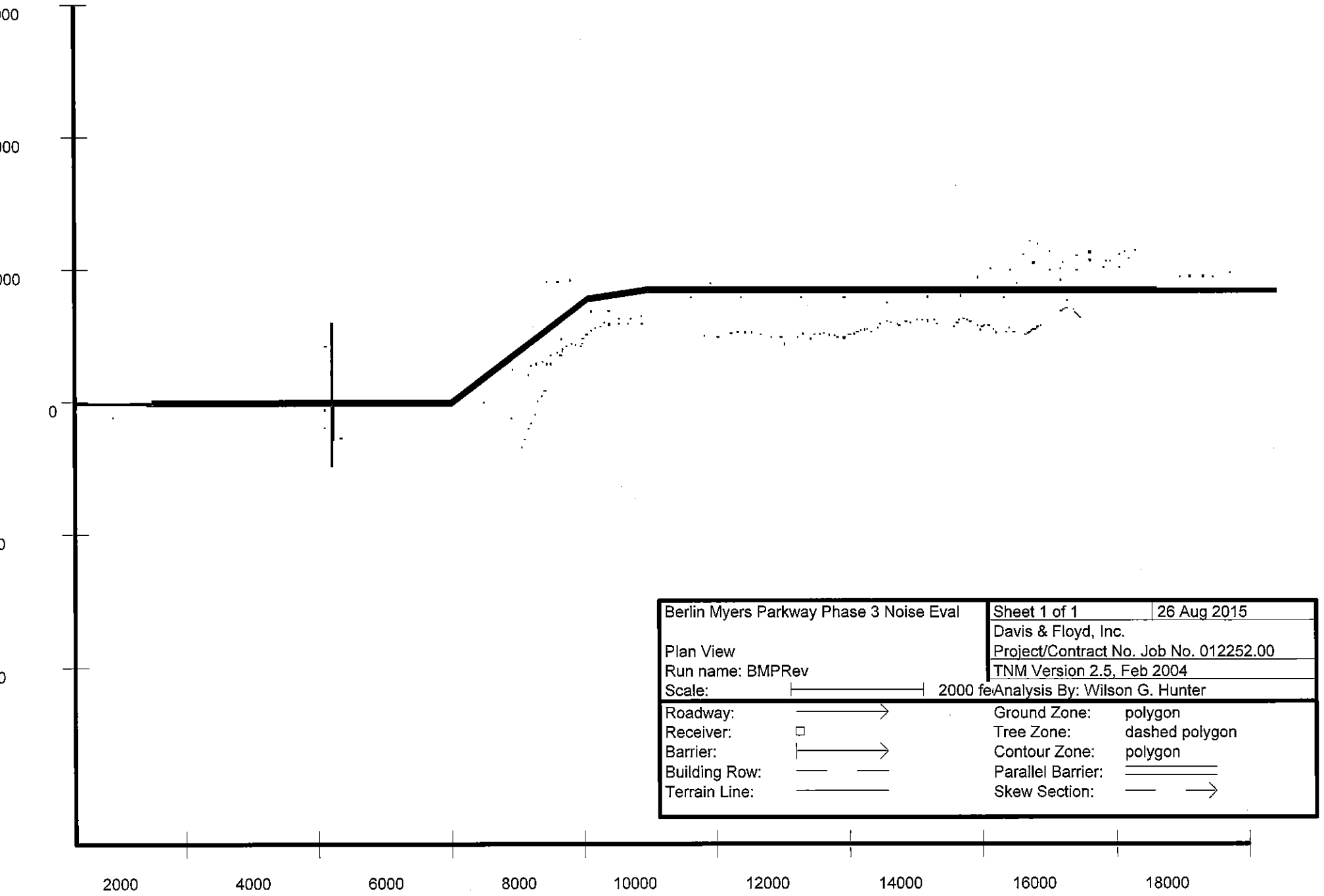
109 NELSON CT	33	1	45.1	60.1	66	15.0	15	Sub'l Inc	60.1	0.0	8	-8.0
110 NELSON CT	34	1	45.1	60.1	66	15.0	15	Sub'l Inc	60.1	0.0	8	-8.0
108 NELSON CT	35	1	45.1	59.9	66	14.8	15	----	59.9	0.0	8	-8.0
106 NELSON CT	36	1	45.1	59.0	66	13.9	15	----	59.0	0.0	8	-8.0
205 THAMES AVE	38	1	45.1	58.1	66	13.0	15	----	58.1	0.0	8	-8.0
207 THAMES AVE	39	1	45.1	58.5	66	13.4	15	----	58.5	0.0	8	-8.0
209 THAMES AVE	40	1	45.1	59.4	66	14.3	15	----	59.4	0.0	8	-8.0
211 THAMES AVE	41	1	45.1	59.8	66	14.7	15	----	59.8	0.0	8	-8.0
213 THAMES AVE	42	1	45.1	60.5	66	15.4	15	Sub'l Inc	60.5	0.0	8	-8.0
215 THAMES AVE	43	1	45.1	60.5	66	15.4	15	Sub'l Inc	60.5	0.0	8	-8.0
217 THAMES AVE	44	1	45.1	60.4	66	15.3	15	Sub'l Inc	60.4	0.0	8	-8.0
219 THAMES AVE	45	1	45.1	61.3	66	16.2	15	Sub'l Inc	61.3	0.0	8	-8.0
221 THAMES AVE	46	1	45.1	60.4	66	15.3	15	Sub'l Inc	60.4	0.0	8	-8.0
APT BLDG 1 @ 350 LUDEN DR	48	4	45.1	61.9	66	16.8	15	Sub'l Inc	61.9	0.0	8	-8.0
APT BLDG 2 @ 350 LUDEN DR	49	4	45.1	61.6	66	16.5	15	Sub'l Inc	61.6	0.0	8	-8.0
APT BLDG 3 @ 350 LUDEN DR	50	4	45.1	62.1	66	17.0	15	Sub'l Inc	62.1	0.0	8	-8.0
APT BLDG 4 @ 350 LUDEN DR	51	1	45.1	60.2	66	15.1	15	Sub'l Inc	60.2	0.0	8	-8.0
APT BLDG 5 @ 350 LUDEN DR	52	1	45.1	59.9	66	14.8	15	----	59.9	0.0	8	-8.0
APT BLDG 6 @ 350 LUDEN DR	53	1	45.1	59.9	66	14.8	15	----	59.9	0.0	8	-8.0
69 KING CHARLES CIR	55	1	45.1	55.4	66	10.3	15	----	55.4	0.0	8	-8.0
71 KING CHARLES CIRCLE	56	1	45.1	54.9	66	9.8	15	----	54.9	0.0	8	-8.0
73 KING CHARLES CIR	57	1	45.1	55.8	66	10.7	15	----	55.8	0.0	8	-8.0
75 KING CHARLES CIR	58	1	45.1	56.0	66	10.9	15	----	56.0	0.0	8	-8.0
77 KING CHARLES CIR	59	1	45.1	55.7	66	10.6	15	----	55.7	0.0	8	-8.0
79 KING CHARLES CIR	60	1	45.1	55.8	66	10.7	15	----	55.8	0.0	8	-8.0
81 KING CHARLES CIR	61	1	45.1	55.1	66	10.0	15	----	55.1	0.0	8	-8.0
83 KING CHARLES CIR	62	1	45.1	54.6	66	9.5	15	----	54.6	0.0	8	-8.0
85 KING CHARLES CIR	63	1	45.1	54.6	66	9.5	15	----	54.6	0.0	8	-8.0
87 KING CHARLES CIR	64	1	45.1	53.3	66	8.2	15	----	53.3	0.0	8	-8.0
104 BONITA CT	66	1	45.1	54.7	66	9.6	15	----	54.7	0.0	8	-8.0
102 BONITA CT	67	1	45.1	55.2	66	10.1	15	----	55.2	0.0	8	-8.0
100 BONITA CT	68	1	45.1	54.0	66	8.9	15	----	54.0	0.0	8	-8.0
214 AMBERJACK WAY	69	1	46.6	55.3	66	8.7	15	----	55.3	0.0	8	-8.0
212 AMBERJACK WAY	70	1	46.6	55.2	66	8.6	15	----	55.2	0.0	8	-8.0
210 AMBERJACK WAY	71	1	46.6	55.5	66	8.9	15	----	55.5	0.0	8	-8.0
208 AMBERJACK WAY	72	1	46.6	55.0	66	8.4	15	----	55.0	0.0	8	-8.0
206 AMBERJACK WAY	73	1	46.6	54.6	66	8.0	15	----	54.6	0.0	8	-8.0
204 AMBERJACK WAY	74	1	46.6	54.5	66	7.9	15	----	54.5	0.0	8	-8.0
202 AMBERJACK WAY	75	1	46.6	54.3	66	7.7	15	----	54.3	0.0	8	-8.0
200 AMBERJACK WAY	76	1	46.6	55.3	66	8.7	15	----	55.3	0.0	8	-8.0

101 OUTRIGGER CT	77	1	46.6	55.3	66	8.7	15	---	55.3	0.0	8	-8.0
103 OUTRIGGER CT	78	1	46.6	55.8	66	9.2	15	---	55.8	0.0	8	-8.0
105 OUTRIGGER CT	79	1	46.6	56.0	66	9.4	15	---	56.0	0.0	8	-8.0
107 OUTRIGGER CT	80	1	46.6	56.3	66	9.7	15	---	56.3	0.0	8	-8.0
109 OUTRIGGER CT	81	1	46.6	56.4	66	9.8	15	---	56.4	0.0	8	-8.0
108 OUTRIGGER CT	82	1	46.6	55.9	66	9.3	15	---	55.9	0.0	8	-8.0
210 WILLET DR	83	1	48.1	56.7	66	8.6	15	---	56.7	0.0	8	-8.0
209 WILLET DR	84	1	48.1	57.5	66	9.4	15	---	57.5	0.0	8	-8.0
207 WILLET DR	85	1	48.1	58.0	66	9.9	15	---	58.0	0.0	8	-8.0
205 WILLET DR	86	1	48.1	57.9	66	9.8	15	---	57.9	0.0	8	-8.0
203 WILLET DR	87	1	48.1	57.7	66	9.6	15	---	57.7	0.0	8	-8.0
201 WILLET DR	88	1	48.1	57.4	66	9.3	15	---	57.4	0.0	8	-8.0
231 GOLDFINCH LN	90	1	48.1	58.6	66	10.5	15	---	58.6	0.0	8	-8.0
229 GOLDFINCH LN	91	1	48.1	58.0	66	9.9	15	---	58.0	0.0	8	-8.0
227 GOLDFINCH LN	92	1	48.1	59.3	66	11.2	15	---	59.3	0.0	8	-8.0
225 GOLDFINCH LN	93	1	48.1	59.2	66	11.1	15	---	59.2	0.0	8	-8.0
223 GOLDFINCH LN	94	1	48.1	59.0	66	10.9	15	---	59.0	0.0	8	-8.0
221 GOLDFINCH LN	95	1	48.1	59.1	66	11.0	15	---	59.1	0.0	8	-8.0
219 GOLDFINCH LN	96	1	48.1	57.9	66	9.8	15	---	57.9	0.0	8	-8.0
223 CHIPPING SPARROW DR	98	1	47.7	57.2	66	9.5	15	---	57.2	0.0	8	-8.0
225 CHIPPING SPARROW DR	99	1	47.7	58.2	66	10.5	15	---	58.2	0.0	8	-8.0
226 CHIPPING SPARROW DR	100	1	47.7	59.2	66	11.5	15	---	59.2	0.0	8	-8.0
224 CHIPPING SPARROW DR	101	1	47.7	59.4	66	11.7	15	---	59.4	0.0	8	-8.0
222 CHIPPING SPARROW DR	102	1	47.7	59.1	66	11.4	15	---	59.1	0.0	8	-8.0
220 CHIPPING SPARROW DR	103	1	47.7	58.5	66	10.8	15	---	58.5	0.0	8	-8.0
218 CHIPPING SPARROW DR	104	1	47.7	57.5	66	9.8	15	---	57.5	0.0	8	-8.0
101 ANHINGA CT	105	1	47.7	56.2	66	8.5	15	---	56.2	0.0	8	-8.0
103 ANHINGA COURT	107	1	47.7	57.3	66	9.6	15	---	57.3	0.0	8	-8.0
105 ANHINGA CT	108	1	47.7	57.5	66	9.8	15	---	57.5	0.0	8	-8.0
107 ANHINGA CT	109	1	47.7	57.5	66	9.8	15	---	57.5	0.0	8	-8.0
109 ANHINGA CT	110	1	47.7	56.4	66	8.7	15	---	56.4	0.0	8	-8.0
108 ANHINGA CT	111	1	47.7	55.2	66	7.5	15	---	55.2	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP #1	113	1	49.2	56.5	66	7.3	15	---	56.5	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP - #2	114	1	49.2	55.6	66	6.4	15	---	55.6	0.0	8	-8.0
Contess Dr - Royal Manor MHP = #3	115	1	49.2	55.5	66	6.3	15	---	55.5	0.0	8	-8.0
122 HIDDEN PALMS BLVD	116	1	49.2	54.8	66	5.6	15	---	54.8	0.0	8	-8.0
120 HIDDEN PALMS BLVD	117	1	49.2	54.8	66	5.6	15	---	54.8	0.0	8	-8.0
118 HIDDEN PALMS BLVD	118	1	49.2	55.1	66	5.9	15	---	55.1	0.0	8	-8.0
116 HIDDEN PALMS BLVD	119	1	49.2	55.2	66	6.0	15	---	55.2	0.0	8	-8.0
114 HIDDEN PALMS BLVD	120	1	49.2	55.5	66	6.3	15	---	55.5	0.0	8	-8.0

112 HIDDEN PALMS BLVD	121	1	49.2	55.8	66	6.6	15	----	55.8	0.0	8	-8.0
110 HIDDEN PALMS BLVD	122	1	49.2	55.9	66	6.7	15	----	55.9	0.0	8	-8.0
108 HIDDEN PALMS BLVD	123	1	49.2	56.4	66	7.2	15	----	56.4	0.0	8	-8.0
106 HIDDEN PALMS BLVD	124	1	49.2	56.7	66	7.5	15	----	56.7	0.0	8	-8.0
104 HIDDEN PALMS BLVD	125	1	49.2	56.9	66	7.7	15	----	56.9	0.0	8	-8.0
305 SUNNYSIDE WAY	127	1	54.2	60.4	66	6.2	15	----	60.4	0.0	8	-8.0
304 SUNNYSIDE WAY	128	1	54.2	60.3	66	6.1	15	----	60.3	0.0	8	-8.0
303 SUNNYSIDE WAY	129	1	54.2	60.7	66	6.5	15	----	60.7	0.0	8	-8.0
302 SUNNYSIDE WAY	130	1	54.2	60.7	66	6.5	15	----	60.7	0.0	8	-8.0
301 SUNNYSIDE WAY	131	1	54.2	61.1	66	6.9	15	----	61.1	0.0	8	-8.0
300 SUNNYSIDE WAY	132	1	54.2	61.2	66	7.0	15	----	61.2	0.0	8	-8.0
205 SUNNYSIDE WAY	133	1	54.1	60.1	66	6.0	15	----	60.1	0.0	8	-8.0
204 SUNNYSIDE WAY	134	1	54.1	59.4	66	5.3	15	----	59.4	0.0	8	-8.0
203 SUNNYSIDE WAY	135	1	54.1	59.1	66	5.0	15	----	59.1	0.0	8	-8.0
202 SUNNYSIDE WAY	136	1	54.1	58.7	66	4.6	15	----	58.7	0.0	8	-8.0
201 SUNNYSIDE WAY	137	1	54.1	58.3	66	4.2	15	----	58.3	0.0	8	-8.0
200 SUNNYSIDE WAY	138	1	54.1	57.7	66	3.6	15	----	57.7	0.0	8	-8.0
104 LUCRETIA LN	140	1	50.0	63.9	66	13.9	15	----	63.9	0.0	8	-8.0
102 LUCRETIA LANE	141	1	50.0	60.7	66	10.7	15	----	60.7	0.0	8	-8.0
100 LUCRETIA LN	142	1	50.0	61.1	66	11.1	15	----	61.1	0.0	8	-8.0
101 LUCRETIA LN	143	1	50.0	68.0	66	18.0	15	Both	68.0	0.0	8	-8.0
100 LIPTON ST	145	1	50.0	58.9	66	8.9	15	----	58.9	0.0	8	-8.0
300 ELIZABETH ST	146	1	50.0	61.2	66	11.2	15	----	61.2	0.0	8	-8.0
301 ELIZABETH ST	147	1	50.0	60.8	66	10.8	15	----	60.8	0.0	8	-8.0
400 ELIZABETH ST	148	1	48.9	65.1	66	16.2	15	Sub'l Inc	65.1	0.0	8	-8.0
312 E SHEPARD LN	149	1	48.9	60.3	66	11.4	15	----	60.3	0.0	8	-8.0
321 E SHEPARD LN	150	1	48.9	57.4	66	8.5	15	----	57.4	0.0	8	-8.0
100 CORALIE DR	155	1	51.3	57.0	66	5.7	15	----	57.0	0.0	8	-8.0
116 E SHEPARD LN	156	1	51.3	54.1	66	2.8	15	----	54.1	0.0	8	-8.0
101 CORALIE DR	157	1	50.0	54.9	66	4.9	15	----	54.9	0.0	8	-8.0
103 LIPTON ST	158	1	50.0	56.4	66	6.4	15	----	56.4	0.0	8	-8.0
302 E SHEPARD LN	159	1	50.0	58.8	66	8.8	15	----	58.8	0.0	8	-8.0
309 E SHEPARD LN	160	1	50.0	56.8	66	6.8	15	----	56.8	0.0	8	-8.0
200 PEKOE CT	161	1	51.3	57.5	66	6.2	15	----	57.5	0.0	8	-8.0
192 PEKOE CT	162	1	51.3	59.6	66	8.3	15	----	59.6	0.0	8	-8.0
180 PEKOE CT	163	1	51.3	57.4	66	6.1	15	----	57.4	0.0	8	-8.0
181 PEKOE CT	164	1	51.3	59.4	66	8.1	15	----	59.4	0.0	8	-8.0
106 HUGHES ST	165	1	51.3	55.7	66	4.4	15	----	55.7	0.0	8	-8.0
105 HUGHES ST	166	1	51.3	56.5	66	5.2	15	----	56.5	0.0	8	-8.0
103 HUGHES ST	167	1	51.3	54.8	66	3.5	15	----	54.8	0.0	8	-8.0

102 GARDEN HILL RD	170	1	0.0	61.2	66	61.2	15	---	61.2	0.0	8	-8.0
104 GARDEN HILL RD	171	1	0.0	61.5	66	61.5	15	---	61.5	0.0	8	-8.0
106 GARDEN HILL RD	172	1	0.0	61.8	66	61.8	15	---	61.8	0.0	8	-8.0
108 GARDEN HILL RD	173	1	0.0	62.5	66	62.5	15	---	62.5	0.0	8	-8.0
111 GARDEN HILL RD	176	1	0.0	62.7	66	62.7	15	---	62.7	0.0	8	-8.0
SUMMERVILLE CC #13 Tee Box	178	1	44.8	67.1	66	22.3	15	Both	67.1	0.0	8	-8.0
104 HUGHES ST	181	1	51.3	55.2	66	3.9	15	---	55.2	0.0	8	-8.0
205 PEKOE CT	183	1	51.3	55.7	66	4.4	15	---	55.7	0.0	8	-8.0
WT-1 (Sawmill Branch Multi-Use Trail)	185	1	45.1	62.7	66	17.6	15	Sub'l Inc	62.7	0.0	8	-8.0
WT-2 (Sawmill Branch Multi-Use Trail)	186	1	45.1	67.6	66	22.5	15	Both	67.6	0.0	8	-8.0
WT-3 (Sawmill Branch Multi-Use Trail)	187	1	45.1	64.0	66	18.9	15	Sub'l Inc	64.0	0.0	8	-8.0
WT-4 (Sawmill Branch Multi-Use Trail)	188	1	45.1	65.7	66	20.6	15	Sub'l Inc	65.7	0.0	8	-8.0
WT-5 (Sawmill Branch Multi-Use Trail)	189	1	45.1	63.6	66	18.5	15	Sub'l Inc	63.6	0.0	8	-8.0
WT-6 (Sawmill Branch Multi-Use Trail)	190	1	45.1	67.3	66	22.2	15	Both	67.3	0.0	8	-8.0
WT-7 (Sawmill Branch Multi-Use Trail)	191	1	45.1	67.0	66	21.9	15	Both	67.0	0.0	8	-8.0
WT-8 (Sawmill Branch Multi-Use Trail)	192	1	45.1	67.7	66	22.6	15	Both	67.7	0.0	8	-8.0
WT-9 (Sawmill Branch Multi-Use Trail)	193	1	45.1	67.7	66	22.6	15	Both	67.7	0.0	8	-8.0
WT-10 (Sawmill Branch Multi-Use Trail)	194	1	48.1	63.9	66	15.8	15	Sub'l Inc	63.9	0.0	8	-8.0
WT-11 (Sawmill Branch Multi-Use Trail)	195	1	48.1	68.0	66	19.9	15	Both	68.0	0.0	8	-8.0
WT-12 (Sawmill Branch Multi-Use Trail)	196	1	47.7	68.6	66	20.9	15	Both	68.6	0.0	8	-8.0
WT-13 (Sawmill Branch Multi-Use Trail)	197	1	48.9	67.2	66	18.3	15	Both	67.2	0.0	8	-8.0
WT-14 (Sawmill Branch Multi-Use Trail)	198	1	48.9	64.4	66	15.5	15	Sub'l Inc	64.4	0.0	8	-8.0
HUNTSMAN CT 1	203	1	49.7	56.8	66	7.1	15	---	56.8	0.0	8	-8.0
HUNTSMAN CT 2	204	1	49.7	58.3	66	8.6	15	---	58.3	0.0	8	-8.0
HUNTSMAN CT 3	205	1	49.7	58.5	66	8.8	15	---	58.5	0.0	8	-8.0
HUNTSMAN CT 4	206	1	49.7	60.1	66	10.4	15	---	60.1	0.0	8	-8.0
348 ORANGEBURG RD	209	1	59.1	65.1	66	6.0	15	---	65.1	0.0	8	-8.0
421 ORANGEBURG RD	210	1	59.1	65.3	66	6.2	15	---	65.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	179	0.0	0.0	0.0
All Impacted	45	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0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Berlin Myers Parkway Phase 3 Noise Eval
Sheet 1 of 1
26 Aug 2015
Davis & Floyd, Inc.
Plan View
Project/Contract No. Job No. 012252.00
Run name: BMPRev
TNM Version 2.5, Feb 2004
Scale:
2000 fe
Analysis By: Wilson G. Hunter
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone:
polygon
Tree Zone:
dashed polygon
Contour Zone:
polygon
Parallel Barrier:
Skew Section:

Davis & Floyd, Inc.
Wilson G. Hunter

26 August 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Job No. 012252.00
RUN: Berlin Myers Parkway Phase 3 Noise Eval
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
116 FLOOD HEIRS RD	1	1	51.3	63.9	66	12.6	15	---	63.9	0.0	8	-8.0
381 ORANGEBURG RD	4	1	59.1	72.6	66	13.5	15	Snd Lvl	72.6	0.0	8	-8.0
353 ORANGEBURG RD	5	1	59.1	67.3	66	8.2	15	Snd Lvl	67.3	0.0	8	-8.0
Newington Plantation Pool Area	10	1	45.1	55.3	66	10.2	15	---	55.3	0.0	8	-8.0
535 KING CHARLES CIR	13	1	45.1	51.0	66	5.9	15	---	51.0	0.0	8	-8.0
537 KING CHARLES CIR	14	1	45.1	51.7	66	6.6	15	---	51.7	0.0	8	-8.0
539 KING CHARLES CIR	15	1	45.1	52.5	66	7.4	15	---	52.5	0.0	8	-8.0
541 KING CHARLES CIR	16	1	45.1	53.0	66	7.9	15	---	53.0	0.0	8	-8.0
543 KING CHARLES CIR	17	1	45.1	53.6	66	8.5	15	---	53.6	0.0	8	-8.0
621 KING CHARLES CIR	18	1	45.1	54.8	66	9.7	15	---	54.8	0.0	8	-8.0
623 KING CHARLES CIR	19	1	45.1	55.5	66	10.4	15	---	55.5	0.0	8	-8.0
625 KING CHARLES CIR	20	1	45.1	55.9	66	10.8	15	---	55.9	0.0	8	-8.0
178 THAMES AVE	22	1	45.1	60.8	66	15.7	15	Sub'l Inc	60.8	0.0	8	-8.0
181 THAMES AVE	23	1	45.1	62.5	66	17.4	15	Sub'l Inc	62.5	0.0	8	-8.0
183 THAMES AVE	24	1	45.1	61.8	66	16.7	15	Sub'l Inc	61.8	0.0	8	-8.0
185 THAMES AVE	25	1	45.1	60.8	66	15.7	15	Sub'l Inc	60.8	0.0	8	-8.0
187 THAMES AVE	26	1	45.1	60.0	66	14.9	15	---	60.0	0.0	8	-8.0
189 THAMES AVE	27	1	45.1	59.4	66	14.3	15	---	59.4	0.0	8	-8.0
191 THAMES AVE	28	1	45.1	60.9	66	15.8	15	Sub'l Inc	60.9	0.0	8	-8.0
193 THAMES AVE	29	1	45.1	60.2	66	15.1	15	Sub'l Inc	60.2	0.0	8	-8.0
197 THAMES AVENUE	30	1	45.1	59.4	66	14.3	15	---	59.4	0.0	8	-8.0
107 NELSON CT	32	1	45.1	59.8	66	14.7	15	---	59.8	0.0	8	-8.0

109 NELSON CT	33	1	45.1	60.1	66	15.0	15	Sub'l Inc	60.1	0.0	8	-8.0
110 NELSON CT	34	1	45.1	60.1	66	15.0	15	Sub'l Inc	60.1	0.0	8	-8.0
108 NELSON CT	35	1	45.1	59.9	66	14.8	15	---	59.9	0.0	8	-8.0
106 NELSON CT	36	1	45.1	59.0	66	13.9	15	---	59.0	0.0	8	-8.0
205 THAMES AVE	38	1	45.1	58.1	66	13.0	15	---	58.1	0.0	8	-8.0
207 THAMES AVE	39	1	45.1	58.5	66	13.4	15	---	58.5	0.0	8	-8.0
209 THAMES AVE	40	1	45.1	59.4	66	14.3	15	---	59.4	0.0	8	-8.0
211 THAMES AVE	41	1	45.1	59.8	66	14.7	15	---	59.8	0.0	8	-8.0
213 THAMES AVE	42	1	45.1	60.5	66	15.4	15	Sub'l Inc	60.5	0.0	8	-8.0
215 THAMES AVE	43	1	45.1	60.5	66	15.4	15	Sub'l Inc	60.5	0.0	8	-8.0
217 THAMES AVE	44	1	45.1	60.4	66	15.3	15	Sub'l Inc	60.4	0.0	8	-8.0
219 THAMES AVE	45	1	45.1	61.3	66	16.2	15	Sub'l Inc	61.3	0.0	8	-8.0
221 THAMES AVE	46	1	45.1	60.4	66	15.3	15	Sub'l Inc	60.4	0.0	8	-8.0
APT BLDG 1 @ 350 LUDEN DR	48	4	45.1	61.9	66	16.8	15	Sub'l Inc	61.9	0.0	8	-8.0
APT BLDG 2 @ 350 LUDEN DR	49	4	45.1	61.6	66	16.5	15	Sub'l Inc	61.6	0.0	8	-8.0
APT BLDG 3 @ 350 LUDEN DR	50	4	45.1	62.1	66	17.0	15	Sub'l Inc	62.1	0.0	8	-8.0
APT BLDG 4 @ 350 LUDEN DR	51	1	45.1	60.2	66	15.1	15	Sub'l Inc	60.2	0.0	8	-8.0
APT BLDG 5 @ 350 LUDEN DR	52	1	45.1	59.9	66	14.8	15	---	59.9	0.0	8	-8.0
APT BLDG 6 @ 350 LUDEN DR	53	1	45.1	59.9	66	14.8	15	---	59.9	0.0	8	-8.0
69 KING CHARLES CIR	55	1	45.1	55.4	66	10.3	15	---	55.4	0.0	8	-8.0
71 KING CHARLES CIRCLE	56	1	45.1	54.9	66	9.8	15	---	54.9	0.0	8	-8.0
73 KING CHARLES CIR	57	1	45.1	55.8	66	10.7	15	---	55.8	0.0	8	-8.0
75 KING CHARLES CIR	58	1	45.1	56.0	66	10.9	15	---	56.0	0.0	8	-8.0
77 KING CHARLES CIR	59	1	45.1	55.7	66	10.6	15	---	55.7	0.0	8	-8.0
79 KING CHARLES CIR	60	1	45.1	55.8	66	10.7	15	---	55.8	0.0	8	-8.0
81 KING CHARLES CIR	61	1	45.1	55.1	66	10.0	15	---	55.1	0.0	8	-8.0
83 KING CHARLES CIR	62	1	45.1	54.6	66	9.5	15	---	54.6	0.0	8	-8.0
85 KING CHARLES CIR	63	1	45.1	54.6	66	9.5	15	---	54.6	0.0	8	-8.0
87 KING CHARLES CIR	64	1	45.1	53.3	66	8.2	15	---	53.3	0.0	8	-8.0
104 BONITA CT	66	1	45.1	54.7	66	9.6	15	---	54.7	0.0	8	-8.0
102 BONITA CT	67	1	45.1	55.2	66	10.1	15	---	55.2	0.0	8	-8.0
100 BONITA CT	68	1	45.1	54.0	66	8.9	15	---	54.0	0.0	8	-8.0
214 AMBERJACK WAY	69	1	46.6	55.3	66	8.7	15	---	55.3	0.0	8	-8.0
212 AMBERJACK WAY	70	1	46.6	55.2	66	8.6	15	---	55.2	0.0	8	-8.0
210 AMBERJACK WAY	71	1	46.6	55.5	66	8.9	15	---	55.5	0.0	8	-8.0
208 AMBERJACK WAY	72	1	46.6	55.0	66	8.4	15	---	55.0	0.0	8	-8.0
206 AMBERJACK WAY	73	1	46.6	54.6	66	8.0	15	---	54.6	0.0	8	-8.0
204 AMBERJACK WAY	74	1	46.6	54.5	66	7.9	15	---	54.5	0.0	8	-8.0
202 AMBERJACK WAY	75	1	46.6	54.3	66	7.7	15	---	54.3	0.0	8	-8.0
200 AMBERJACK WAY	76	1	46.6	55.3	66	8.7	15	---	55.3	0.0	8	-8.0

101 OUTRIGGER CT	77	1	46.6	55.3	66	8.7	15	---	55.3	0.0	8	-8.0
103 OUTRIGGER CT	78	1	46.6	55.8	66	9.2	15	---	55.8	0.0	8	-8.0
105 OUTRIGGER CT	79	1	46.6	56.0	66	9.4	15	---	56.0	0.0	8	-8.0
107 OUTRIGGER CT	80	1	46.6	56.3	66	9.7	15	---	56.3	0.0	8	-8.0
109 OUTRIGGER CT	81	1	46.6	56.4	66	9.8	15	---	56.4	0.0	8	-8.0
108 OUTRIGGER CT	82	1	46.6	55.9	66	9.3	15	---	55.9	0.0	8	-8.0
210 WILLET DR	83	1	48.1	56.7	66	8.6	15	---	56.7	0.0	8	-8.0
209 WILLET DR	84	1	48.1	57.5	66	9.4	15	---	57.5	0.0	8	-8.0
207 WILLET DR	85	1	48.1	58.0	66	9.9	15	---	58.0	0.0	8	-8.0
205 WILLET DR	86	1	48.1	57.9	66	9.8	15	---	57.9	0.0	8	-8.0
203 WILLET DR	87	1	48.1	57.7	66	9.6	15	---	57.7	0.0	8	-8.0
201 WILLET DR	88	1	48.1	57.4	66	9.3	15	---	57.4	0.0	8	-8.0
231 GOLDFINCH LN	90	1	48.1	58.6	66	10.5	15	---	58.6	0.0	8	-8.0
229 GOLDFINCH LN	91	1	48.1	58.0	66	9.9	15	---	58.0	0.0	8	-8.0
227 GOLDFINCH LN	92	1	48.1	59.3	66	11.2	15	---	59.3	0.0	8	-8.0
225 GOLDFINCH LN	93	1	48.1	59.2	66	11.1	15	---	59.2	0.0	8	-8.0
223 GOLDFINCH LN	94	1	48.1	59.0	66	10.9	15	---	59.0	0.0	8	-8.0
221 GOLDFINCH LN	95	1	48.1	59.1	66	11.0	15	---	59.1	0.0	8	-8.0
219 GOLDFINCH LN	96	1	48.1	57.9	66	9.8	15	---	57.9	0.0	8	-8.0
223 CHIPPING SPARROW DR	98	1	47.7	57.2	66	9.5	15	---	57.2	0.0	8	-8.0
225 CHIPPING SPARROW DR	99	1	47.7	58.2	66	10.5	15	---	58.2	0.0	8	-8.0
226 CHIPPING SPARROW DR	100	1	47.7	59.2	66	11.5	15	---	59.2	0.0	8	-8.0
224 CHIPPING SPARROW DR	101	1	47.7	59.4	66	11.7	15	---	59.4	0.0	8	-8.0
222 CHIPPING SPARROW DR	102	1	47.7	59.1	66	11.4	15	---	59.1	0.0	8	-8.0
220 CHIPPING SPARROW DR	103	1	47.7	58.5	66	10.8	15	---	58.5	0.0	8	-8.0
218 CHIPPING SPARROW DR	104	1	47.7	57.5	66	9.8	15	---	57.5	0.0	8	-8.0
101 ANHINGA CT	105	1	47.7	56.2	66	8.5	15	---	56.2	0.0	8	-8.0
103 ANHINGA COURT	107	1	47.7	57.3	66	9.6	15	---	57.3	0.0	8	-8.0
105 ANHINGA CT	108	1	47.7	57.5	66	9.8	15	---	57.5	0.0	8	-8.0
107 ANHINGA CT	109	1	47.7	57.5	66	9.8	15	---	57.5	0.0	8	-8.0
109 ANHINGA CT	110	1	47.7	56.4	66	8.7	15	---	56.4	0.0	8	-8.0
108 ANHINGA CT	111	1	47.7	55.2	66	7.5	15	---	55.2	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP #1	113	1	49.2	56.5	66	7.3	15	---	56.5	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP - #2	114	1	49.2	55.6	66	6.4	15	---	55.6	0.0	8	-8.0
Contess Dr - Royal Manor MHP = #3	115	1	49.2	55.5	66	6.3	15	---	55.5	0.0	8	-8.0
122 HIDDEN PALMS BLVD	116	1	49.2	54.8	66	5.6	15	---	54.8	0.0	8	-8.0
120 HIDDEN PALMS BLVD	117	1	49.2	54.8	66	5.6	15	---	54.8	0.0	8	-8.0
118 HIDDEN PALMS BLVD	118	1	49.2	55.1	66	5.9	15	---	55.1	0.0	8	-8.0
116 HIDDEN PALMS BLVD	119	1	49.2	55.2	66	6.0	15	---	55.2	0.0	8	-8.0
114 HIDDEN PALMS BLVD	120	1	49.2	55.5	66	6.3	15	---	55.5	0.0	8	-8.0

112 HIDDEN PALMS BLVD	121	1	49.2	55.8	66	6.6	15	---	55.8	0.0	8	-8.0
110 HIDDEN PALMS BLVD	122	1	49.2	55.9	66	6.7	15	---	55.9	0.0	8	-8.0
108 HIDDEN PALMS BLVD	123	1	49.2	56.4	66	7.2	15	---	56.4	0.0	8	-8.0
106 HIDDEN PALMS BLVD	124	1	49.2	56.7	66	7.5	15	---	56.7	0.0	8	-8.0
104 HIDDEN PALMS BLVD	125	1	49.2	56.9	66	7.7	15	---	56.9	0.0	8	-8.0
305 SUNNYSIDE WAY	127	1	54.2	60.4	66	6.2	15	---	60.4	0.0	8	-8.0
304 SUNNYSIDE WAY	128	1	54.2	60.3	66	6.1	15	---	60.3	0.0	8	-8.0
303 SUNNYSIDE WAY	129	1	54.2	60.7	66	6.5	15	---	60.7	0.0	8	-8.0
302 SUNNYSIDE WAY	130	1	54.2	60.7	66	6.5	15	---	60.7	0.0	8	-8.0
301 SUNNYSIDE WAY	131	1	54.2	61.1	66	6.9	15	---	61.1	0.0	8	-8.0
300 SUNNYSIDE WAY	132	1	54.2	61.2	66	7.0	15	---	61.2	0.0	8	-8.0
205 SUNNYSIDE WAY	133	1	54.1	60.1	66	6.0	15	---	60.1	0.0	8	-8.0
204 SUNNYSIDE WAY	134	1	54.1	59.4	66	5.3	15	---	59.4	0.0	8	-8.0
203 SUNNYSIDE WAY	135	1	54.1	59.1	66	5.0	15	---	59.1	0.0	8	-8.0
202 SUNNYSIDE WAY	136	1	54.1	58.7	66	4.6	15	---	58.7	0.0	8	-8.0
201 SUNNYSIDE WAY	137	1	54.1	58.3	66	4.2	15	---	58.3	0.0	8	-8.0
200 SUNNYSIDE WAY	138	1	54.1	57.7	66	3.6	15	---	57.7	0.0	8	-8.0
104 LUCRETIA LN	140	1	50.0	63.9	66	13.9	15	---	63.9	0.0	8	-8.0
102 LUCRETIA LANE	141	1	50.0	60.7	66	10.7	15	---	60.7	0.0	8	-8.0
100 LUCRETIA LN	142	1	50.0	61.1	66	11.1	15	---	61.1	0.0	8	-8.0
101 LUCRETIA LN	143	1	50.0	68.0	66	18.0	15	Both	68.0	0.0	8	-8.0
100 LIPTON ST	145	1	50.0	58.9	66	8.9	15	---	58.9	0.0	8	-8.0
300 ELIZABETH ST	146	1	50.0	61.2	66	11.2	15	---	61.2	0.0	8	-8.0
301 ELIZABETH ST	147	1	50.0	60.8	66	10.8	15	---	60.8	0.0	8	-8.0
400 ELIZABETH ST	148	1	48.9	65.1	66	16.2	15	Sub'l Inc	65.1	0.0	8	-8.0
312 E SHEPARD LN	149	1	48.9	60.3	66	11.4	15	---	60.3	0.0	8	-8.0
321 E SHEPARD LN	150	1	48.9	57.4	66	8.5	15	---	57.4	0.0	8	-8.0
100 CORALIE DR	155	1	51.3	57.0	66	5.7	15	---	57.0	0.0	8	-8.0
116 E SHEPARD LN	156	1	51.3	54.1	66	2.8	15	---	54.1	0.0	8	-8.0
101 CORALIE DR	157	1	50.0	54.9	66	4.9	15	---	54.9	0.0	8	-8.0
103 LIPTON ST	158	1	50.0	56.4	66	6.4	15	---	56.4	0.0	8	-8.0
302 E SHEPARD LN	159	1	50.0	58.8	66	8.8	15	---	58.8	0.0	8	-8.0
309 E SHEPARD LN	160	1	50.0	56.8	66	6.8	15	---	56.8	0.0	8	-8.0
200 PEKOE CT	161	1	51.3	57.5	66	6.2	15	---	57.5	0.0	8	-8.0
192 PEKOE CT	162	1	51.3	59.6	66	8.3	15	---	59.6	0.0	8	-8.0
180 PEKOE CT	163	1	51.3	57.4	66	6.1	15	---	57.4	0.0	8	-8.0
181 PEKOE CT	164	1	51.3	59.4	66	8.1	15	---	59.4	0.0	8	-8.0
106 HUGHES ST	165	1	51.3	55.7	66	4.4	15	---	55.7	0.0	8	-8.0
105 HUGHES ST	166	1	51.3	56.5	66	5.2	15	---	56.5	0.0	8	-8.0
103 HUGHES ST	167	1	51.3	54.8	66	3.5	15	---	54.8	0.0	8	-8.0

102 GARDEN HILL RD	170	1	0.0	61.2	66	61.2	15	---	61.2	0.0	8	-8.0
104 GARDEN HILL RD	171	1	0.0	61.5	66	61.5	15	---	61.5	0.0	8	-8.0
106 GARDEN HILL RD	172	1	0.0	61.8	66	61.8	15	---	61.8	0.0	8	-8.0
108 GARDEN HILL RD	173	1	0.0	62.5	66	62.5	15	---	62.5	0.0	8	-8.0
111 GARDEN HILL RD	176	1	0.0	62.7	66	62.7	15	---	62.7	0.0	8	-8.0
SUMMERVILLE CC #13 Tee Box	178	1	44.8	67.1	66	22.3	15	Both	67.1	0.0	8	-8.0
104 HUGHES ST	181	1	51.3	55.2	66	3.9	15	---	55.2	0.0	8	-8.0
205 PEKOE CT	183	1	51.3	55.7	66	4.4	15	---	55.7	0.0	8	-8.0
WT-1 (Sawmill Branch Multi-Use Trail)	185	1	45.1	62.7	66	17.6	15	Sub'l Inc	62.7	0.0	8	-8.0
WT-2 (Sawmill Branch Multi-Use Trail)	186	1	45.1	67.6	66	22.5	15	Both	67.6	0.0	8	-8.0
WT-3 (Sawmill Branch Multi-Use Trail)	187	1	45.1	64.0	66	18.9	15	Sub'l Inc	64.0	0.0	8	-8.0
WT-4 (Sawmill Branch Multi-Use Trail)	188	1	45.1	65.7	66	20.6	15	Sub'l Inc	65.7	0.0	8	-8.0
WT-5 (Sawmill Branch Multi-Use Trail)	189	1	45.1	63.6	66	18.5	15	Sub'l Inc	63.6	0.0	8	-8.0
WT-6 (Sawmill Branch Multi-Use Trail)	190	1	45.1	67.3	66	22.2	15	Both	67.3	0.0	8	-8.0
WT-7 (Sawmill Branch Multi-Use Trail)	191	1	45.1	67.0	66	21.9	15	Both	67.0	0.0	8	-8.0
WT-8 (Sawmill Branch Multi-Use Trail)	192	1	45.1	67.7	66	22.6	15	Both	67.7	0.0	8	-8.0
WT-9 (Sawmill Branch Multi-Use Trail)	193	1	45.1	67.7	66	22.6	15	Both	67.7	0.0	8	-8.0
WT-10 (Sawmill Branch Multi-Use Trail)	194	1	48.1	63.9	66	15.8	15	Sub'l Inc	63.9	0.0	8	-8.0
WT-11 (Sawmill Branch Multi-Use Trail)	195	1	48.1	68.0	66	19.9	15	Both	68.0	0.0	8	-8.0
WT-12 (Sawmill Branch Multi-Use Trail)	196	1	47.7	68.6	66	20.9	15	Both	68.6	0.0	8	-8.0
WT-13 (Sawmill Branch Multi-Use Trail)	197	1	48.9	67.2	66	18.3	15	Both	67.2	0.0	8	-8.0
WT-14 (Sawmill Branch Multi-Use Trail)	198	1	48.9	64.4	66	15.5	15	Sub'l Inc	64.4	0.0	8	-8.0
HUNTSMAN CT 1	203	1	49.7	56.8	66	7.1	15	---	56.8	0.0	8	-8.0
HUNTSMAN CT 2	204	1	49.7	58.3	66	8.6	15	---	58.3	0.0	8	-8.0
HUNTSMAN CT 3	205	1	49.7	58.5	66	8.8	15	---	58.5	0.0	8	-8.0
HUNTSMAN CT 4	206	1	49.7	60.1	66	10.4	15	---	60.1	0.0	8	-8.0
348 ORANGEBURG RD	209	1	59.1	65.1	66	6.0	15	---	65.1	0.0	8	-8.0
421 ORANGEBURG RD	210	1	59.1	65.3	66	6.2	15	---	65.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	179	0.0	0.0	0.0
All Impacted	45	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Davis & Floyd, Inc.
Wilson G. Hunter

26 August 2015
TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: Job No. 012252.00
RUN: Berlin Myers Parkway Phase 3 Noise Eval

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Seg1-Median	12.0	point1	1	0.0	0.0	0.00				Average	
		point2	2	1,500.0	0.0	2.00					
Seg1 - EB1	12.0	point3	3	0.0	-12.0	0.00				Average	
		point4	4	1,500.0	-12.0	2.00					
Seg1 - EB2	12.0	point5	5	0.0	-24.0	0.00				Average	
		point6	6	1,500.0	-24.0	2.00					
Seg1 - WB1	12.0	point7	7	1,500.0	12.0	2.00	Signal	0.00	100	Average	
		point8	8	0.0	12.0	0.00					
Seg2 Median	18.0	point9	9	1,500.0	0.0	2.00				Average	
		point10	10	4,200.0	0.0	2.00					
Seg2 - EB1	12.5	point11	11	1,500.0	-15.2	2.00	Signal	0.00	100	Average	
		point12	12	4,200.0	-15.2	2.00					
Seg2 - EB2	12.0	point13	13	1,500.0	-27.4	2.00	Signal	0.00	100	Average	
		point14	14	4,200.0	-27.4	2.00					
Seg2 - WB1	12.5	point15	15	4,199.5	15.2	6.00	Signal	0.00	100	Average	
		point16	16	1,500.0	15.2	2.00					
Seg2 - WB2	12.0	point17	17	4,200.0	27.4	2.00	Signal	0.00	100	Average	
		point18	18	1,500.0	27.4	6.00					
Seg2 - EB 2' C/G	0.0	point19	19	1,500.0	-34.4	2.00				Average	
		point20	20	4,200.0	-34.4	2.00					
Seg2 - WB - 2' C/G	2.0	point21	21	4,200.0	34.4	2.00				Average	
		point22	22	1,500.0	34.4	2.00					
Seg3 - Median	18.0	point23	23	4,200.0	0.0	2.00				Average	
		point24	24	6,000.0	0.0	6.00					

Seg3 - EB1	12.5	point25	25	4,200.0	-15.2	2.00	Signal	0.00	100	Average	
		point26	26	6,003.0	-15.2	6.00					
Seg3 - EB2	12.0	point27	27	4,200.0	-27.4	2.00	Signal	0.00	100	Average	
		point28	28	6,007.0	-27.4	6.00					
Seg3 EB 2' C/G	2.0	point29	29	4,200.0	-34.4	2.00				Average	
		point30	30	6,010.0	-34.4	6.00					
Seg3 - EB - 10' Concrete Walkway	10.0	point31	31	4,230.0	-40.4	2.00				Average	
		point32	32	6,012.0	-40.4	6.00					
Seg3 - WB1	12.0	point33	33	5,997.0	15.2	6.00				Average	
		point34	34	4,200.0	15.2	2.00					
Seg3 - WB2	12.0	point35	35	5,991.0	27.4	6.00				Average	
		point36	36	4,200.0	27.4	2.00					
Seg3 - WB - 2' C/G	2.0	point37	37	5,988.0	34.4	6.00				Average	
		point38	38	4,200.0	34.4	2.00					
Seg4 - Median	18.0	point39	39	6,000.0	0.0	6.00				Average	
		point40	40	6,925.0	704.0	6.00					
Seg4 - EB1	12.5	point47	47	6,003.0	-15.2	6.00				Average	
		point48	48	6,930.0	696.0	6.00					
Seg4 - EB2	12.0	point49	49	6,007.0	-27.4	6.00				Average	
		point50	50	6,935.0	688.0	6.00					
Seg4 - EB - 2' C/G	2.0	point51	51	6,010.0	-34.4	6.00				Average	
		point52	52	6,939.0	683.0	6.00					
Seg4 WB1	12.0	point53	53	6,918.0	712.0	6.00	Signal	0.00	100	Average	
		point54	54	5,997.0	15.2	6.00					
Seg4 WB2	12.0	point55	55	6,911.0	721.0	6.00	Signal	0.00	100	Average	
		point56	56	5,991.0	27.4	6.00					
Seg4 - WB - 2' C/G	2.0	point57	57	6,907.0	726.0	6.00				Average	
		point58	58	5,988.0	34.4	6.00					
Seg5 - Median	18.0	point59	59	6,925.0	704.0	6.00				Average	
		point60	60	8,042.0	1,561.0	6.00					
Seg5 - EB1	12.5	point61	61	6,930.0	696.0	6.00	Signal	0.00	100	Average	
		point62	62	8,042.0	1,545.8	6.00					
Seg5 - EB2	12.0	point63	63	6,935.0	688.0	6.00	Signal	0.00	100	Average	
		point64	64	8,042.0	1,533.6	6.00					
Seg5 - WB- 2' C/G	2.0	point65	65	6,939.0	683.0	6.00				Average	
		point66	66	8,042.0	1,526.6	6.00					
Seg5 - WB1	12.5	point67	67	8,042.0	1,576.2	6.00				Average	

		point68	68	6,918.0	712.0	6.00					
Seg5 - WB2	12.0	point69	69	8,042.0	1,588.4	6.00				Average	
		point70	70	6,911.0	721.0	6.00					
Seg5 - WB - 2' C/G	2.0	point71	71	8,042.0	1,595.4	6.00				Average	
		point72	72	6,907.0	726.0	6.00					
Seg6 - Median	18.0	point73	73	8,042.0	1,561.0	6.00				Average	
		point74	74	8,952.0	1,700.0	8.00					
Seg6 - EB1	12.5	point75	75	8,042.0	1,545.8	6.00				Average	
		point76	76	8,952.0	1,684.8	8.00					
Seg6 - EB2	12.0	point77	77	8,042.0	1,533.6	6.00				Average	
		point78	78	8,952.0	1,672.6	8.00					
Seg6 - EB - 2' C/G	2.0	point79	79	8,042.0	1,526.6	6.00				Average	
		point80	80	8,952.0	1,665.6	8.00					
Seg6 - WB1	12.5	point81	81	8,952.0	1,715.2	8.00	Signal	0.00	100	Average	
		point82	82	8,042.0	1,576.2	6.00					
Seg6 - WB2	12.0	point83	83	8,952.0	1,727.4	8.00	Signal	0.00	100	Average	
		point84	84	8,042.0	1,587.1	6.00					
Seg6 - WB- 2' C/G	2.0	point85	85	8,952.0	1,734.4	8.00				Average	
		point86	86	8,042.0	1,595.4	6.00					
Seg7 - Median	18.0	point87	87	8,952.0	1,700.0	8.00				Average	
		point88	88	14,960.0	1,700.0	8.00					
Seg7 - EB1	12.5	point89	89	8,952.0	1,684.8	8.00	Signal	0.00	100	Average	
		point90	90	14,960.0	1,684.8	8.00					
Seg7 - EB2	12.0	point91	91	8,952.0	1,672.6	8.00	Signal	0.00	100	Average	
		point92	92	14,960.0	1,672.6	8.00					
Seg7 - EB - 2' C/G	2.0	point93	93	8,952.0	1,665.6	8.00				Average	
		point94	94	14,960.0	1,665.6	8.00					
Seg7 - WB1	12.5	point95	95	14,960.0	1,714.7	8.00				Average	
		point96	96	8,952.0	1,715.1	8.00					
Seg7 - WB2	12.0	point97	97	14,960.0	1,727.4	8.00				Average	
		point98	98	8,952.0	1,727.4	8.00					
Se7 - WB - 2' C/G	2.0	point99	99	14,960.0	1,734.4	8.00				Average	
		point100	100	8,952.0	1,734.4	8.00					
Seg8 - Median	18.0	point101	101	14,960.0	1,700.0	8.00				Average	
		point102	102	15,310.0	1,700.0	7.00					
Seg8 - EB1	12.5	point103	103	14,960.0	1,684.8	8.00				Average	
		point104	104	15,310.0	1,684.8	7.00					

Seg8 - EB2	12.0	point105	105	14,960.0	1,672.6	8.00				Average	
		point106	106	15,310.0	1,672.6	7.00					
Seg8 - EB - 2' C/G	2.0	point107	107	14,960.0	1,665.6	8.00				Average	
		point108	108	15,310.0	1,665.6	7.00					
Seg8 - WB1	12.5	point109	109	15,310.0	1,715.2	7.00				Average	
		point110	110	14,960.0	1,715.2	8.00					
Seg8 - WB2	12.0	point111	111	15,310.0	1,727.4	7.00				Average	
		point112	112	14,960.0	1,727.4	8.00					
Seg8 - WB - 2' C/G	2.0	point113	113	15,310.0	1,734.4	7.00				Average	
		point114	114	14,960.0	1,734.4	8.00					
Seg9 - Median 4'	4.0	point115	115	15,310.0	1,700.0	7.00				Average	
		point116	116	16,460.0	1,700.0	28.00					
Seg9 - EB1	13.0	point117	117	15,310.0	1,691.5	7.00				Average	
		point118	118	16,460.0	1,691.5	28.00					
Seg9 - EB2	12.0	point119	119	15,310.0	1,679.0	7.00				Average	
		point120	120	16,460.0	1,679.0	28.00					
Seg9 - EB - 2' C/G	2.0	point121	121	15,310.0	1,672.0	7.00				Average	
		point122	122	16,460.0	1,672.0	28.00					
Seg9 - WB1	13.0	point123	123	16,460.0	1,708.5	28.00				Average	
		point124	124	15,310.0	1,708.5	7.00					
Seg9 - WB2	12.0	point125	125	16,460.0	1,721.0	28.00				Average	
		point126	126	15,310.0	1,721.0	7.00					
Seg9 - WB - 2' C/G	2.0	point127	127	16,460.0	1,728.0	28.00				Average	
		point128	128	15,310.0	1,728.0	7.00					
Seg10 - Median 4'	4.0	point129	129	16,460.0	1,700.0	28.00				Average	
		point130	130	16,760.0	1,700.0	33.00					
Seg10 - EB1	13.0	point131	131	16,460.0	1,691.5	28.00				Average	
		point132	132	16,760.0	1,691.5	33.00					
Seg10 - EB2	12.0	point133	133	16,460.0	1,679.0	28.00				Average	
		point134	134	16,760.0	1,679.0	33.00					
Seg10 - WB1	13.0	point135	135	16,760.0	1,708.5	33.00				Average	
		point136	136	16,460.0	1,708.5	28.00					
Seg10 - WB2	12.0	point137	137	16,760.0	1,721.0	33.00				Average	
		point138	138	16,460.0	1,721.0	28.00					
Seg10 - EB 2' C	2.0	point139	139	16,460.0	1,672.0	28.00				Average	
		point140	140	16,760.0	1,672.0	33.00					
Seg10 - WB - 2' C	2.0	point141	141	16,760.0	1,728.0	33.00				Average	

		point142	142	16,460.0	1,728.0	28.00					
Seg11 - Median 4'	4.0	point143	143	16,760.0	1,700.0	33.00				Average	
		point144	144	17,010.0	1,700.0	28.00					
Seg11 - EB1	13.0	point145	145	16,760.0	1,691.5	33.00				Average	
		point146	146	17,010.0	1,691.5	28.00					
Seg11 - EB2	12.0	point147	147	16,760.0	1,679.0	33.00				Average	
		point148	148	17,010.0	1,679.0	28.00					
Seg11 - EB - 2' C	2.0	point149	149	16,760.0	1,672.0	33.00				Average	
		point150	150	17,010.0	1,672.0	28.00					
Seg11 - WB1	13.0	point151	151	17,010.0	1,708.5	28.00				Average	
		point152	152	16,760.0	1,708.5	33.00					
Seg11 - WB2	12.0	point153	153	17,010.0	1,721.0	28.00				Average	
		point154	154	16,760.0	1,721.0	33.00					
Seg11- WB - 2' C	2.0	point155	155	17,010.0	1,728.0	28.00				Average	
		point156	156	16,760.0	1,728.0	33.00					
Seg12 - Median 4'	4.0	point157	157	17,010.0	1,700.0	28.00				Average	
		point158	158	17,810.0	1,700.0	6.00					
Seg12 - EB1	13.0	point159	159	17,010.0	1,691.5	28.00				Average	
		point160	160	17,810.0	1,691.5	6.00					
Seg12 - EB2	12.0	point161	161	17,010.0	1,679.0	28.00				Average	
		point162	162	17,810.0	1,679.0	6.00					
Seg12 - EB - 2' C	2.0	point163	163	17,010.0	1,672.0	28.00				Average	
		point164	164	17,810.0	1,672.0	6.00					
Seg12 - WB1	13.0	point165	165	17,810.0	1,708.5	6.00				Average	
		point166	166	17,010.0	1,708.5	28.00					
Seg12 - WB2	12.0	point167	167	17,810.0	1,721.0	6.00				Average	
		point168	168	17,010.0	1,721.0	28.00					
Seg12 - WB - 2' C	2.0	point169	169	17,810.0	1,728.0	6.00				Average	
		point170	170	17,010.0	1,728.0	28.00					
Seg13 - Median 4'	4.0	point171	171	17,810.0	1,700.0	6.00				Average	
		point172	172	18,410.0	1,700.0	6.00					
Seg13 - EB1	13.0	point173	173	17,810.0	1,691.5	6.00				Average	
		point174	174	18,410.0	1,691.5	6.00					
Seg13 - EB2	12.0	point175	175	17,810.0	1,679.0	6.00				Average	
		point176	176	18,410.0	1,679.0	6.00					
Seg13 - EB - 2' C	12.0	point177	177	17,810.0	1,672.0	6.00				Average	
		point178	178	18,410.0	1,672.0	6.00					

Seg13 - WB1	13.0	point179	179	18,410.0	1,708.5	6.00				Average	
		point180	180	17,810.0	1,708.5	6.00					
Seg13 - WB2	12.0	point181	181	18,410.0	1,721.0	6.00				Average	
		point182	182	17,810.0	1,721.0	6.00					
Seg13 - WB - 2' C	2.0	point183	183	18,410.0	1,728.0	6.00				Average	
		point184	184	17,810.0	1,728.0	6.00					
Seg4 EB 10' Sidewalk	10.0	point185	185	6,012.0	-40.4	6.00				Average	
		point186	186	6,925.0	665.0	6.00					
OR SB1	12.0	point187	187	4,190.0	-35.0	2.00	Signal	0.00	100	Average	
		point188	188	4,190.0	-555.0	2.00					
OBS 11' LT	11.0	point192	192	4,205.5	-35.0	2.00				Average	
		point193	193	4,205.5	-555.0	2.00					
OBS NB1	12.0	point194	194	4,217.0	-555.0	2.00				Average	
		point195	195	4,217.0	-35.0	2.00					
OBS 4' Med	4.0	point196	196	4,198.0	-35.0	2.00				Average	
		point197	197	4,198.0	-555.0	2.00					
OBS 12' RT	12.0	point198	198	4,229.0	-555.0	2.00				Average	
		point199	199	4,229.0	-35.0	2.00					
OB SB 12'	12.0	point200	200	4,194.0	-555.0	2.00				Average	
		point201	201	4,194.0	-955.0	2.00					
OBS NB1 12'	12.0	point202	202	4,206.0	-955.0	2.00				Average	
		point203	203	4,206.0	-555.0	2.00					
OBN NB1	12.0	point204	204	4,210.0	35.0	2.00	Signal	0.00	100	Average	
		point205	205	4,210.0	505.0	3.00					
OBN 4' Med	4.0	point206	206	4,202.0	35.0	2.00				Average	
		point207	207	4,202.0	505.0	3.00					
OBN 11' Lft T	12.0	point208	208	4,194.5	505.0	3.00				Average	
		point209	209	4,194.5	35.0	2.00					
OBN SB1	12.0	point210	210	4,183.0	505.0	3.00				Average	
		point211	211	4,183.0	35.0	2.00					
OBN 15'Med	15.0	point212	212	4,200.0	505.0	3.00				Average	
		point213	213	4,200.0	1,200.0	5.00					
OBN2 NB2	12.0	point214	214	4,213.5	505.0	3.00				Average	
		point215	215	4,213.5	1,200.0	5.00					
OBS2 SB2	12.0	point216	216	4,186.5	1,200.0	5.00				Average	
		point217	217	4,186.5	505.0	3.00					
Seg 2 10' Sidewalk	10.0	point222	222	1,420.0	-40.4	2.00				Average	

		point223	223	4,100.0	-40.4	2.00					
10' Sidewalk	10.0	point224	224	14,610.0	1,745.0	3.00				Average	
		point225	225	16,610.0	1,745.0	3.00					
Seg1-Median::point1 Ends at Main St. intersection											
Seg1 - EB1::point4 Ends at Main St. intersection. Inside la											
Seg2 Median::point10 Goes to O'Burg Rd. 16' wide includes t											
Seg2 - EB1::point12 Goes to O'Burg Rd. 12.5' wide. Inside L											
Seg2 - WB1::point16 From O'Burg Rd to Main St. 12.5' Inside											
Seg3 - Median::point24 Median from O'Burg Rd. to GWB. 16' w											
Seg3 - EB1::point26 From O'Burg Rd. to GWB 12.5' Inside Lan											
Seg3 - EB - 10' Concrete Walkway::point32 10' concrete walk											
Seg4 - EB - 2' C/G::point52 2' C/G											
Seg7 - Median::point88 Segment ends at Elizabeth St. area											

Davis & Floyd, Inc. 26 August 20
Wilson G. Hunter TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Percentages
PROJECT/CONTRACT: Job No. 012252.00
RUN: Berlin Myers Parkway Phase 3 Noise Eval

Roadway	Points		Segment											
Name	Name	No.	Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Seg1-Median	point1	1	0	0	0	0	0	0	0	0	0	0	0
	point2	2											
Seg1 - EB1	point3	3	368	89	45	0	0	11	45	0	0	0	0
	point4	4											
Seg1 - EB2	point5	5	552	89	45	0	0	11	45	0	0	0	0
	point6	6											
Seg1 - WB1	point7	7	920	89	45	0	0	11	45	0	0	0	0
	point8	8											
Seg2 Median	point9	9	0	0	0	0	0	0	0	0	0	0	0
	point10	10											
Seg2 - EB1	point11	11	368	89	45	0	0	11	45	0	0	0	0
	point12	12											
Seg2 - EB2	point13	13	552	89	45	0	0	11	45	0	0	0	0
	point14	14											
Seg2 - WB1	point15	15	368	89	45	0	0	11	45	0	0	0	0
	point16	16											
Seg2 - WB2	point17	17	552	89	45	0	0	11	45	0	0	0	0
	point18	18											
Seg2 - EB 2' C/G	point19	19	0	0	0	0	0	0	0	0	0	0	0
	point20	20											
Seg2 - WB - 2' C/G	point21	21	0	0	0	0	0	0	0	0	0	0	0

	point22	22											
Seg3 - Median	point23	23	0	0	0	0	0	0	0	0	0	0	0
	point24	24											
Seg3 - EB1	point25	25	406	90	45	0	0	10	45	0	0	0	0
	point26	26											
Seg3 - EB2	point27	27	610	90	45	0	0	10	45	0	0	0	0
	point28	28											
Seg3 EB 2' C/G	point29	29	0	0	0	0	0	0	0	0	0	0	0
	point30	30											
Seg3 - EB - 10' Concrete Walkway	point31	31	0	0	0	0	0	0	0	0	0	0	0
	point32	32											
Seg3 - WB1	point33	33	406	90	45	0	0	10	45	0	0	0	0
	point34	34											
Seg3 - WB2	point35	35	610	90	45	0	0	10	45	0	0	0	0
	point36	36											
Seg3 - WB - 2' C/G	point37	37	0	0	0	0	0	0	0	0	0	0	0
	point38	38											
Seg4 - Median	point39	39	0	0	0	0	0	0	0	0	0	0	0
	point40	40											
Seg4 - EB1	point47	47	406	90	45	0	0	10	45	0	0	0	0
	point48	48											
Seg4 - EB2	point49	49	610	90	45	0	0	10	45	0	0	0	0
	point50	50											
Seg4 - EB - 2' C/G	point51	51	0	0	0	0	0	0	0	0	0	0	0
	point52	52											
Seg4 WB1	point53	53	406	90	45	0	0	10	45	0	0	0	0
	point54	54											
Seg4 WB2	point55	55	610	90	45	0	0	10	45	0	0	0	0
	point56	56											
Seg4 - WB - 2' C/G	point57	57	0	0	0	0	0	0	0	0	0	0	0
	point58	58											
Seg5 - Median	point59	59	0	0	0	0	0	0	0	0	0	0	0
	point60	60											

Seg5 - EB1	point61	61	406	90	45	0	0	10	45	0	0	0	0
	point62	62											
Seg5 - EB2	point63	63	610	90	45	0	0	10	45	0	0	0	0
	point64	64											
Seg5 - WB- 2' C/G	point65	65	0	0	0	0	0	0	0	0	0	0	0
	point66	66											
Seg5 - WB1	point67	67	406	90	45	0	0	10	45	0	0	0	0
	point68	68											
Seg5 - WB2	point69	69	610	90	45	0	0	10	45	0	0	0	0
	point70	70											
Seg5 - WB - 2' C/G	point71	71	0	0	0	0	0	0	0	0	0	0	0
	point72	72											
Seg6 - Median	point73	73	0	0	0	0	0	0	0	0	0	0	0
	point74	74											
Seg6 - EB1	point75	75	406	90	45	0	0	10	45	0	0	0	0
	point76	76											
Seg6 - EB2	point77	77	610	90	45	0	0	10	45	0	0	0	0
	point78	78											
Seg6 - EB - 2' C/G	point79	79	0	0	0	0	0	0	0	0	0	0	0
	point80	80											
Seg6 - WB1	point81	81	406	90	45	0	0	10	45	0	0	0	0
	point82	82											
Seg6 - WB2	point83	83	610	90	45	0	0	10	45	0	0	0	0
	point84	84											
Seg6 - WB- 2' C/G	point85	85	0	0	0	0	0	0	0	0	0	0	0
	point86	86											
Seg7 - Median	point87	87	0	0	0	0	0	0	0	0	0	0	0
	point88	88											
Seg7 - EB1	point89	89	430	90	45	0	0	10	45	0	0	0	0
	point90	90											
Seg7 - EB2	point91	91	646	90	45	0	0	10	45	0	0	0	0
	point92	92											
Seg7 - EB - 2' C/G	point93	93	0	0	0	0	0	0	0	0	0	0	0

	point94	94											
Seg7 - WB1	point95	95	430	90	45	0	0	10	45	0	0	0	0
	point96	96											
Seg7 - WB2	point97	97	646	90	45	0	0	10	45	0	0	0	0
	point98	98											
Se7 - WB - 2' C/G	point99	99	0	0	0	0	0	0	0	0	0	0	0
	point100	100											
Seg8 - Median	point101	101	0	0	0	0	0	0	0	0	0	0	0
	point102	102											
Seg8 - EB1	point103	103	430	90	45	0	0	10	45	0	0	0	0
	point104	104											
Seg8 - EB2	point105	105	646	90	45	0	0	10	45	0	0	0	0
	point106	106											
Seg8 - EB - 2' C/G	point107	107	0	0	0	0	0	0	0	0	0	0	0
	point108	108											
Seg8 - WB1	point109	109	430	90	45	0	0	10	45	0	0	0	0
	point110	110											
Seg8 - WB2	point111	111	646	90	45	0	0	10	45	0	0	0	0
	point112	112											
Seg8 - WB - 2' C/G	point113	113	0	0	0	0	0	0	0	0	0	0	0
	point114	114											
Seg9 - Median 4'	point115	115	0	0	0	0	0	0	0	0	0	0	0
	point116	116											
Seg9 - EB1	point117	117	430	90	45	0	0	10	45	0	0	0	0
	point118	118											
Seg9 - EB2	point119	119	646	90	45	0	0	10	45	0	0	0	0
	point120	120											
Seg9 - EB - 2' C/G	point121	121	0	0	0	0	0	0	0	0	0	0	0
	point122	122											
Seg9 - WB1	point123	123	430	90	45	0	0	10	45	0	0	0	0
	point124	124											
Seg9 - WB2	point125	125	646	90	45	0	0	10	45	0	0	0	0
	point126	126											

Seg9 - WB - 2' C/G	point127	127	0	0	0	0	0	0	0	0	0	0	0
	point128	128											
Seg10 - Median 4'	point129	129	0	0	0	0	0	0	0	0	0	0	0
	point130	130											
Seg10 - EB1	point131	131	430	90	45	0	0	10	45	0	0	0	0
	point132	132											
Seg10 - EB2	point133	133	646	90	45	0	0	10	45	0	0	0	0
	point134	134											
Seg10 - WB1	point135	135	430	90	45	0	0	10	45	0	0	0	0
	point136	136											
Seg10 - WB2	point137	137	646	90	45	0	0	10	45	0	0	0	0
	point138	138											
Seg10 - EB 2' C	point139	139	0	0	0	0	0	0	0	0	0	0	0
	point140	140											
Seg10 - WB - 2' C	point141	141	0	0	0	0	0	0	0	0	0	0	0
	point142	142											
Seg11 - Median 4'	point143	143	0	0	0	0	0	0	0	0	0	0	0
	point144	144											
Seg11 - EB1	point145	145	430	90	45	0	0	10	45	0	0	0	0
	point146	146											
Seg11 - EB2	point147	147	646	90	45	0	0	10	45	0	0	0	0
	point148	148											
Seg11 - EB - 2' C	point149	149	0	0	0	0	0	0	0	0	0	0	0
	point150	150											
Seg11 - WB1	point151	151	430	90	45	0	0	10	45	0	0	0	0
	point152	152											
Seg11 - WB2	point153	153	646	90	45	0	0	10	45	0	0	0	0
	point154	154											
Seg11- WB - 2' C	point155	155	0	0	0	0	0	0	0	0	0	0	0
	point156	156											
Seg12 - Median 4'	point157	157	0	0	0	0	0	0	0	0	0	0	0
	point158	158											
Seg12 - EB1	point159	159	430	90	45	0	0	10	45	0	0	0	0

	point160	160											
Seg12 - EB2	point161	161	646	90	45	0	0	10	45	0	0	0	0
	point162	162											
Seg12 - EB - 2' C	point163	163	0	0	0	0	0	0	0	0	0	0	0
	point164	164											
Seg12 - WB1	point165	165	430	90	45	0	0	10	45	0	0	0	0
	point166	166											
Seg12 - WB2	point167	167	646	90	45	0	0	10	45	0	0	0	0
	point168	168											
Seg12 - WB - 2' C	point169	169	0	0	0	0	0	0	0	0	0	0	0
	point170	170											
Seg13 - Median 4'	point171	171	0	0	0	0	0	0	0	0	0	0	0
	point172	172											
Seg13 - EB1	point173	173	584	90	45	0	0	10	45	0	0	0	0
	point174	174											
Seg13 - EB2	point175	175	876	90	45	0	0	10	45	0	0	0	0
	point176	176											
Seg13 - EB - 2' C	point177	177	0	0	0	0	0	0	0	0	0	0	0
	point178	178											
Seg13 - WB1	point179	179	584	90	45	0	0	10	45	0	0	0	0
	point180	180											
Seg13 - WB2	point181	181	876	90	45	0	0	10	45	0	0	0	0
	point182	182											
Seg13 - WB - 2' C	point183	183	0	0	0	0	0	0	0	0	0	0	0
	point184	184											
Seg4 EB 10' Sidewalk	point185	185	0	0	0	0	0	0	0	0	0	0	0
	point186	186											
OR SB1	point187	187	628	90	40	0	0	10	40	0	0	0	0
	point188	188											
OBS 11' LT	point192	192	0	0	0	0	0	0	0	0	0	0	0
	point193	193											
OBS NB1	point194	194	628	90	40	0	0	10	40	0	0	0	0
	point195	195											

OBS 4' Med	point196	196	0	0	0	0	0	0	0	0	0	0	0
	point197	197											
OBS 12' RT	point198	198	0	0	0	0	0	0	0	0	0	0	0
	point199	199											
OB SB 12'	point200	200	628	90	40	0	0	10	40	0	0	0	0
	point201	201											
OBS NB1 12'	point202	202	628	90	40	0	0	10	40	0	0	0	0
	point203	203											
OBN NB1	point204	204	724	90	40	0	0	10	40	0	0	0	0
	point205	205											
OBN 4' Med	point206	206	0	0	0	0	0	0	0	0	0	0	0
	point207	207											
OBN 11' Lft T	point208	208	0	0	0	0	0	0	0	0	0	0	0
	point209	209											
OBN SB1	point210	210	724	90	40	0	0	10	40	0	0	0	0
	point211	211											
OBN 15'Med	point212	212	0	0	0	0	0	0	0	0	0	0	0
	point213	213											
OBN2 NB2	point214	214	724	90	40	0	0	10	40	0	0	0	0
	point215	215											
OBS2 SB2	point216	216	724	90	40	0	0	10	40	0	0	0	0
	point217	217											
Seg 2 10' Sidewalk	point222	222	0	0	0	0	0	0	0	0	0	0	0
	point223	223											
10' Sidewalk	point224	224	0	0	0	0	0	0	0	0	0	0	0
	point225	225											

Davis & Floyd, Inc. 26 August 2015
Wilson G. Hunter TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: Job No. 012252.00
RUN: Berlin Myers Parkway Phase 3 Noise Eval

Receiver Name	No.	#DUs	Coordinates (ground)			Height above Ground	Input Sound Levels and Criteria				Active in Calc.
			X	Y	Z		Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	
			ft	ft	ft	ft	dBA	dBA	dB	dB	
116 FLOOD HEIRS RD	1	1	900.0	-216.0	0.00	4.92	51.30	66	15.0	8.0	Y
381 ORANGEBURG RD	4	1	4,090.0	-105.0	0.00	4.92	59.10	66	15.0	8.0	Y
353 ORANGEBURG RD	5	1	4,090.0	-375.0	0.00	4.92	59.10	66	15.0	8.0	Y
Newington Plantation Pool Area	10	1	6,900.0	-240.0	-4.00	4.92	45.10	66	15.0	8.0	Y
535 KING CHARLES CIR	13	1	7,050.0	-670.0	0.00	4.92	45.10	66	15.0	8.0	Y
537 KING CHARLES CIR	14	1	7,100.0	-553.0	0.00	4.92	45.10	66	15.0	8.0	Y
539 KING CHARLES CIR	15	1	7,150.0	-400.0	0.00	4.92	45.10	66	15.0	8.0	Y
541 KING CHARLES CIR	16	1	7,200.0	-310.0	0.00	4.92	45.10	66	15.0	8.0	Y
543 KING CHARLES CIR	17	1	7,250.0	-170.0	0.00	4.92	45.10	66	15.0	8.0	Y
621 KING CHARLES CIR	18	1	7,300.0	15.0	0.00	4.92	45.10	66	15.0	8.0	Y
623 KING CHARLES CIR	19	1	7,350.0	100.0	0.00	4.92	45.10	66	15.0	8.0	Y
625 KING CHARLES CIR	20	1	7,400.0	180.0	0.00	4.92	45.10	66	15.0	8.0	Y
178 THAMES AVE	22	1	7,150.0	410.0	-4.00	4.92	45.10	66	15.0	8.0	Y
181 THAMES AVE	23	1	7,200.0	550.0	-4.00	4.92	45.10	66	15.0	8.0	Y
183 THAMES AVE	24	1	7,280.0	585.0	-4.00	4.92	45.10	66	15.0	8.0	Y
185 THAMES AVE	25	1	7,370.0	610.0	-4.00	4.92	45.10	66	15.0	8.0	Y
187 THAMES AVE	26	1	7,425.0	585.0	-3.00	4.92	45.10	66	15.0	8.0	Y
189 THAMES AVE	27	1	7,485.0	585.0	-3.00	4.92	45.10	66	15.0	8.0	Y
191 THAMES AVE	28	1	7,485.0	720.0	-3.00	4.92	45.10	66	15.0	8.0	Y
193 THAMES AVE	29	1	7,585.0	755.0	-3.00	4.92	45.10	66	15.0	8.0	Y
197 THAMES AVENUE	30	1	7,640.0	720.0	-2.00	4.92	45.10	66	15.0	8.0	Y

107 NELSON CT	32	1	7,665.0	770.0	-2.00	4.92	45.10	66	15.0	8.0	Y
109 NELSON CT	33	1	7,670.0	805.0	-2.00	4.92	45.10	66	15.0	8.0	Y
110 NELSON CT	34	1	7,720.0	850.0	-2.00	4.92	45.10	66	15.0	8.0	Y
108 NELSON CT	35	1	7,800.0	895.0	-2.00	4.92	45.10	66	15.0	8.0	Y
106 NELSON CT	36	1	7,870.0	875.0	-2.00	4.92	45.10	66	15.0	8.0	Y
205 THAMES AVE	38	1	7,940.0	850.0	0.00	4.92	45.10	66	15.0	8.0	Y
207 THAMES AVE	39	1	7,970.0	900.0	0.00	4.92	45.10	66	15.0	8.0	Y
209 THAMES AVE	40	1	7,975.0	965.0	0.00	4.92	45.10	66	15.0	8.0	Y
211 THAMES AVE	41	1	8,035.0	1,025.0	0.00	4.92	45.10	66	15.0	8.0	Y
213 THAMES AVE	42	1	8,100.0	1,095.0	0.00	4.92	45.10	66	15.0	8.0	Y
215 THAMES AVE	43	1	8,170.0	1,125.0	0.00	4.92	45.10	66	15.0	8.0	Y
217 THAMES AVE	44	1	8,240.0	1,145.0	0.00	4.92	45.10	66	15.0	8.0	Y
219 THAMES AVE	45	1	8,300.0	1,210.0	0.00	4.92	45.10	66	15.0	8.0	Y
221 THAMES AVE	46	1	8,370.0	1,180.0	0.00	4.92	45.10	66	15.0	8.0	Y
APT BLDG 1 @ 350 LUDEN DR	48	4	8,520.0	1,270.0	6.00	4.92	45.10	66	15.0	8.0	Y
APT BLDG 2 @ 350 LUDEN DR	49	4	8,695.0	1,270.0	4.00	4.92	45.10	66	15.0	8.0	Y
APT BLDG 3 @ 350 LUDEN DR	50	4	8,860.0	1,300.0	3.00	4.92	45.10	66	15.0	8.0	Y
APT BLDG 4 @ 350 LUDEN DR	51	1	8,520.0	1,185.0	6.00	4.92	45.10	66	15.0	8.0	Y
APT BLDG 5 @ 350 LUDEN DR	52	1	8,655.0	1,185.0	4.00	4.92	45.10	66	15.0	8.0	Y
APT BLDG 6 @ 350 LUDEN DR	53	1	8,865.0	1,195.0	3.00	4.92	45.10	66	15.0	8.0	Y
69 KING CHARLES CIR	55	1	9,810.0	1,012.0	0.00	4.92	45.10	66	15.0	8.0	Y
71 KING CHARLES CIRCLE	56	1	10,010.0	986.0	0.00	4.92	45.10	66	15.0	8.0	Y
73 KING CHARLES CIR	57	1	10,210.0	1,055.0	0.00	4.92	45.10	66	15.0	8.0	Y
75 KING CHARLES CIR	58	1	10,310.0	1,072.0	0.00	4.92	45.10	66	15.0	8.0	Y
77 KING CHARLES CIR	59	1	10,410.0	1,062.0	0.00	4.92	45.10	66	15.0	8.0	Y
79 KING CHARLES CIR	60	1	10,510.0	1,062.0	0.00	4.92	45.10	66	15.0	8.0	Y
81 KING CHARLES CIR	61	1	10,660.0	1,027.0	0.00	4.92	45.10	66	15.0	8.0	Y
83 KING CHARLES CIR	62	1	10,810.0	987.0	0.00	4.92	45.10	66	15.0	8.0	Y
85 KING CHARLES CIR	63	1	10,960.0	987.0	0.00	4.92	45.10	66	15.0	8.0	Y
87 KING CHARLES CIR	64	1	11,010.0	882.0	0.00	4.92	45.10	66	15.0	8.0	Y
104 BONITA CT	66	1	11,210.0	995.0	0.00	4.92	45.10	66	15.0	8.0	Y
102 BONITA CT	67	1	11,285.0	1,042.0	0.00	4.92	45.10	66	15.0	8.0	Y
100 BONITA CT	68	1	11,400.0	961.0	0.00	4.92	45.10	66	15.0	8.0	Y
214 AMBERJACK WAY	69	1	11,460.0	1,037.0	2.00	4.92	46.60	66	15.0	8.0	Y
212 AMBERJACK WAY	70	1	11,550.0	1,037.0	2.00	4.92	46.60	66	15.0	8.0	Y

210 AMBERJACK WAY	71	1	11,610.0	1,050.0	2.00	4.92	46.60	66	15.0	8.0	Y
208 AMBERJACK WAY	72	1	11,690.0	1,022.0	2.00	4.92	46.60	66	15.0	8.0	Y
206 AMBERJACK WAY	73	1	11,760.0	1,004.0	2.00	4.92	46.60	66	15.0	8.0	Y
204 AMBERJACK WAY	74	1	11,810.0	996.0	2.00	4.92	46.60	66	15.0	8.0	Y
202 AMBERJACK WAY	75	1	11,910.0	982.0	2.00	4.92	46.60	66	15.0	8.0	Y
200 AMBERJACK WAY	76	1	11,990.0	1,037.0	2.00	4.92	46.60	66	15.0	8.0	Y
101 OUTRIGGER CT	77	1	12,060.0	1,039.0	3.00	4.92	46.60	66	15.0	8.0	Y
103 OUTRIGGER CT	78	1	12,110.0	1,065.0	3.00	4.92	46.60	66	15.0	8.0	Y
105 OUTRIGGER CT	79	1	12,160.0	1,086.0	3.00	4.92	46.60	66	15.0	8.0	Y
107 OUTRIGGER CT	80	1	12,210.0	1,100.0	3.00	4.92	46.60	66	15.0	8.0	Y
109 OUTRIGGER CT	81	1	12,260.0	1,106.0	3.00	4.92	46.60	66	15.0	8.0	Y
108 OUTRIGGER CT	82	1	12,310.0	1,070.0	3.00	4.92	46.60	66	15.0	8.0	Y
210 WILLET DR	83	1	12,410.0	1,137.0	0.00	4.92	48.10	66	15.0	8.0	Y
209 WILLET DR	84	1	12,460.0	1,191.0	0.00	4.92	48.10	66	15.0	8.0	Y
207 WILLET DR	85	1	12,560.0	1,223.0	0.00	4.92	48.10	66	15.0	8.0	Y
205 WILLET DR	86	1	12,610.0	1,205.0	0.00	4.92	48.10	66	15.0	8.0	Y
203 WILLET DR	87	1	12,710.0	1,196.0	0.00	4.92	48.10	66	15.0	8.0	Y
201 WILLET DR	88	1	12,740.0	1,165.0	1.00	4.92	48.10	66	15.0	8.0	Y
231 GOLDFINCH LN	90	1	12,840.0	1,228.0	1.00	4.92	48.10	66	15.0	8.0	Y
229 GOLDFINCH LN	91	1	12,910.0	1,205.0	1.00	4.92	48.10	66	15.0	8.0	Y
227 GOLDFINCH LN	92	1	13,010.0	1,250.0	1.00	4.92	48.10	66	15.0	8.0	Y
225 GOLDFINCH LN	93	1	13,085.0	1,250.0	1.00	4.92	48.10	66	15.0	8.0	Y
223 GOLDFINCH LN	94	1	13,160.0	1,238.0	1.00	4.92	48.10	66	15.0	8.0	Y
221 GOLDFINCH LN	95	1	13,260.0	1,244.0	1.00	4.92	48.10	66	15.0	8.0	Y
219 GOLDFINCH LN	96	1	13,310.0	1,196.0	1.00	4.92	48.10	66	15.0	8.0	Y
223 CHIPPING SPARROW DR	98	1	13,560.0	1,154.0	2.00	4.92	47.70	66	15.0	8.0	Y
225 CHIPPING SPARROW DR	99	1	13,610.0	1,207.0	2.00	4.92	47.70	66	15.0	8.0	Y
226 CHIPPING SPARROW DR	100	1	13,635.0	1,250.0	2.00	4.92	47.70	66	15.0	8.0	Y
224 CHIPPING SPARROW DR	101	1	13,710.0	1,270.0	2.00	4.92	47.70	66	15.0	8.0	Y
222 CHIPPING SPARROW DR	102	1	13,760.0	1,250.0	2.00	4.92	47.70	66	15.0	8.0	Y
220 CHIPPING SPARROW DR	103	1	13,810.0	1,223.0	2.00	4.92	47.70	66	15.0	8.0	Y
218 CHIPPING SPARROW DR	104	1	13,910.0	1,175.0	8.00	4.92	47.70	66	15.0	8.0	Y
101 ANHINGA CT	105	1	13,960.0	1,100.0	8.00	4.92	47.70	66	15.0	8.0	Y
103 ANHINGA COURT	107	1	13,985.0	1,155.0	8.00	4.92	47.70	66	15.0	8.0	Y
105 ANHINGA CT	108	1	14,010.0	1,170.0	8.00	4.92	47.70	66	15.0	8.0	Y

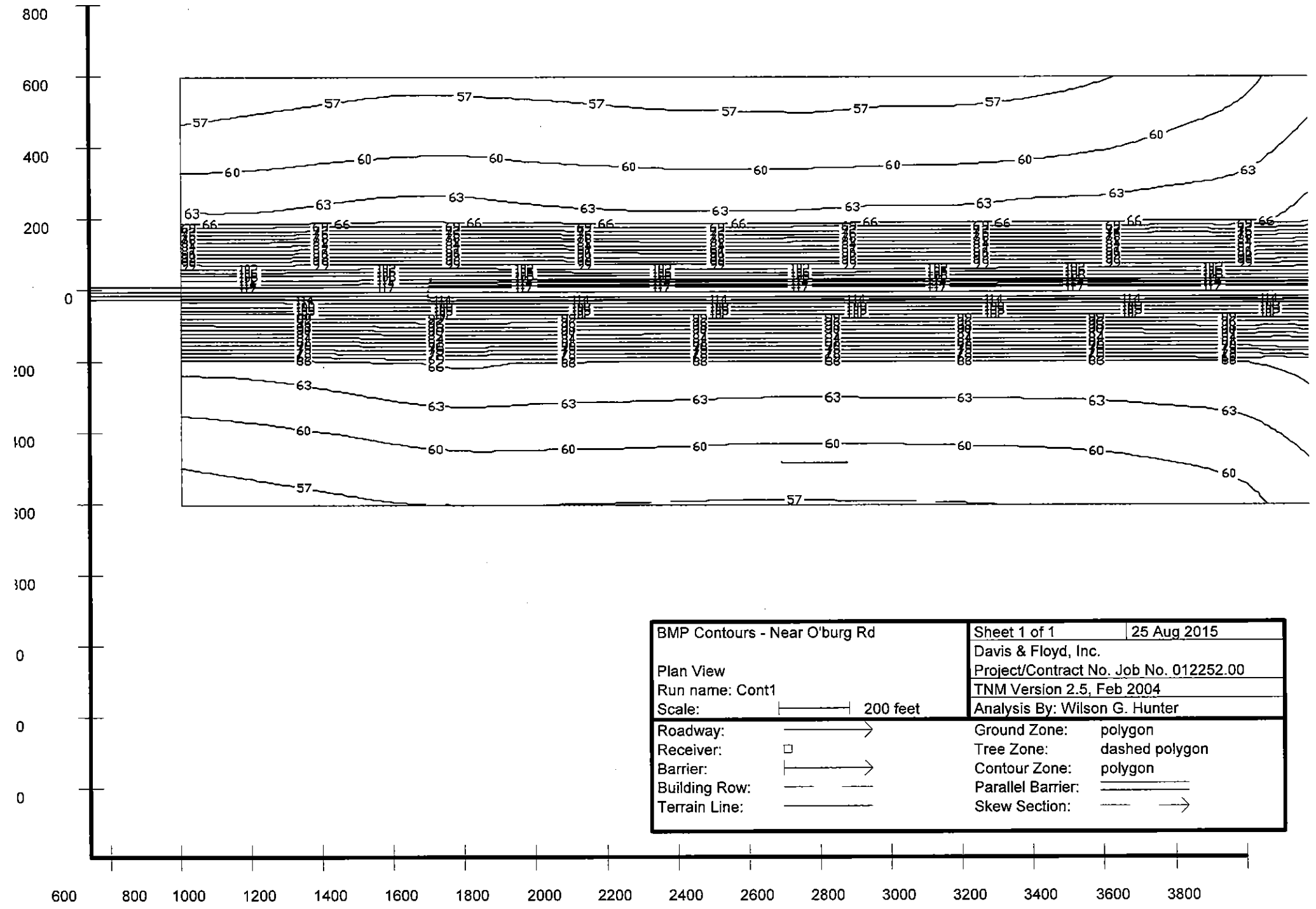
107 ANHINGA CT	109	1	14,085.0	1,173.0	8.00	4.92	47.70	66	15.0	8.0	Y
109 ANHINGA CT	110	1	14,160.0	1,115.0	8.00	4.92	47.70	66	15.0	8.0	Y
108 ANHINGA CT	111	1	14,190.0	1,060.0	8.00	4.92	47.70	66	15.0	8.0	Y
Cavalier Dr - Royal Manor MHP #1	113	1	14,400.0	1,125.0	15.00	4.92	49.20	66	15.0	8.0	Y
Cavalier Dr - Royal Manor MHP - #2	114	1	14,350.0	1,070.0	15.00	4.92	49.20	66	15.0	8.0	Y
Contess Dr - Royal Manor MHP = #3	115	1	14,460.0	1,065.0	15.00	4.92	49.20	66	15.0	8.0	Y
122 HIDDEN PALMS BLVD	116	1	14,640.0	1,034.0	5.00	4.92	49.20	66	15.0	8.0	Y
120 HIDDEN PALMS BLVD	117	1	14,664.0	1,049.0	5.00	4.92	49.20	66	15.0	8.0	Y
118 HIDDEN PALMS BLVD	118	1	14,688.0	1,060.0	5.00	4.92	49.20	66	15.0	8.0	Y
116 HIDDEN PALMS BLVD	119	1	14,712.0	1,068.0	5.00	4.92	49.20	66	15.0	8.0	Y
114 HIDDEN PALMS BLVD	120	1	14,736.0	1,086.0	5.00	4.92	49.20	66	15.0	8.0	Y
112 HIDDEN PALMS BLVD	121	1	14,760.0	1,105.0	5.00	4.92	49.20	66	15.0	8.0	Y
110 HIDDEN PALMS BLVD	122	1	14,784.0	1,117.0	5.00	4.92	49.20	66	15.0	8.0	Y
108 HIDDEN PALMS BLVD	123	1	14,808.0	1,138.0	5.00	4.92	49.20	66	15.0	8.0	Y
106 HIDDEN PALMS BLVD	124	1	14,832.0	1,154.0	5.00	4.92	49.20	66	15.0	8.0	Y
104 HIDDEN PALMS BLVD	125	1	14,860.0	1,170.0	5.00	4.92	49.20	66	15.0	8.0	Y
305 SUNNYSIDE WAY	127	1	15,160.0	1,385.0	0.00	4.92	54.20	66	15.0	8.0	Y
304 SUNNYSIDE WAY	128	1	15,180.0	1,392.0	0.00	4.92	54.20	66	15.0	8.0	Y
303 SUNNYSIDE WAY	129	1	15,200.0	1,400.0	0.00	4.92	54.20	66	15.0	8.0	Y
302 SUNNYSIDE WAY	130	1	15,220.0	1,410.0	0.00	4.92	54.20	66	15.0	8.0	Y
301 SUNNYSIDE WAY	131	1	15,240.0	1,420.0	0.00	4.92	54.20	66	15.0	8.0	Y
300 SUNNYSIDE WAY	132	1	15,260.0	1,430.0	0.00	4.92	54.20	66	15.0	8.0	Y
205 SUNNYSIDE WAY	133	1	15,360.0	1,406.0	0.00	4.92	54.10	66	15.0	8.0	Y
204 SUNNYSIDE WAY	134	1	15,380.0	1,372.0	0.00	4.92	54.10	66	15.0	8.0	Y
203 SUNNYSIDE WAY	135	1	15,400.0	1,348.0	0.00	4.92	54.10	66	15.0	8.0	Y
202 SUNNYSIDE WAY	136	1	15,420.0	1,328.0	0.00	4.92	54.10	66	15.0	8.0	Y
201 SUNNYSIDE WAY	137	1	15,440.0	1,308.0	0.00	4.92	54.10	66	15.0	8.0	Y
200 SUNNYSIDE WAY	138	1	15,460.0	1,285.0	0.00	4.92	54.10	66	15.0	8.0	Y
104 LUCRETIA LN	140	1	13,910.0	1,890.0	0.00	4.92	50.00	66	15.0	8.0	Y
102 LUCRETIA LANE	141	1	14,110.0	2,025.0	0.00	4.92	50.00	66	15.0	8.0	Y
100 LUCRETIA LN	142	1	14,410.0	2,005.0	0.00	4.92	50.00	66	15.0	8.0	Y
101 LUCRETIA LN	143	1	14,510.0	1,795.0	0.00	4.92	50.00	66	15.0	8.0	Y
100 LIPTON ST	145	1	14,760.0	2,110.0	0.00	4.92	50.00	66	15.0	8.0	Y
300 ELIZABETH ST	146	1	15,010.0	1,995.0	0.00	4.92	50.00	66	15.0	8.0	Y
301 ELIZABETH ST	147	1	15,160.0	2,015.0	0.00	4.92	50.00	66	15.0	8.0	Y

400 ELIZABETH ST	148	1	15,160.0	1,850.0	0.00	4.92	48.90	66	15.0	8.0	Y
312 E SHEPARD LN	149	1	15,410.0	2,005.0	0.00	4.92	48.90	66	15.0	8.0	Y
321 E SHEPARD LN	150	1	15,610.0	2,150.0	0.00	4.92	48.90	66	15.0	8.0	Y
100 CORALIE DR	155	1	14,610.0	2,240.0	0.00	4.92	51.30	66	15.0	8.0	Y
116 E SHEPARD LN	156	1	14,710.0	2,435.0	0.00	4.92	51.30	66	15.0	8.0	Y
101 CORALIE DR	157	1	14,835.0	2,395.0	0.00	4.92	50.00	66	15.0	8.0	Y
103 LIPTON ST	158	1	15,010.0	2,280.0	0.00	4.92	50.00	66	15.0	8.0	Y
302 E SHEPARD LN	159	1	15,210.0	2,120.0	0.00	4.92	50.00	66	15.0	8.0	Y
309 E SHEPARD LN	160	1	15,410.0	2,220.0	0.00	4.92	50.00	66	15.0	8.0	Y
200 PEKOE CT	161	1	15,850.0	2,145.0	0.00	4.92	51.30	66	15.0	8.0	Y
192 PEKOE CT	162	1	15,810.0	2,040.0	0.00	4.92	51.30	66	15.0	8.0	Y
180 PEKOE CT	163	1	15,910.0	2,145.0	0.00	4.92	51.30	66	15.0	8.0	Y
181 PEKOE CT	164	1	16,060.0	2,035.0	0.00	4.92	51.30	66	15.0	8.0	Y
106 HUGHES ST	165	1	16,060.0	2,245.0	0.00	4.92	51.30	66	15.0	8.0	Y
105 HUGHES ST	166	1	16,195.0	2,185.0	0.00	4.92	51.30	66	15.0	8.0	Y
103 HUGHES ST	167	1	16,295.0	2,290.0	0.00	4.92	51.30	66	15.0	8.0	Y
102 GARDEN HILL RD	170	1	16,960.0	1,905.0	0.00	4.92	0.00	66	15.0	8.0	Y
104 GARDEN HILL RD	171	1	17,110.0	1,910.0	0.00	4.92	0.00	66	15.0	8.0	Y
106 GARDEN HILL RD	172	1	17,310.0	1,910.0	0.00	4.92	0.00	66	15.0	8.0	Y
108 GARDEN HILL RD	173	1	17,460.0	1,900.0	0.00	4.92	0.00	66	15.0	8.0	Y
111 GARDEN HILL RD	176	1	17,710.0	1,960.0	4.00	4.92	0.00	66	15.0	8.0	Y
SUMMERVILLE CC #13 Tee Box	178	1	9,910.0	1,810.0	0.00	4.92	44.80	66	15.0	8.0	Y
104 HUGHES ST	181	1	16,135.0	2,275.0	0.00	4.92	51.30	66	15.0	8.0	Y
205 PEKOE CT	183	1	15,610.0	2,265.0	0.00	4.92	51.30	66	15.0	8.0	Y
WT-1 (Sawmill Branch Multi-Use Trail)	185	1	6,486.0	0.0	0.00	4.92	45.10	66	15.0	8.0	Y
WT-2 (Sawmill Branch Multi-Use Trail)	186	1	6,911.0	496.0	0.00	4.92	45.10	66	15.0	8.0	Y
WT-3 (Sawmill Branch Multi-Use Trail)	187	1	7,650.0	961.0	0.00	4.92	45.10	66	15.0	8.0	Y
WT-4 (Sawmill Branch Multi-Use Trail)	188	1	8,100.0	1,377.0	0.00	4.92	45.10	66	15.0	8.0	Y
WT-5 (Sawmill Branch Multi-Use Trail)	189	1	8,370.0	1,382.0	0.00	4.92	45.10	66	15.0	8.0	Y
WT-6 (Sawmill Branch Multi-Use Trail)	190	1	9,610.0	1,578.0	0.00	4.92	45.10	66	15.0	8.0	Y
WT-7 (Sawmill Branch Multi-Use Trail)	191	1	10,360.0	1,578.0	0.00	4.92	45.10	66	15.0	8.0	Y
WT-8 (Sawmill Branch Multi-Use Trail)	192	1	11,260.0	1,588.0	0.00	4.92	45.10	66	15.0	8.0	Y
WT-9 (Sawmill Branch Multi-Use Trail)	193	1	11,910.0	1,591.0	0.00	4.92	45.10	66	15.0	8.0	Y
WT-10 (Sawmill Branch Multi-Use Trail)	194	1	12,560.0	1,502.0	0.00	4.92	48.10	66	15.0	8.0	Y
WT-11 (Sawmill Branch Multi-Use Trail)	195	1	13,160.0	1,595.0	0.00	4.92	48.10	66	15.0	8.0	Y

WT-12 (Sawmill Branch Multi-Use Trail)	196	1	13,660.0	1,614.0	0.00	4.92	47.70	66	15.0	8.0	Y
WT-13 (Sawmill Branch Multi-Use Trail)	197	1	14,310.0	1,578.0	0.00	4.92	48.90	66	15.0	8.0	Y
WT-14 (Sawmill Branch Multi-Use Trail)	198	1	15,260.0	1,540.0	0.00	4.92	48.90	66	15.0	8.0	Y
HUNTSMAN CT 1	203	1	7,425.0	1,825.0	0.00	4.92	49.70	66	15.0	8.0	Y
HUNTSMAN CT 2	204	1	7,585.0	1,825.0	0.00	4.92	49.70	66	15.0	8.0	Y
HUNTSMAN CT 3	205	1	7,600.0	1,825.0	0.00	4.92	49.70	66	15.0	8.0	Y
HUNTSMAN CT 4	206	1	7,790.0	1,850.0	0.00	4.92	49.70	66	15.0	8.0	Y
348 ORANGEBURG RD	209	1	4,335.0	-530.0	0.00	4.92	59.10	66	15.0	8.0	Y
421 ORANGEBURG RD	210	1	4,097.0	850.0	5.00	4.92	59.10	66	15.0	8.0	Y

APPENDIX 7

TNM Contour Diagrams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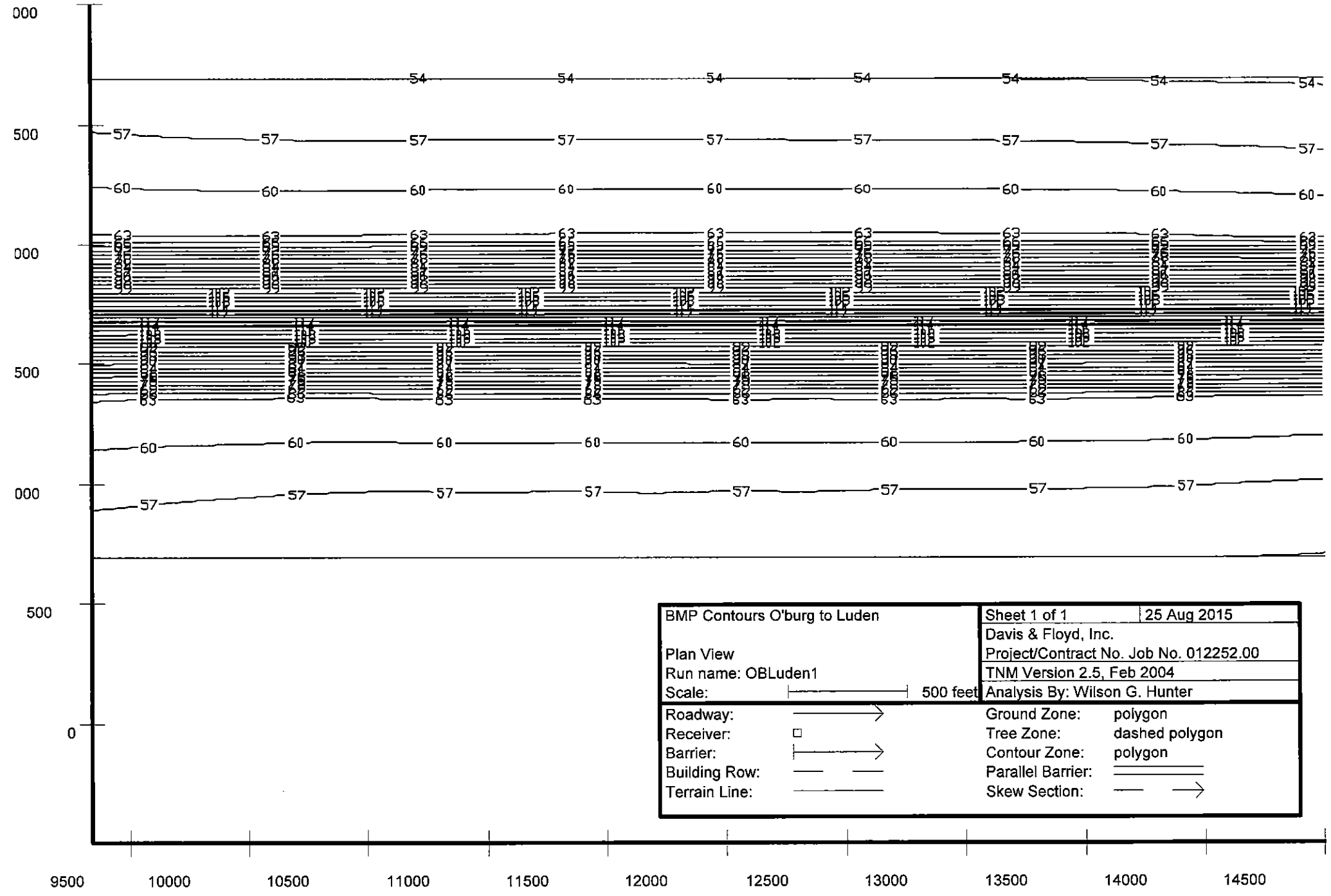
2400
2600
2800
3000
3200
3400
3600
3800
57
60
63
66
BMP Contours - Near O'burg Rd
Plan View
Run name: Cont1
Scale: 200 feet
Sheet 1 of 1
25 Aug 2015
Davis & Floyd, Inc.
Project/Contract No. Job No. 012252.00
TNM Version 2.5, Feb 2004
Analysis By: Wilson G. Hunter
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section: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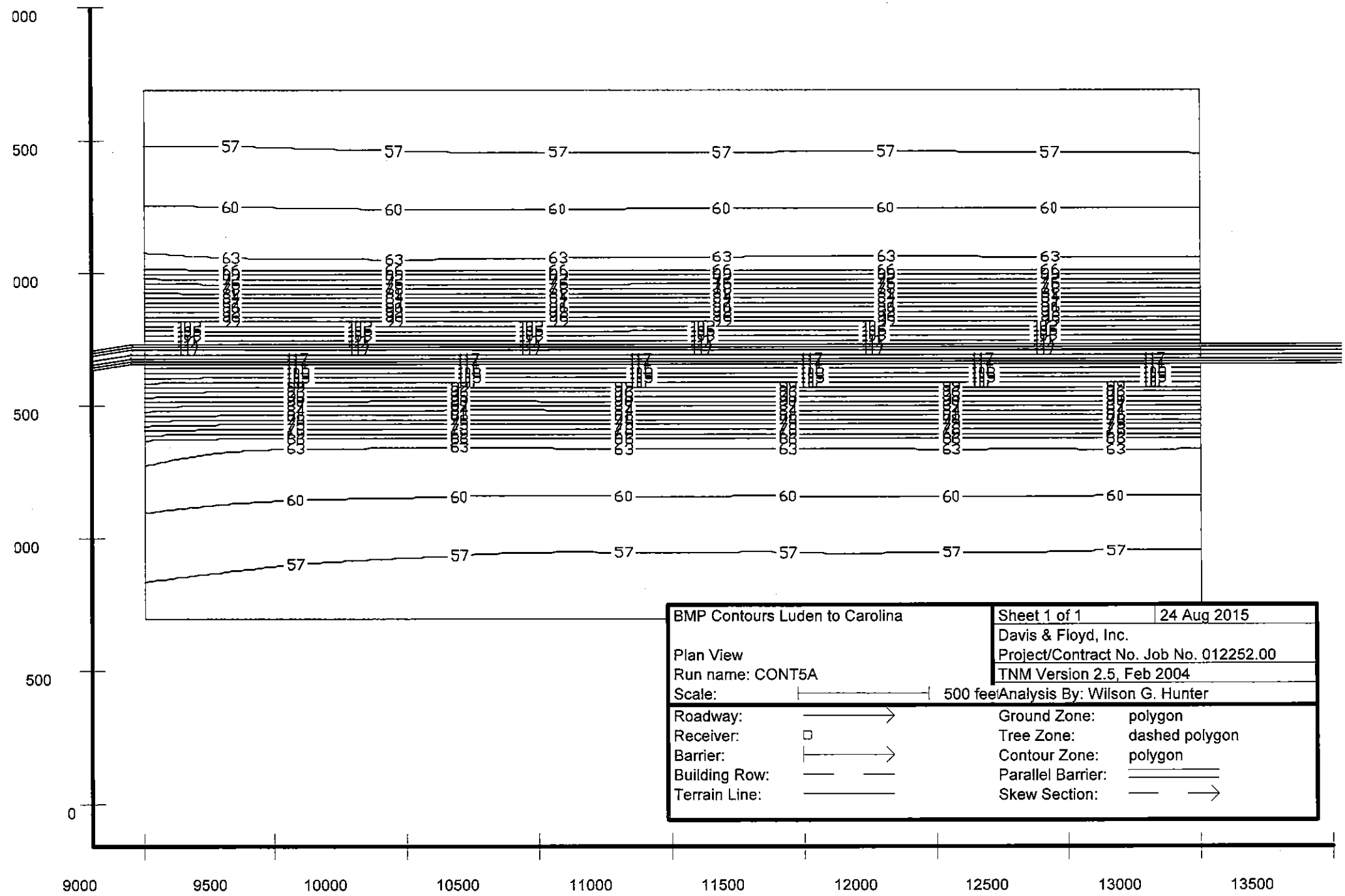
BMP Contours O'burg to Luden
Plan View
Run name: OBLuden1
Scale: 500 feet
Sheet 1 of 1
25 Aug 2015
Davis & Floyd, Inc.
Project/Contract No. Job No. 012252.00
TNM Version 2.5, Feb 2004
Analysis By: Wilson G. Hunter
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section: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10000
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11000
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BMP Contours Luden to Carolina
Plan View
Run name: CONT5A
Scale: 500 feet
Sheet 1 of 1
24 Aug 2015
Davis & Floyd, Inc.
Project/Contract No. Job No. 012252.00
TNM Version 2.5, Feb 2004
Analysis By: Wilson G. Hunter
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:

APPENDIX 8

Summary of Modeled Receiver Information & TNM Results

Summary of Modeled Receiver Information & Results

List#	TNM Receiver ID (Address)	Dorchester County Tax Map#	Project ~Station #	~Distance from C/L	Estimated Existing Sound Levels (dBA)	Build 2040 Traffic Data Sound Levels (dBA)	Sound Level Impact? (≥ 66 dBA) (YES/No)	Substantial Impact (Increase by ≥15 dBA)	Impacted Receiver? (YES/No)	
1	116 FLOOD HEIRS RD	152-01-02-007.000	114-00	-216	51.3	63.9	No	12.6	No	
2	421 ORANGEBURG RD	144-14-00-006.000	145-00	850	59.1	65.3	No	6.2	No	
3	**381 ORANGEBURG RD**	152-02-00-012.000	146-00	-105	59.1	**72.6**	**YES**	13.5	**YES**	1
4	**353 ORANGEBURG RD**	152-02-00-009.000	147-00	-375	59.1	**67.3**	**YES**	8.2	**YES**	2
5	348 ORANGEBURG RD	152-00-00-073.000	150-00	-530	59.1	65.1	No	6.0	No	
6	Newington Plantation Pool	144-15-02-009.000	168-00	-650	45.1	55.3	No	10.2	No	
7	535 KING CHARLES CIR	144-15-02-004.000	167-50	-1180	45.1	51.0	No	5.9	No	
8	537 KING CHARLES CIR	144-15-02-008.000	168-00	-1130	45.1	51.7	No	6.6	No	
9	539 KING CHARLES CIR	144-15-02-007.000	168-50	-1090	45.1	52.5	No	7.4	No	
10	541 KING CHARLES CIR	144-15-02-006.000	169-00	-1020	45.1	53.0	No	7.9	No	
11	543 KING CHARLES CIR	144-15-02-005.000	170-00	-960	45.1	53.6	No	8.5	No	
12	621 KING CHARLES CIR	144-15-01-004.000	171-50	-900	45.1	54.8	No	9.7	No	
13	623 KING CHARLES CIR	144-15-01-001.000	172-25	-840	45.1	55.5	No	10.4	No	
14	625 KING CHARLES CIR	144-15-01-002.000	173-50	-740	45.1	55.9	No	10.8	No	
15	**178 THAMES AVE**	144-15-01-011.000	173-50	-420	45.1	60.8	No	**15.7**	**YES**	3
16	**181 THAMES AVE**	144-15-01-013.000	175-00	-367	45.1	62.5	No	**17.4**	**YES**	4
17	**183 THAMES AVE**	144-15-01-014.000	175-50	-430	45.1	61.8	No	**16.7**	**YES**	5
18	**185 THAMES AVE**	144-15-01-015.000	176-75	-440	45.1	60.8	No	**15.7**	**YES**	6
19	187 THAMES AVE	144-15-01-016.000	177-00	-505	45.1	60.0	No	14.9	No	
20	189 THAMES AVE	144-15-01-017.000	177-75	-525	45.1	59.4	No	14.3	No	
21	**191 THAMES AVE**	144-15-01-018.000	178-00	-420	45.1	60.9	No	**15.8**	**YES**	7
22	**193 THAMES AVE**	144-15-01-019.000	179-00	-460	45.1	60.2	No	**15.1**	**YES**	8
23	197 THAMES AVE	144-15-01-021.000	180-00	-555	45.1	59.4	No	14.3	No	
24	107 NELSON CT	144-15-01-023.000	180-25	-470	45.1	59.8	No	14.7	No	
25	**109 NELSON CT**	144-15-01-024.000	180-50	-440	45.1	60.1	No	**15.0**	**YES**	9
26	**110 NELSON CT**	144-15-01-025.000	181-50	-380	45.1	60.1	No	**15.0**	**YES**	10
27	108 NELSON CT	144-16-12-003.000	182-50	-410	45.1	59.9	No	14.8	No	
28	106 NELSON CT	144-16-12-002.000	183-00	-465	45.1	59.0	No	13.9	No	
29	205 THAMES AVE	144-16-11-020.000	183-50	-545	45.1	59.1	No	14.0	No	
30	207 THAMES AVE	144-16-11-019.000	184-00	-512	45.1	58.5	No	13.4	No	
31	209 THAMES AVE	144-16-11-018.000	185-00	-460	45.1	59.4	No	14.3	No	
32	211 THAMES AVE	144-16-11-017.000	186-00	-465	45.1	59.8	No	14.7	No	
33	**213 THAMES AVE**	144-16-11-016.000	187-00	-425	45.1	60.5	No	**15.4**	**YES**	11
34	**215 THAMES AVE**	144-16-11-015.000	188-00	-407	45.1	60.5	No	**15.4**	**YES**	12
35	**217 THAMES AVE**	144-16-11-014.000	189-00	-415	45.1	60.4	No	**15.3**	**YES**	13
36	**219 THAMES AVE**	144-16-11-013.000	190-00	-380	45.1	61.3	No	**16.2**	**YES**	14
37	**221 THAMES AVE**	144-16-11-012.000	191-00	-430	45.1	60.4	No	**15.3**	**YES**	15
38	**APT BLDG 1 @ 350 Luden Dr -4 units**	144-00-00-066.000	193-00	-336	45.1	61.9	No	**16.8**	**YES**	16
39	**APT BLDG 2 @ 350 Luden Dr -4 units**	144-00-00-066.000	195-00	-382	45.1	61.6	No	**16.5**	**YES**	17
40	**APT BLDG 3 @ 350 Luden Dr -2 units**	144-00-00-066.000	196-70	-403	45.1	62.1	No	**17.0**	**YES**	18
41	**APT BLDG 4 @ 350 Luden Dr -1 units**	144-00-00-066.000	193-00	-440	45.1	60.2	No	**15.1**	**YES**	19
42	APT BLDG 5 @ 350 Luden Dr. - 4 units	144-00-00-066.000	194-40	-475	45.1	59.9	No	14.8	No	
43	APT BLDG 6 @ 350 Luden Dr. - 4 units	144-00-00-066.000	196-40	-490	45.1	59.9	No	14.8	No	
44	HUNTSMAN Circle 1	144-00-00-014.000	185-50	525	49.7	56.8	No	7.1	No	
45	HUNTSMAN Circle 2	144-00-00-014.000	186-50	460	49.7	58.3	No	8.6	No	
46	HUNTSMAN Circle 3	144-00-00-014.000	187-00	435	49.7	58.5	No	8.8	No	
47	HUNTSMAN Circle 4	144-00-00-014.000	188-00	350	49.7	60.1	No	10.4	No	
48	**SUMMERVILLE CC #13 Tee Box**	144-00-00-037.000	20800	110	44.8	67.1	**YES**	**22.3**	**YES**	20
49	69 KING CHARLES CIR	144-12-05-001.000	20700	688	45.1	55.4	No	10.3	No	
50	71 KING CHARLES CIR	144-12-05-003.000	20900	714	45.1	54.9	No	9.8	No	
51	73 KING CHARLES CIR	144-12-03-001.000	21100	645	45.1	55.8	No	10.7	No	
52	75 KING CHARLES CIR	144-12-03-002.000	21200	628	45.1	56.0	No	10.9	No	
53	77 KING CHARLES CIR	144-12-03-003.000	21300	638	45.1	55.7	No	10.6	No	
54	79 KING CHARLES CIR	144-12-03-004.000	21400	638	45.1	55.8	No	10.7	No	
55	81 KING CHARLES CIR	144-12-03-005.000	21550	673	45.1	55.1	No	10.0	No	
56	83 KING CHARLES CIR	144-12-03-006.000	21700	713	45.1	54.6	No	9.5	No	
57	85 KING CHARLES CIR	144-12-03-007.000	21850	713	45.1	54.6	No	9.5	No	
58	87 KING CHARLES CIR	144-12-03-008.000	21900	818	45.1	53.3	No	8.2	No	
59	104 BONITA CT	145-09-02-051.000	22100	705	45.1	54.7	No	9.6	No	
60	102 BONITA CT	145-09-02-052.000	22175	658	45.1	55.2	No	10.1	No	
61	100 BONITA CT	145-09-02-053.000	22290	739	45.1	54.0	No	8.9	No	
62	214 AMBERJACK WAY	145-09-02-054.000	22350	663	46.6	55.3	No	8.7	No	
63	212 AMBERJACK WAY	145-09-02-055.000	22440	663	46.6	55.2	No	8.6	No	
64	210 AMBERJACK WAY	145-09-02-056.000	22500	650	46.6	55.5	No	8.9	No	
65	208 AMBERJACK WAY	145-09-02-057.000	22580	678	46.6	55.0	No	8.4	No	
66	206 AMBERJACK WAY	145-09-02-058.000	22650	696	46.6	54.6	No	8.0	No	
67	204 AMBERJACK WAY	145-09-02-059.000	22700	704	46.6	54.5	No	7.9	No	
68	202 AMBERJACK WAY	145-09-02-060.000	22800	718	46.6	54.3	No	7.7	No	
69	200 AMBERJACK WAY	145-09-02-061.000	22880	663	46.6	55.3	No	8.7	No	
70	101 OUTRIGGER CT	145-09-02-062.000	22950	661	46.6	55.3	No	8.7	No	
71	103 OUTRIGGER CT	145-09-02-063.000	23000	635	46.6	55.8	No	9.2	No	
72	105 OUTRIGGER CT	145-09-02-064.000	23050	614	46.6	56.0	No	9.4	No	
73	107 OUTRIGGER CT	145-09-02-065.000	23100	600	46.6	56.3	No	9.7	No	
74	109 OUTRIGGER CT	145-09-02-066.000	23150	594	46.6	56.4	No	9.8	No	
75	108 OUTRIGGER CT	145-09-02-067.000	23200	630	46.6	55.9	No	9.3	No	
76	210 WILLET DR	145-09-12-011.000	23300	563	48.1	56.7	No	8.6	No	
77	209 WILLET DR	145-09-12-012.000	23350	509	48.1	57.5	No	9.4	No	
78	207 WILLET DR	145-09-12-014.000	23450	477	48.1	58.0	No	9.9	No	
79	205 WILLET DR	145-09-12-015.000	23500	495	48.1	57.9	No	9.8	No	
80	203 WILLET DR	145-09-12-016.000	23600	504	48.1	57.7	No	9.6	No	
81	201 WILLET DR	145-09-12-017.000	23630	535	48.1	57.4	No	9.3	No	
82	231 GOLDFINCH LN	145-09-12-018.000	23730	472	48.1	58.6	No	10.5	No	
83	229 GOLDFINCH LN	145-09-12-020.000	23800	495	48.1	58.0	No	9.9	No	
84	227 GOLDFINCH LN	145-09-12-021.000	23900	450	48.1	59.3	No	11.2	No	
85	225 GOLDFINCH LN	145-09-12-022.000	23975	450	48.1	59.2	No	11.1	No	
86	223 GOLDFINCH LN	145-09-12-023.000	24050	462	48.1	59.0	No	10.9	No	
87	221 GOLDFINCH LN	145-09-12-024.000	24150	456	48.1	59.1	No	11.0	No	

88	219 GOLDFINCH LN	145-09-12-025.000	24200	504	48.1	57.9	No	9.8	No	
89	223 CHIPPING SPARROW DR	145-09-12-042.000	24450	546	47.7	57.2	No	9.5	No	
90	225 CHIPPING SPARROW DR	145-09-12-043.000	24500	493	47.7	58.2	No	10.5	No	
91	226 CHIPPING SPARROW DR	145-09-12-044.000	24525	450	47.7	59.2	No	11.5	No	
92	224 CHIPPING SPARROW DR	145-09-12-045.000	24600	430	47.7	59.4	No	11.7	No	
93	222 CHIPPING SPARROW DR	145-09-12-046.000	24650	450	47.7	59.1	No	11.4	No	
94	220 CHIPPING SPARROW DR	145-09-12-048.000	24700	477	47.7	58.5	No	10.8	No	
95	218 CHIPPING SPARROW DR	145-09-12-049.000	24800	525	47.7	57.5	No	9.8	No	
96	101 ANHINGA CT	145-09-12-050.000	24850	600	47.7	56.2	No	8.5	No	
97	103 ANHINGA CT	145-09-12-051.000	24875	545	47.7	57.3	No	9.6	No	
98	105 ANHINGA CT	145-09-12-052.000	24900	530	47.7	57.5	No	9.8	No	
99	107 ANHINGA CT	145-09-12-053.000	24975	527	47.7	57.5	No	9.8	No	
100	109 ANHINGA CT	145-09-12-054.000	25050	585	47.7	56.4	No	8.7	No	
101	108 ANHINGA CT	145-09-12-055.000	25080	640	47.7	55.2	No	7.5	No	
102	Cavalier Dr/Royal Manor MHP #1	145-00-00-005.000	25290	575	49.2	56.5	No	7.3	No	
103	Cavalier Dr/Royal Manor MHP #2	145-00-00-005.000	25240	630	49.2	55.6	No	6.4	No	
104	Countess Dr/Royal Manor MHP #3	145-00-00-005.000	25350	635	49.2	55.5	No	6.3	No	
105	122 HIDDEN PALMS BLVD	145-06-06-058.000	25530	666	49.2	54.8	No	5.6	No	
106	120 HIDDEN PALMS BLVD	145-06-06-053.000	25554	651	49.2	54.8	No	5.6	No	
107	118 HIDDEN PALMS BLVD	145-06-06-052.000	25578	640	49.2	55.1	No	5.9	No	
108	116 HIDDEN PALMS BLVD	145-06-06-051.000	25602	632	49.2	55.2	No	6.0	No	
109	114 HIDDEN PALMS BLVD	145-06-06-050.000	25626	614	49.2	55.5	No	6.3	No	
110	112 HIDDEN PALMS BLVD	145-06-06-049.000	25650	595	49.2	55.8	No	6.6	No	
111	110 HIDDEN PALMS BLVD	145-06-06-048.000	25674	583	49.2	55.9	No	6.7	No	
112	108 HIDDEN PALMS BLVD	145-06-06-046.000	25698	562	49.2	56.4	No	7.2	No	
113	106 HIDDEN PALMS BLVD	145-06-06-045.000	25722	546	49.2	56.7	No	7.5	No	
114	104 HIDDEN PALMS BLVD	145-06-06-018.000	25750	530	49.2	56.9	No	7.7	No	
115	305 SUNNYSIDE WAY	145-06-06-020.000	26050	315	54.2	60.4	No	6.2	No	
116	304 SUNNYSIDE WAY	145-06-06-021.000	26070	308	54.2	60.3	No	6.1	No	
117	303 SUNNYSIDE WAY	145-06-06-022.000	26090	300	54.2	60.7	No	6.5	No	
118	302 SUNNYSIDE WAY	145-06-06-023.000	26110	290	54.2	60.7	No	6.5	No	
119	301 SUNNYSIDE WAY	145-06-06-024.000	26130	280	54.2	61.1	No	6.9	No	
120	300 SUNNYSIDE WAY	145-06-06-025.000	26150	270	54.2	61.2	No	7.0	No	
121	205 SUNNYSIDE WAY	145-06-06-026.000	26250	294	54.1	60.1	No	6.0	No	
122	204 SUNNYSIDE WAY	145-06-06-027.000	26270	328	54.1	59.4	No	5.3	No	
123	203 SUNNYSIDE WAY	145-06-06-028.000	26290	352	54.1	59.1	No	5.0	No	
124	202 SUNNYSIDE WAY	145-06-06-029.000	26310	372	54.1	58.7	No	4.6	No	
125	201 SUNNYSIDE WAY	145-06-06-030.000	26330	392	54.1	58.3	No	4.2	No	
126	200 SUNNYSIDE WAY	145-06-06-031.000	26350	415	54.1	57.7	No	3.6	No	
127	104 LUCRETIA LANE	145-05-01-014.000	24800	190	50.0	63.9	No	13.9	No	
128	102 LUCRETIA LANE	145-05-01-012.000	25000	325	50.0	60.7	No	10.7	No	
129	100 LUCRETIA LANE	145-05-01-013.000	25300	305	50.0	61.1	No	11.1	No	
130	**101 LUCRETIA LANE**	145-05-01-011.000	25400	95	50.0	**68.0**	**YES**	**18.0**	**YES**	21
131	100 LIPTON ST	145-05-03-001.000	25650	410	50.0	58.9	No	8.9	No	
132	300 ELIZABETH ST	145-02-11-035.000	25900	295	50.0	61.2	No	11.2	No	
133	301 ELIZABETH ST	145-02-11-034.000	26050	315	50.0	60.8	No	10.8	No	
134	**400 ELIZABETH ST**	145-02-11-033.000	26050	150	48.9	65.1	No	**16.2**	**YES**	22
135	312 E SHEPARD LN	145-02-11-030.000	26300	305	48.9	60.3	No	11.4	No	
136	321 E SHEPARD LN	145-02-11-037.000	26500	450	48.9	57.4	No	8.5	No	
137	100 CORALIE DR	145-05-01-010.000	25500	540	51.3	57.0	No	5.7	No	
138	116 E SHEPARD LN	145-05-01-009.000	25600	735	51.3	54.1	No	2.8	No	
139	101 CORALIE DR	145-05-04-001.000	25725	695	50.0	54.9	No	4.9	No	
140	103 LIPTON ST	145-02-11-031.000	25900	565	50.0	56.4	No	6.4	No	
141	302 E SHEPARD LN	145-02-11-036.000	26100	520	50.0	58.8	No	8.8	No	
142	309 E SHEPARD LN	145-02-11-029.000	26300	520	50.0	56.8	No	6.8	No	
143	205 PEKOE CT	145-02-11-038.000	26500	480	51.3	55.7	No	4.4	No	
144	200 PEKOE CT	145-02-11-044.000	26740	460	51.3	57.5	No	6.2	No	
145	192 PEKOE CT	145-02-11-045.000	26700	355	51.3	59.6	No	8.3	No	
146	180 PEKOE CT	145-02-11-046.000	26800	455	51.3	57.4	No	6.1	No	
147	181 PEKOE CT	145-02-11-047.000	26950	345	51.3	59.4	No	8.1	No	
148	106 HUGHES ST	145-02-11-012.000	26950	545	51.3	55.7	No	4.4	No	
149	104 HUGHES ST	145-02-11-011.000	27025	605	51.3	55.2	No	3.9	No	
150	105 HUGHES ST	145-02-11-006.000	27085	500	51.3	56.5	No	5.2	No	
151	103 HUGHES ST	145-02-11-005.000	27185	573	51.3	54.8	No	3.5	No	
152	**WT-1 (Sawmill Branch Multi-Use Trail)**	-	168-50	380	45.1	62.7	No	**17.6**	**YES**	23
153	**WT-2 (Sawmill Branch Multi-Use Trail)**	-	174-00	290	45.1	**67.6**	**YES**	**22.5**	**YES**	24
154	**WT-3 (Sawmill Branch Multi-Use Trail)**	-	182-00	320	45.1	64.0	No	**18.9**	**YES**	25
155	**WT-4 (Sawmill Branch Multi-Use Trail)**	-	183-50	155	45.1	65.7	No	**20.6**	**YES**	26
156	**WT-5 (Sawmill Branch Multi-Use Trail)**	-	191-50	240	45.1	63.6	No	**18.5**	**YES**	27
157	**WT-6 (Sawmill Branch Multi-Use Trail)**	-	20500	122	45.1	**67.3**	**YES**	**22.2**	**YES**	28
158	**WT-7 (Sawmill Branch Multi-Use Trail)**	-	21250	122	45.1	**67.0**	**YES**	**21.9**	**YES**	29
159	**WT-8 (Sawmill Branch Multi-Use Trail)**	-	22150	112	45.1	**67.7**	**YES**	**22.6**	**YES**	30
160	**WT-9 (Sawmill Branch Multi-Use Trail)**	-	22800	109	45.1	**67.7**	**YES**	**22.6**	**YES**	31
161	**WT-10 (Sawmill Branch Multi-Use Trail)**	-	23450	198	48.1	63.9	No	**15.8**	**YES**	32
162	**WT-11 (Sawmill Branch Multi-Use Trail)**	-	24050	105	48.1	**68.0**	**YES**	**19.9**	**YES**	33
163	**WT-12 (Sawmill Branch Multi-Use Trail)**	-	24550	86	47.7	**68.6**	**YES**	**20.9**	**YES**	34
164	**WT-13 (Sawmill Branch Multi-Use Trail)**	-	25200	122	48.9	**67.2**	**YES**	**18.3**	**YES**	35
165	**WT-14 (Sawmill Branch Multi-Use Trail)**	-	26150	160	48.9	64.4	No	**15.5**	**YES**	36
166	102 GARDEN HILL RD	145-02-08-001.000	278-50	205	-	61.1	No		No	
167	104 GARDEN HILL RD	145-02-08-002.000	280-00	210	-	61.4	No		No	
168	106 GARDEN HILL RD	145-02-08-003.000	282-00	210	-	61.7	No		No	
169	108 GARDEN HILL RD	145-02-08-004.000	283-50	200	-	62.5	No		No	
170	111 GARDEN HILL RD	145-02-09-010.000	286-00	260	-	62.7	No		No	

Impacted Receivers in BOLD **TOTAL # OF IMPACTS = 36**

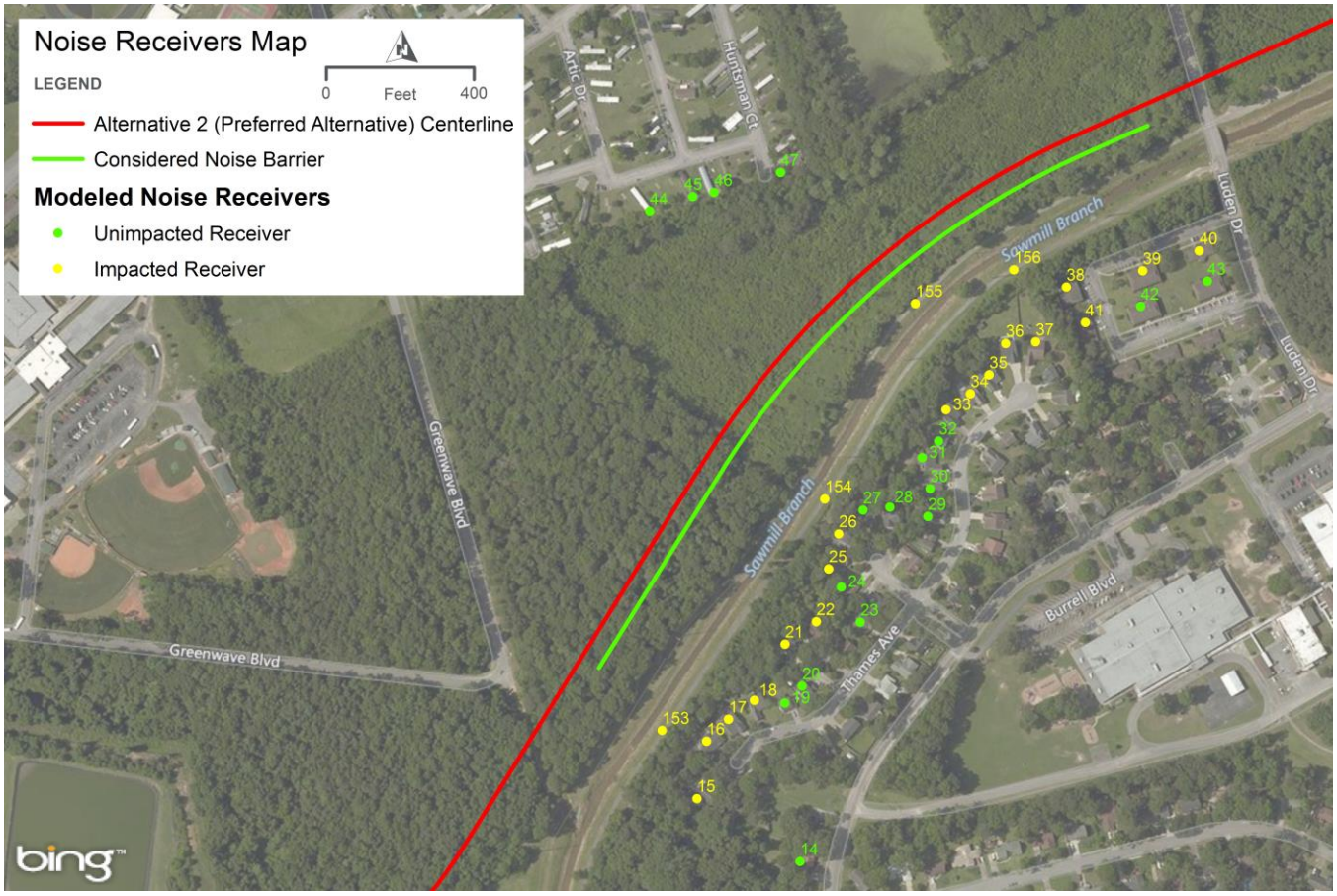
APPENDIX 9

Barrier Location Maps

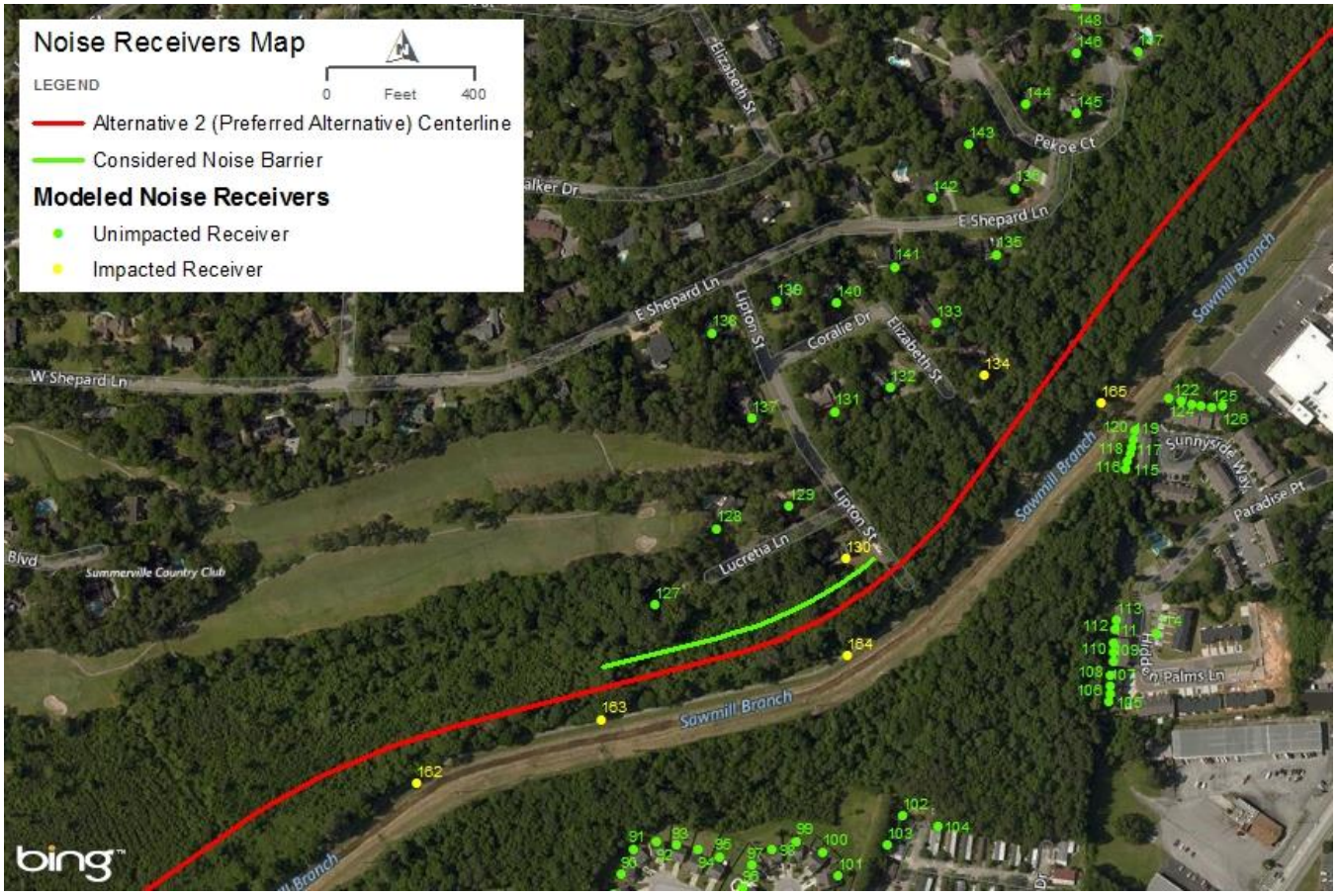
&

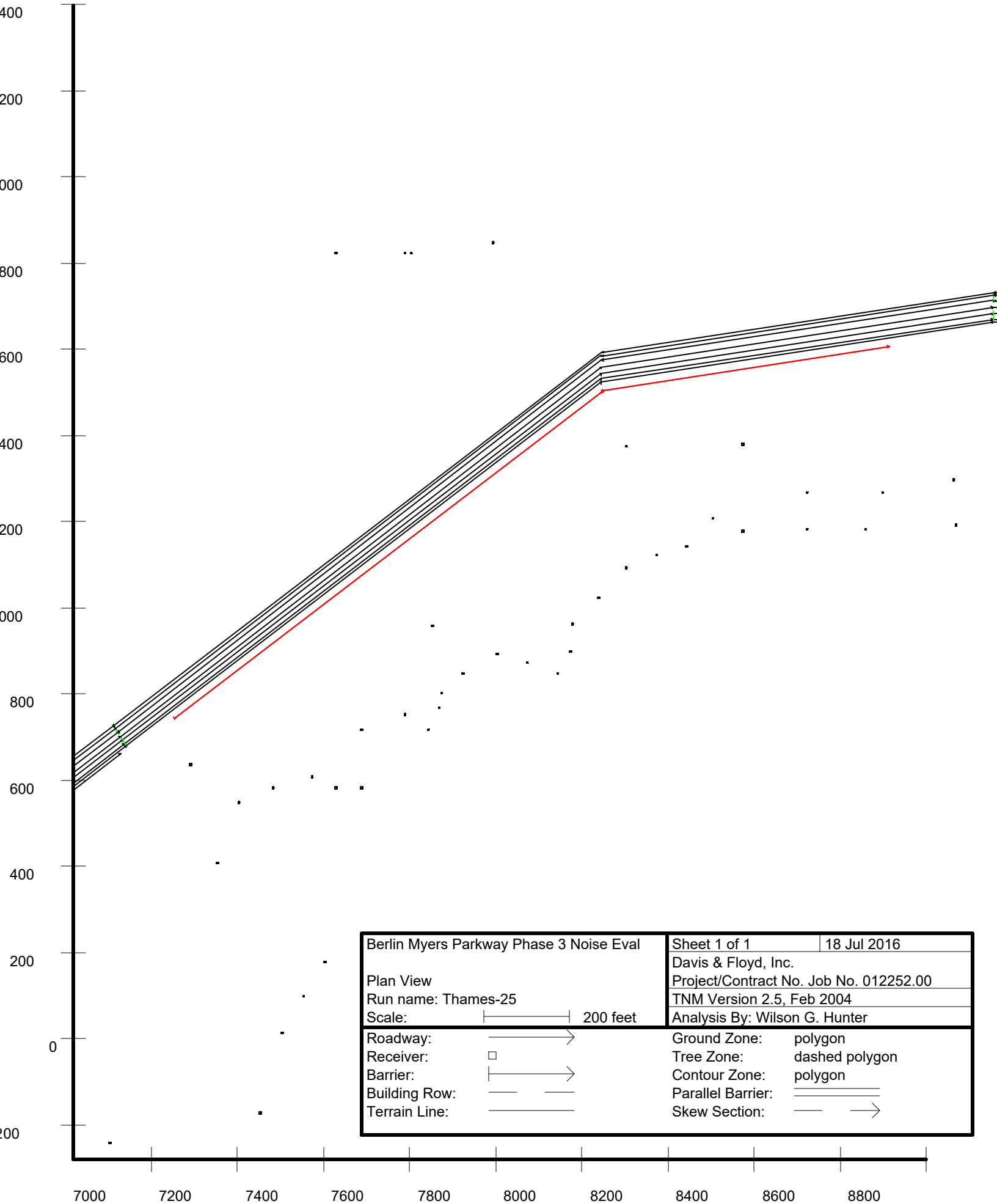
TNM Noise Results Sheets for Modeled Barriers

Thames Avenue Barrier Location



Lucretia Lane Barrier Location

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7000
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7600
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8000
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8400
8600
8800
Berlin Myers Parkway Phase 3 Noise Eval
Plan View
Run name: Thames-25
Scale: 200 feet
Sheet 1 of 1
18 Jul 2016
Davis & Floyd, Inc.
Project/Contract No. Job No. 012252.00
TNM Version 2.5, Feb 2004
Analysis By: Wilson G. Hunter
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:

RESULTS: SOUND LEVELS

Job No. 012252.00

Davis & Floyd, Inc.
Wilson G. Hunter

13 July 2016
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Job No. 012252.00
RUN: Berlin Myers Parkway Phase 3 Noise Eval
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
116 FLOOD HEIRS RD	1	1	63.9	63.9	66	0.0	15	----	63.9	0.0	8	-8.0
381 ORANGEBURG RD	4	1	72.5	72.5	66	0.0	15	Snd Lvl	72.5	0.0	8	-8.0
353 ORANGEBURG RD	5	1	67.3	67.3	66	0.0	15	Snd Lvl	67.3	0.0	8	-8.0
Newington Plantation Pool Area	10	1	55.4	55.0	66	-0.4	15	----	55.0	0.0	8	-8.0
535 KING CHARLES CIR	13	1	50.8	50.4	66	-0.4	15	----	50.4	0.0	8	-8.0
537 KING CHARLES CIR	14	1	51.5	51.1	66	-0.4	15	----	51.1	0.0	8	-8.0
539 KING CHARLES CIR	15	1	52.3	51.8	66	-0.5	15	----	51.8	0.0	8	-8.0
541 KING CHARLES CIR	16	1	52.8	52.3	66	-0.5	15	----	52.3	0.0	8	-8.0
543 KING CHARLES CIR	17	1	53.7	53.1	66	-0.6	15	----	53.1	0.0	8	-8.0
621 KING CHARLES CIR	18	1	54.8	54.0	66	-0.8	15	----	54.0	0.0	8	-8.0
623 KING CHARLES CIR	19	1	55.5	54.5	66	-1.0	15	----	54.5	0.0	8	-8.0
625 KING CHARLES CIR	20	1	55.9	54.7	66	-1.2	15	----	54.7	0.0	8	-8.0
178 THAMES AVE	22	1	60.8	59.8	66	-1.0	15	----	59.8	0.0	8	-8.0
181 THAMES AVE	23	1	62.5	60.9	66	-1.6	15	----	60.9	0.0	8	-8.0
183 THAMES AVE	24	1	61.8	59.5	66	-2.3	15	----	59.5	0.0	8	-8.0
185 THAMES AVE	25	1	60.8	57.9	66	-2.9	15	----	57.9	0.0	8	-8.0
187 THAMES AVE	26	1	60.0	57.1	66	-2.9	15	----	57.1	0.0	8	-8.0
189 THAMES AVE	27	1	59.4	56.4	66	-3.0	15	----	56.4	0.0	8	-8.0
191 THAMES AVE	28	1	60.9	56.6	66	-4.3	15	----	56.6	0.0	8	-8.0
193 THAMES AVE	29	1	60.2	55.5	66	-4.7	15	----	55.5	0.0	8	-8.0
197 THAMES AVENUE	30	1	59.4	55.0	66	-4.4	15	----	55.0	0.0	8	-8.0
107 NELSON CT	32	1	59.8	54.9	66	-4.9	15	----	54.9	0.0	8	-8.0
109 NELSON CT	33	1	60.1	54.9	66	-5.2	15	----	54.9	0.0	8	-8.0

110 NELSON CT	34	1	60.1	54.6	66	-5.5	15	----	54.6	0.0	8	-8.0
108 NELSON CT	35	1	59.9	54.1	66	-5.8	15	----	54.1	0.0	8	-8.0
106 NELSON CT	36	1	59.0	53.7	66	-5.3	15	----	53.7	0.0	8	-8.0
205 THAMES AVE	38	1	59.1	53.1	66	-6.0	15	----	53.1	0.0	8	-8.0
207 THAMES AVE	39	1	58.5	53.1	66	-5.4	15	----	53.1	0.0	8	-8.0
209 THAMES AVE	40	1	59.4	53.4	66	-6.0	15	----	53.4	0.0	8	-8.0
211 THAMES AVE	41	1	59.8	53.5	66	-6.3	15	----	53.5	0.0	8	-8.0
213 THAMES AVE	42	1	60.5	54.0	66	-6.5	15	----	54.0	0.0	8	-8.0
215 THAMES AVE	43	1	60.5	54.2	66	-6.3	15	----	54.2	0.0	8	-8.0
217 THAMES AVE	44	1	60.4	54.5	66	-5.9	15	----	54.5	0.0	8	-8.0
219 THAMES AVE	45	1	61.3	55.3	66	-6.0	15	----	55.3	0.0	8	-8.0
221 THAMES AVE	46	1	60.4	55.4	66	-5.0	15	----	55.4	0.0	8	-8.0
APT BLDG 1 @ 350 LUDEN DR	48	4	61.9	57.7	66	-4.2	15	----	57.7	0.0	8	-8.0
APT BLDG 2 @ 350 LUDEN DR	49	4	61.6	59.2	66	-2.4	15	----	59.2	0.0	8	-8.0
APT BLDG 3 @ 350 LUDEN DR	50	4	62.1	60.9	66	-1.2	15	----	60.9	0.0	8	-8.0
APT BLDG 4 @ 350 LUDEN DR	51	1	60.2	56.5	66	-3.7	15	----	56.5	0.0	8	-8.0
APT BLDG 5 @ 350 LUDEN DR	52	1	59.9	57.4	66	-2.5	15	----	57.4	0.0	8	-8.0
APT BLDG 6 @ 350 LUDEN DR	53	1	59.9	58.6	66	-1.3	15	----	58.6	0.0	8	-8.0
69 KING CHARLES CIR	55	1	55.4	55.2	66	-0.2	15	----	55.2	0.0	8	-8.0
71 KING CHARLES CIRCLE	56	1	54.9	54.7	66	-0.2	15	----	54.7	0.0	8	-8.0
73 KING CHARLES CIR	57	1	55.8	55.6	66	-0.2	15	----	55.6	0.0	8	-8.0
75 KING CHARLES CIR	58	1	56.0	55.9	66	-0.1	15	----	55.9	0.0	8	-8.0
77 KING CHARLES CIR	59	1	55.7	55.6	66	-0.1	15	----	55.6	0.0	8	-8.0
79 KING CHARLES CIR	60	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
81 KING CHARLES CIR	61	1	55.1	55.1	66	0.0	15	----	55.1	0.0	8	-8.0
83 KING CHARLES CIR	62	1	54.6	54.6	66	0.0	15	----	54.6	0.0	8	-8.0
85 KING CHARLES CIR	63	1	54.6	54.5	66	-0.1	15	----	54.5	0.0	8	-8.0
87 KING CHARLES CIR	64	1	53.3	53.2	66	-0.1	15	----	53.2	0.0	8	-8.0
104 BONITA CT	66	1	54.7	54.7	66	0.0	15	----	54.7	0.0	8	-8.0
102 BONITA CT	67	1	55.2	55.1	66	-0.1	15	----	55.1	0.0	8	-8.0
100 BONITA CT	68	1	54.0	53.9	66	-0.1	15	----	53.9	0.0	8	-8.0
214 AMBERJACK WAY	69	1	55.3	55.2	66	-0.1	15	----	55.2	0.0	8	-8.0
212 AMBERJACK WAY	70	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
210 AMBERJACK WAY	71	1	55.5	55.4	66	-0.1	15	----	55.4	0.0	8	-8.0
208 AMBERJACK WAY	72	1	55.0	55.0	66	0.0	15	----	55.0	0.0	8	-8.0
206 AMBERJACK WAY	73	1	54.6	54.6	66	0.0	15	----	54.6	0.0	8	-8.0
204 AMBERJACK WAY	74	1	54.5	54.5	66	0.0	15	----	54.5	0.0	8	-8.0
202 AMBERJACK WAY	75	1	54.3	54.2	66	-0.1	15	----	54.2	0.0	8	-8.0
200 AMBERJACK WAY	76	1	55.3	55.3	66	0.0	15	----	55.3	0.0	8	-8.0
101 OUTRIGGER CT	77	1	55.3	55.2	66	-0.1	15	----	55.2	0.0	8	-8.0

103 OUTRIGGER CT	78	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
105 OUTRIGGER CT	79	1	56.0	56.0	66	0.0	15	----	56.0	0.0	8	-8.0
107 OUTRIGGER CT	80	1	56.3	56.3	66	0.0	15	----	56.3	0.0	8	-8.0
109 OUTRIGGER CT	81	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
108 OUTRIGGER CT	82	1	55.9	55.8	66	-0.1	15	----	55.8	0.0	8	-8.0
210 WILLET DR	83	1	56.7	56.7	66	0.0	15	----	56.7	0.0	8	-8.0
209 WILLET DR	84	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
207 WILLET DR	85	1	58.0	58.0	66	0.0	15	----	58.0	0.0	8	-8.0
205 WILLET DR	86	1	57.9	57.9	66	0.0	15	----	57.9	0.0	8	-8.0
203 WILLET DR	87	1	57.7	57.7	66	0.0	15	----	57.7	0.0	8	-8.0
201 WILLET DR	88	1	57.4	57.4	66	0.0	15	----	57.4	0.0	8	-8.0
231 GOLDFINCH LN	90	1	58.6	58.6	66	0.0	15	----	58.6	0.0	8	-8.0
229 GOLDFINCH LN	91	1	58.0	58.0	66	0.0	15	----	58.0	0.0	8	-8.0
227 GOLDFINCH LN	92	1	59.3	59.3	66	0.0	15	----	59.3	0.0	8	-8.0
225 GOLDFINCH LN	93	1	59.2	59.2	66	0.0	15	----	59.2	0.0	8	-8.0
223 GOLDFINCH LN	94	1	59.0	59.0	66	0.0	15	----	59.0	0.0	8	-8.0
221 GOLDFINCH LN	95	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
219 GOLDFINCH LN	96	1	57.9	57.8	66	-0.1	15	----	57.8	0.0	8	-8.0
223 CHIPPING SPARROW DR	98	1	57.2	57.2	66	0.0	15	----	57.2	0.0	8	-8.0
225 CHIPPING SPARROW DR	99	1	58.2	58.2	66	0.0	15	----	58.2	0.0	8	-8.0
226 CHIPPING SPARROW DR	100	1	59.2	59.2	66	0.0	15	----	59.2	0.0	8	-8.0
224 CHIPPING SPARROW DR	101	1	59.4	59.4	66	0.0	15	----	59.4	0.0	8	-8.0
222 CHIPPING SPARROW DR	102	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
220 CHIPPING SPARROW DR	103	1	58.5	58.5	66	0.0	15	----	58.5	0.0	8	-8.0
218 CHIPPING SPARROW DR	104	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
101 ANHINGA CT	105	1	56.2	56.2	66	0.0	15	----	56.2	0.0	8	-8.0
103 ANHINGA COURT	107	1	57.3	57.3	66	0.0	15	----	57.3	0.0	8	-8.0
105 ANHINGA CT	108	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
107 ANHINGA CT	109	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
109 ANHINGA CT	110	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
108 ANHINGA CT	111	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP #1	113	1	56.5	56.5	66	0.0	15	----	56.5	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP - #2	114	1	55.6	55.6	66	0.0	15	----	55.6	0.0	8	-8.0
Contess Dr - Royal Manor MHP = #3	115	1	53.8	55.5	66	1.7	15	----	55.5	0.0	8	-8.0
122 HIDDEN PALMS BLVD	116	1	54.8	54.8	66	0.0	15	----	54.8	0.0	8	-8.0
120 HIDDEN PALMS BLVD	117	1	54.8	54.8	66	0.0	15	----	54.8	0.0	8	-8.0
118 HIDDEN PALMS BLVD	118	1	55.1	55.1	66	0.0	15	----	55.1	0.0	8	-8.0
116 HIDDEN PALMS BLVD	119	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
114 HIDDEN PALMS BLVD	120	1	55.5	55.5	66	0.0	15	----	55.5	0.0	8	-8.0
112 HIDDEN PALMS BLVD	121	1	55.8	55.8	66	0.0	15	----	55.8	0.0	8	-8.0

110 HIDDEN PALMS BLVD	122	1	55.9	55.9	66	0.0	15	---	55.9	0.0	8	-8.0
108 HIDDEN PALMS BLVD	123	1	56.4	56.4	66	0.0	15	---	56.4	0.0	8	-8.0
106 HIDDEN PALMS BLVD	124	1	56.7	56.7	66	0.0	15	---	56.7	0.0	8	-8.0
104 HIDDEN PALMS BLVD	125	1	56.9	56.9	66	0.0	15	---	56.9	0.0	8	-8.0
305 SUNNYSIDE WAY	127	1	60.4	60.4	66	0.0	15	---	60.4	0.0	8	-8.0
304 SUNNYSIDE WAY	128	1	60.3	60.3	66	0.0	15	---	60.3	0.0	8	-8.0
303 SUNNYSIDE WAY	129	1	60.7	60.7	66	0.0	15	---	60.7	0.0	8	-8.0
302 SUNNYSIDE WAY	130	1	60.7	60.7	66	0.0	15	---	60.7	0.0	8	-8.0
301 SUNNYSIDE WAY	131	1	61.1	61.1	66	0.0	15	---	61.1	0.0	8	-8.0
300 SUNNYSIDE WAY	132	1	61.2	61.2	66	0.0	15	---	61.2	0.0	8	-8.0
205 SUNNYSIDE WAY	133	1	60.1	60.1	66	0.0	15	---	60.1	0.0	8	-8.0
204 SUNNYSIDE WAY	134	1	59.4	59.4	66	0.0	15	---	59.4	0.0	8	-8.0
203 SUNNYSIDE WAY	135	1	59.1	59.1	66	0.0	15	---	59.1	0.0	8	-8.0
202 SUNNYSIDE WAY	136	1	58.7	58.7	66	0.0	15	---	58.7	0.0	8	-8.0
201 SUNNYSIDE WAY	137	1	58.3	58.2	66	-0.1	15	---	58.2	0.0	8	-8.0
200 SUNNYSIDE WAY	138	1	57.7	57.7	66	0.0	15	---	57.7	0.0	8	-8.0
104 LUCRETIA LN	140	1	63.9	63.8	66	-0.1	15	---	63.8	0.0	8	-8.0
102 LUCRETIA LANE	141	1	60.7	60.6	66	-0.1	15	---	60.6	0.0	8	-8.0
100 LUCRETIA LN	142	1	61.1	60.9	66	-0.2	15	---	60.9	0.0	8	-8.0
101 LUCRETIA LN	143	1	67.8	68.6	66	0.8	15	Snd Lvl	68.6	0.0	8	-8.0
100 LIPTON ST	145	1	58.9	58.7	66	-0.2	15	---	58.7	0.0	8	-8.0
300 ELIZABETH ST	146	1	60.8	60.7	66	-0.1	15	---	60.7	0.0	8	-8.0
301 ELIZABETH ST	147	1	60.4	60.3	66	-0.1	15	---	60.3	0.0	8	-8.0
400 ELIZABETH ST	148	1	64.9	64.9	66	0.0	15	---	64.9	0.0	8	-8.0
312 E SHEPARD LN	149	1	59.9	59.9	66	0.0	15	---	59.9	0.0	8	-8.0
321 E SHEPARD LN	150	1	56.9	56.8	66	-0.1	15	---	56.8	0.0	8	-8.0
100 CORALIE DR	155	1	56.9	56.8	66	-0.1	15	---	56.8	0.0	8	-8.0
116 E SHEPARD LN	156	1	53.5	53.6	66	0.1	15	---	53.6	0.0	8	-8.0
101 CORALIE DR	157	1	53.9	54.0	66	0.1	15	---	54.0	0.0	8	-8.0
103 LIPTON ST	158	1	55.9	55.8	66	-0.1	15	---	55.8	0.0	8	-8.0
302 E SHEPARD LN	159	1	58.4	58.3	66	-0.1	15	---	58.3	0.0	8	-8.0
309 E SHEPARD LN	160	1	56.2	56.2	66	0.0	15	---	56.2	0.0	8	-8.0
200 PEKOE CT	161	1	56.5	56.5	66	0.0	15	---	56.5	0.0	8	-8.0
192 PEKOE CT	162	1	58.3	58.3	66	0.0	15	---	58.3	0.0	8	-8.0
180 PEKOE CT	163	1	56.4	56.4	66	0.0	15	---	56.4	0.0	8	-8.0
181 PEKOE CT	164	1	58.3	58.2	66	-0.1	15	---	58.2	0.0	8	-8.0
106 HUGHES ST	165	1	54.8	54.7	66	-0.1	15	---	54.7	0.0	8	-8.0
105 HUGHES ST	166	1	55.4	55.3	66	-0.1	15	---	55.3	0.0	8	-8.0
103 HUGHES ST	167	1	53.8	53.8	66	0.0	15	---	53.8	0.0	8	-8.0
102 GARDEN HILL RD	170	1	61.1	61.0	66	-0.1	15	---	61.0	0.0	8	-8.0

104 GARDEN HILL RD	171	1	61.4	61.4	66	0.0	15	----	61.4	0.0	8	-8.0
106 GARDEN HILL RD	172	1	61.7	61.7	66	0.0	15	----	61.7	0.0	8	-8.0
108 GARDEN HILL RD	173	1	62.5	62.5	66	0.0	15	----	62.5	0.0	8	-8.0
111 GARDEN HILL RD	176	1	62.7	62.7	66	0.0	15	----	62.7	0.0	8	-8.0
SUMMERVILLE CC #13 Tee Box	178	1	67.1	67.1	66	0.0	15	Snd Lvl	67.1	0.0	8	-8.0
104 HUGHES ST	181	1	54.1	54.1	66	0.0	15	----	54.1	0.0	8	-8.0
205 PEKOE CT	183	1	55.1	55.1	66	0.0	15	----	55.1	0.0	8	-8.0
WT-1 (Sawmill Branch Multi-Use Trail)	185	1	62.7	62.6	66	-0.1	15	----	62.6	0.0	8	-8.0
WT-2 (Sawmill Branch Multi-Use Trail)	186	1	67.6	67.1	66	-0.5	15	Snd Lvl	67.1	0.0	8	-8.0
WT-3 (Sawmill Branch Multi-Use Trail)	187	1	64.0	55.5	66	-8.5	15	----	55.5	0.0	8	-8.0
WT-4 (Sawmill Branch Multi-Use Trail)	188	1	65.7	56.0	66	-9.7	15	----	56.0	0.0	8	-8.0
WT-5 (Sawmill Branch Multi-Use Trail)	189	1	63.6	56.6	66	-7.0	15	----	56.6	0.0	8	-8.0
WT-6 (Sawmill Branch Multi-Use Trail)	190	1	67.3	67.3	66	0.0	15	Snd Lvl	67.3	0.0	8	-8.0
WT-7 (Sawmill Branch Multi-Use Trail)	191	1	67.0	67.0	66	0.0	15	Snd Lvl	67.0	0.0	8	-8.0
WT-8 (Sawmill Branch Multi-Use Trail)	192	1	67.7	67.7	66	0.0	15	Snd Lvl	67.7	0.0	8	-8.0
WT-9 (Sawmill Branch Multi-Use Trail)	193	1	67.7	67.7	66	0.0	15	Snd Lvl	67.7	0.0	8	-8.0
WT-10 (Sawmill Branch Multi-Use Trail)	194	1	63.9	63.9	66	0.0	15	----	63.9	0.0	8	-8.0
WT-11 (Sawmill Branch Multi-Use Trail)	195	1	68.0	68.0	66	0.0	15	Snd Lvl	68.0	0.0	8	-8.0
WT-12 (Sawmill Branch Multi-Use Trail)	196	1	68.6	68.6	66	0.0	15	Snd Lvl	68.6	0.0	8	-8.0
WT-13 (Sawmill Branch Multi-Use Trail)	197	1	67.2	67.2	66	0.0	15	Snd Lvl	67.2	0.0	8	-8.0
WT-14 (Sawmill Branch Multi-Use Trail)	198	1	64.4	64.4	66	0.0	15	----	64.4	0.0	8	-8.0
HUNTSMAN CT 1	203	1	56.8	56.8	66	0.0	15	----	56.8	0.0	8	-8.0
HUNTSMAN CT 2	204	1	58.3	58.3	66	0.0	15	----	58.3	0.0	8	-8.0
HUNTSMAN CT 3	205	1	58.5	58.5	66	0.0	15	----	58.5	0.0	8	-8.0
HUNTSMAN CT 4	206	1	60.1	60.1	66	0.0	15	----	60.1	0.0	8	-8.0
348 ORANGEBURG RD	209	1	65.1	65.1	66	0.0	15	----	65.1	0.0	8	-8.0
421 ORANGEBURG RD	210	1	65.3	65.3	66	0.0	15	----	65.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	179	0.0	0.0	0.0
All Impacted	12	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Davis & Floyd, Inc.
Wilson G. Hunter

13 July 2016
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Job No. 012252.00
RUN: Berlin Myers Parkway Phase 3 Noise Eval
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
116 FLOOD HEIRS RD	1	1	63.9	63.9	66	0.0	15	----	63.9	0.0	8	-8.0
381 ORANGEBURG RD	4	1	72.5	72.5	66	0.0	15	Snd Lvl	72.5	0.0	8	-8.0
353 ORANGEBURG RD	5	1	67.3	67.3	66	0.0	15	Snd Lvl	67.3	0.0	8	-8.0
Newington Plantation Pool Area	10	1	55.4	55.0	66	-0.4	15	----	55.0	0.0	8	-8.0
535 KING CHARLES CIR	13	1	50.8	50.4	66	-0.4	15	----	50.4	0.0	8	-8.0
537 KING CHARLES CIR	14	1	51.5	51.0	66	-0.5	15	----	51.0	0.0	8	-8.0
539 KING CHARLES CIR	15	1	52.3	51.8	66	-0.5	15	----	51.8	0.0	8	-8.0
541 KING CHARLES CIR	16	1	52.8	52.2	66	-0.6	15	----	52.2	0.0	8	-8.0
543 KING CHARLES CIR	17	1	53.7	53.0	66	-0.7	15	----	53.0	0.0	8	-8.0
621 KING CHARLES CIR	18	1	54.8	53.9	66	-0.9	15	----	53.9	0.0	8	-8.0
623 KING CHARLES CIR	19	1	55.5	54.5	66	-1.0	15	----	54.5	0.0	8	-8.0
625 KING CHARLES CIR	20	1	55.9	54.6	66	-1.3	15	----	54.6	0.0	8	-8.0
178 THAMES AVE	22	1	60.8	59.8	66	-1.0	15	----	59.8	0.0	8	-8.0
181 THAMES AVE	23	1	62.5	60.8	66	-1.7	15	----	60.8	0.0	8	-8.0
183 THAMES AVE	24	1	61.8	59.3	66	-2.5	15	----	59.3	0.0	8	-8.0
185 THAMES AVE	25	1	60.8	57.7	66	-3.1	15	----	57.7	0.0	8	-8.0
187 THAMES AVE	26	1	60.0	57.0	66	-3.0	15	----	57.0	0.0	8	-8.0
189 THAMES AVE	27	1	59.4	56.2	66	-3.2	15	----	56.2	0.0	8	-8.0
191 THAMES AVE	28	1	60.9	56.2	66	-4.7	15	----	56.2	0.0	8	-8.0
193 THAMES AVE	29	1	60.2	55.1	66	-5.1	15	----	55.1	0.0	8	-8.0
197 THAMES AVENUE	30	1	59.4	54.7	66	-4.7	15	----	54.7	0.0	8	-8.0
107 NELSON CT	32	1	59.8	54.5	66	-5.3	15	----	54.5	0.0	8	-8.0
109 NELSON CT	33	1	60.1	54.5	66	-5.6	15	----	54.5	0.0	8	-8.0

110 NELSON CT	34	1	60.1	54.1	66	-6.0	15	----	54.1	0.0	8	-8.0
108 NELSON CT	35	1	59.9	53.5	66	-6.4	15	----	53.5	0.0	8	-8.0
106 NELSON CT	36	1	59.0	53.2	66	-5.8	15	----	53.2	0.0	8	-8.0
205 THAMES AVE	38	1	59.1	52.6	66	-6.5	15	----	52.6	0.0	8	-8.0
207 THAMES AVE	39	1	58.5	52.6	66	-5.9	15	----	52.6	0.0	8	-8.0
209 THAMES AVE	40	1	59.4	52.8	66	-6.6	15	----	52.8	0.0	8	-8.0
211 THAMES AVE	41	1	59.8	52.9	66	-6.9	15	----	52.9	0.0	8	-8.0
213 THAMES AVE	42	1	60.5	53.3	66	-7.2	15	----	53.3	0.0	8	-8.0
215 THAMES AVE	43	1	60.5	53.6	66	-6.9	15	----	53.6	0.0	8	-8.0
217 THAMES AVE	44	1	60.4	54.0	66	-6.4	15	----	54.0	0.0	8	-8.0
219 THAMES AVE	45	1	61.3	54.8	66	-6.5	15	----	54.8	0.0	8	-8.0
221 THAMES AVE	46	1	60.4	55.0	66	-5.4	15	----	55.0	0.0	8	-8.0
APT BLDG 1 @ 350 LUDEN DR	48	4	61.9	57.5	66	-4.4	15	----	57.5	0.0	8	-8.0
APT BLDG 2 @ 350 LUDEN DR	49	4	61.6	59.1	66	-2.5	15	----	59.1	0.0	8	-8.0
APT BLDG 3 @ 350 LUDEN DR	50	4	62.1	60.9	66	-1.2	15	----	60.9	0.0	8	-8.0
APT BLDG 4 @ 350 LUDEN DR	51	1	60.2	56.2	66	-4.0	15	----	56.2	0.0	8	-8.0
APT BLDG 5 @ 350 LUDEN DR	52	1	59.9	57.2	66	-2.7	15	----	57.2	0.0	8	-8.0
APT BLDG 6 @ 350 LUDEN DR	53	1	59.9	58.6	66	-1.3	15	----	58.6	0.0	8	-8.0
69 KING CHARLES CIR	55	1	55.4	55.1	66	-0.3	15	----	55.1	0.0	8	-8.0
71 KING CHARLES CIRCLE	56	1	54.9	54.7	66	-0.2	15	----	54.7	0.0	8	-8.0
73 KING CHARLES CIR	57	1	55.8	55.6	66	-0.2	15	----	55.6	0.0	8	-8.0
75 KING CHARLES CIR	58	1	56.0	55.9	66	-0.1	15	----	55.9	0.0	8	-8.0
77 KING CHARLES CIR	59	1	55.7	55.6	66	-0.1	15	----	55.6	0.0	8	-8.0
79 KING CHARLES CIR	60	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
81 KING CHARLES CIR	61	1	55.1	55.0	66	-0.1	15	----	55.0	0.0	8	-8.0
83 KING CHARLES CIR	62	1	54.6	54.5	66	-0.1	15	----	54.5	0.0	8	-8.0
85 KING CHARLES CIR	63	1	54.6	54.5	66	-0.1	15	----	54.5	0.0	8	-8.0
87 KING CHARLES CIR	64	1	53.3	53.2	66	-0.1	15	----	53.2	0.0	8	-8.0
104 BONITA CT	66	1	54.7	54.7	66	0.0	15	----	54.7	0.0	8	-8.0
102 BONITA CT	67	1	55.2	55.1	66	-0.1	15	----	55.1	0.0	8	-8.0
100 BONITA CT	68	1	54.0	53.9	66	-0.1	15	----	53.9	0.0	8	-8.0
214 AMBERJACK WAY	69	1	55.3	55.2	66	-0.1	15	----	55.2	0.0	8	-8.0
212 AMBERJACK WAY	70	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
210 AMBERJACK WAY	71	1	55.5	55.4	66	-0.1	15	----	55.4	0.0	8	-8.0
208 AMBERJACK WAY	72	1	55.0	55.0	66	0.0	15	----	55.0	0.0	8	-8.0
206 AMBERJACK WAY	73	1	54.6	54.6	66	0.0	15	----	54.6	0.0	8	-8.0
204 AMBERJACK WAY	74	1	54.5	54.5	66	0.0	15	----	54.5	0.0	8	-8.0
202 AMBERJACK WAY	75	1	54.3	54.2	66	-0.1	15	----	54.2	0.0	8	-8.0
200 AMBERJACK WAY	76	1	55.3	55.2	66	-0.1	15	----	55.2	0.0	8	-8.0
101 OUTRIGGER CT	77	1	55.3	55.2	66	-0.1	15	----	55.2	0.0	8	-8.0

103 OUTRIGGER CT	78	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
105 OUTRIGGER CT	79	1	56.0	56.0	66	0.0	15	----	56.0	0.0	8	-8.0
107 OUTRIGGER CT	80	1	56.3	56.3	66	0.0	15	----	56.3	0.0	8	-8.0
109 OUTRIGGER CT	81	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
108 OUTRIGGER CT	82	1	55.9	55.8	66	-0.1	15	----	55.8	0.0	8	-8.0
210 WILLET DR	83	1	56.7	56.7	66	0.0	15	----	56.7	0.0	8	-8.0
209 WILLET DR	84	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
207 WILLET DR	85	1	58.0	58.0	66	0.0	15	----	58.0	0.0	8	-8.0
205 WILLET DR	86	1	57.9	57.9	66	0.0	15	----	57.9	0.0	8	-8.0
203 WILLET DR	87	1	57.7	57.7	66	0.0	15	----	57.7	0.0	8	-8.0
201 WILLET DR	88	1	57.4	57.4	66	0.0	15	----	57.4	0.0	8	-8.0
231 GOLDFINCH LN	90	1	58.6	58.6	66	0.0	15	----	58.6	0.0	8	-8.0
229 GOLDFINCH LN	91	1	58.0	58.0	66	0.0	15	----	58.0	0.0	8	-8.0
227 GOLDFINCH LN	92	1	59.3	59.3	66	0.0	15	----	59.3	0.0	8	-8.0
225 GOLDFINCH LN	93	1	59.2	59.2	66	0.0	15	----	59.2	0.0	8	-8.0
223 GOLDFINCH LN	94	1	59.0	59.0	66	0.0	15	----	59.0	0.0	8	-8.0
221 GOLDFINCH LN	95	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
219 GOLDFINCH LN	96	1	57.9	57.8	66	-0.1	15	----	57.8	0.0	8	-8.0
223 CHIPPING SPARROW DR	98	1	57.2	57.2	66	0.0	15	----	57.2	0.0	8	-8.0
225 CHIPPING SPARROW DR	99	1	58.2	58.2	66	0.0	15	----	58.2	0.0	8	-8.0
226 CHIPPING SPARROW DR	100	1	59.2	59.2	66	0.0	15	----	59.2	0.0	8	-8.0
224 CHIPPING SPARROW DR	101	1	59.4	59.4	66	0.0	15	----	59.4	0.0	8	-8.0
222 CHIPPING SPARROW DR	102	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
220 CHIPPING SPARROW DR	103	1	58.5	58.5	66	0.0	15	----	58.5	0.0	8	-8.0
218 CHIPPING SPARROW DR	104	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
101 ANHINGA CT	105	1	56.2	56.2	66	0.0	15	----	56.2	0.0	8	-8.0
103 ANHINGA COURT	107	1	57.3	57.3	66	0.0	15	----	57.3	0.0	8	-8.0
105 ANHINGA CT	108	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
107 ANHINGA CT	109	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
109 ANHINGA CT	110	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
108 ANHINGA CT	111	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP #1	113	1	56.5	56.5	66	0.0	15	----	56.5	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP - #2	114	1	55.6	55.6	66	0.0	15	----	55.6	0.0	8	-8.0
Contess Dr - Royal Manor MHP = #3	115	1	53.8	55.5	66	1.7	15	----	55.5	0.0	8	-8.0
122 HIDDEN PALMS BLVD	116	1	54.8	54.8	66	0.0	15	----	54.8	0.0	8	-8.0
120 HIDDEN PALMS BLVD	117	1	54.8	54.8	66	0.0	15	----	54.8	0.0	8	-8.0
118 HIDDEN PALMS BLVD	118	1	55.1	55.1	66	0.0	15	----	55.1	0.0	8	-8.0
116 HIDDEN PALMS BLVD	119	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
114 HIDDEN PALMS BLVD	120	1	55.5	55.5	66	0.0	15	----	55.5	0.0	8	-8.0
112 HIDDEN PALMS BLVD	121	1	55.8	55.8	66	0.0	15	----	55.8	0.0	8	-8.0

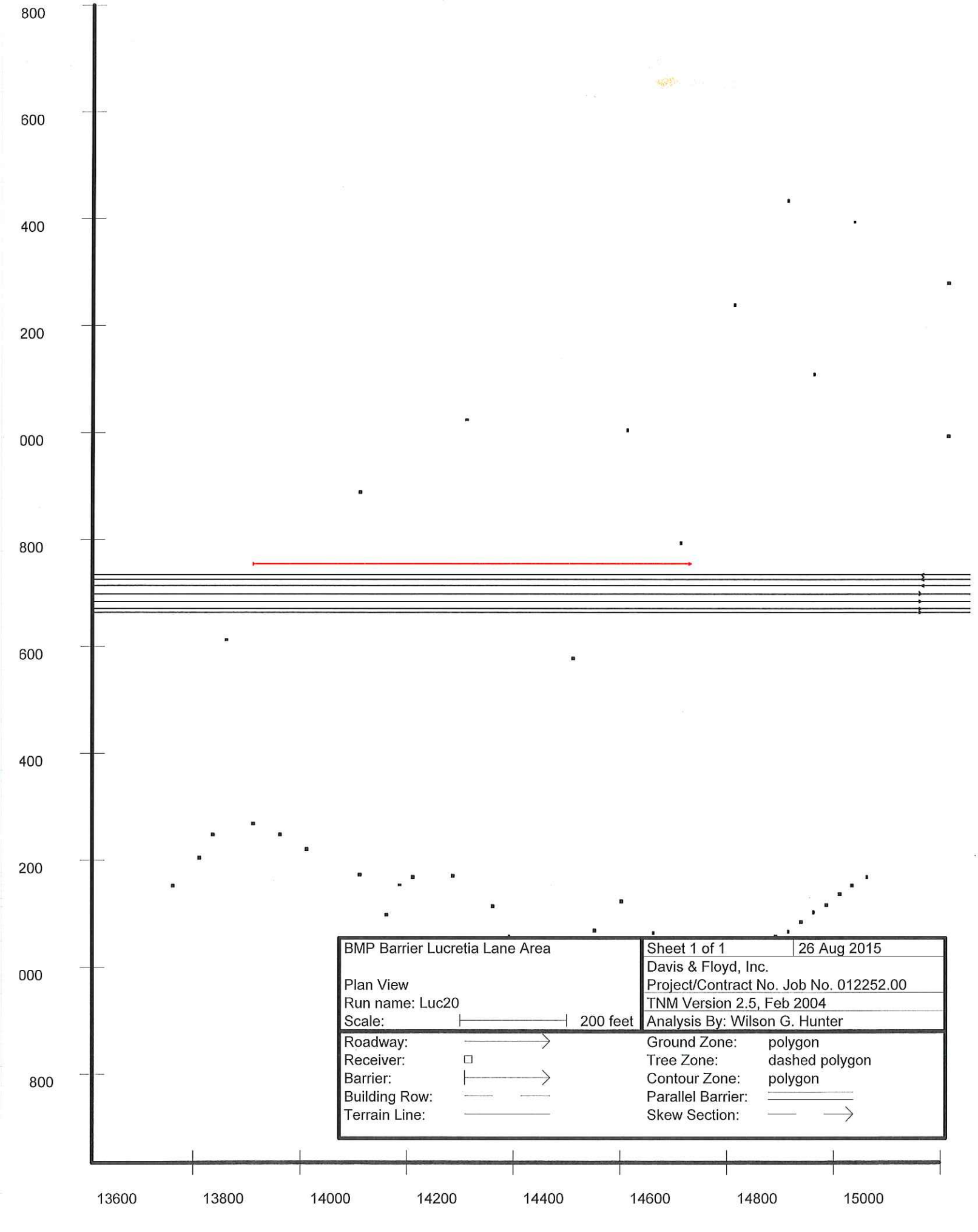
110 HIDDEN PALMS BLVD	122	1	55.9	55.9	66	0.0	15	----	55.9	0.0	8	-8.0
108 HIDDEN PALMS BLVD	123	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
106 HIDDEN PALMS BLVD	124	1	56.7	56.7	66	0.0	15	----	56.7	0.0	8	-8.0
104 HIDDEN PALMS BLVD	125	1	56.9	56.9	66	0.0	15	----	56.9	0.0	8	-8.0
305 SUNNYSIDE WAY	127	1	60.4	60.4	66	0.0	15	----	60.4	0.0	8	-8.0
304 SUNNYSIDE WAY	128	1	60.3	60.3	66	0.0	15	----	60.3	0.0	8	-8.0
303 SUNNYSIDE WAY	129	1	60.7	60.7	66	0.0	15	----	60.7	0.0	8	-8.0
302 SUNNYSIDE WAY	130	1	60.7	60.7	66	0.0	15	----	60.7	0.0	8	-8.0
301 SUNNYSIDE WAY	131	1	61.1	61.1	66	0.0	15	----	61.1	0.0	8	-8.0
300 SUNNYSIDE WAY	132	1	61.2	61.2	66	0.0	15	----	61.2	0.0	8	-8.0
205 SUNNYSIDE WAY	133	1	60.1	60.1	66	0.0	15	----	60.1	0.0	8	-8.0
204 SUNNYSIDE WAY	134	1	59.4	59.4	66	0.0	15	----	59.4	0.0	8	-8.0
203 SUNNYSIDE WAY	135	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
202 SUNNYSIDE WAY	136	1	58.7	58.7	66	0.0	15	----	58.7	0.0	8	-8.0
201 SUNNYSIDE WAY	137	1	58.3	58.2	66	-0.1	15	----	58.2	0.0	8	-8.0
200 SUNNYSIDE WAY	138	1	57.7	57.7	66	0.0	15	----	57.7	0.0	8	-8.0
104 LUCRETIA LN	140	1	63.9	63.8	66	-0.1	15	----	63.8	0.0	8	-8.0
102 LUCRETIA LANE	141	1	60.7	60.6	66	-0.1	15	----	60.6	0.0	8	-8.0
100 LUCRETIA LN	142	1	61.1	60.9	66	-0.2	15	----	60.9	0.0	8	-8.0
101 LUCRETIA LN	143	1	67.8	68.6	66	0.8	15	Snd Lvl	68.6	0.0	8	-8.0
100 LIPTON ST	145	1	58.9	58.7	66	-0.2	15	----	58.7	0.0	8	-8.0
300 ELIZABETH ST	146	1	60.8	60.7	66	-0.1	15	----	60.7	0.0	8	-8.0
301 ELIZABETH ST	147	1	60.4	60.3	66	-0.1	15	----	60.3	0.0	8	-8.0
400 ELIZABETH ST	148	1	64.9	64.9	66	0.0	15	----	64.9	0.0	8	-8.0
312 E SHEPARD LN	149	1	59.9	59.9	66	0.0	15	----	59.9	0.0	8	-8.0
321 E SHEPARD LN	150	1	56.9	56.8	66	-0.1	15	----	56.8	0.0	8	-8.0
100 CORALIE DR	155	1	56.9	56.8	66	-0.1	15	----	56.8	0.0	8	-8.0
116 E SHEPARD LN	156	1	53.5	53.6	66	0.1	15	----	53.6	0.0	8	-8.0
101 CORALIE DR	157	1	53.9	54.0	66	0.1	15	----	54.0	0.0	8	-8.0
103 LIPTON ST	158	1	55.9	55.8	66	-0.1	15	----	55.8	0.0	8	-8.0
302 E SHEPARD LN	159	1	58.4	58.3	66	-0.1	15	----	58.3	0.0	8	-8.0
309 E SHEPARD LN	160	1	56.2	56.2	66	0.0	15	----	56.2	0.0	8	-8.0
200 PEKOE CT	161	1	56.5	56.5	66	0.0	15	----	56.5	0.0	8	-8.0
192 PEKOE CT	162	1	58.3	58.3	66	0.0	15	----	58.3	0.0	8	-8.0
180 PEKOE CT	163	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
181 PEKOE CT	164	1	58.3	58.2	66	-0.1	15	----	58.2	0.0	8	-8.0
106 HUGHES ST	165	1	54.8	54.7	66	-0.1	15	----	54.7	0.0	8	-8.0
105 HUGHES ST	166	1	55.4	55.3	66	-0.1	15	----	55.3	0.0	8	-8.0
103 HUGHES ST	167	1	53.8	53.8	66	0.0	15	----	53.8	0.0	8	-8.0
102 GARDEN HILL RD	170	1	61.1	61.0	66	-0.1	15	----	61.0	0.0	8	-8.0

RESULTS: SOUND LEVELS

Job No. 012252.00

104 GARDEN HILL RD	171	1	61.4	61.4	66	0.0	15	----	61.4	0.0	8	-8.0
106 GARDEN HILL RD	172	1	61.7	61.7	66	0.0	15	----	61.7	0.0	8	-8.0
108 GARDEN HILL RD	173	1	62.5	62.5	66	0.0	15	----	62.5	0.0	8	-8.0
111 GARDEN HILL RD	176	1	62.7	62.7	66	0.0	15	----	62.7	0.0	8	-8.0
SUMMERVILLE CC #13 Tee Box	178	1	67.1	67.1	66	0.0	15	Snd Lvl	67.1	0.0	8	-8.0
104 HUGHES ST	181	1	54.1	54.1	66	0.0	15	----	54.1	0.0	8	-8.0
205 PEKOE CT	183	1	55.1	55.1	66	0.0	15	----	55.1	0.0	8	-8.0
WT-1 (Sawmill Branch Multi-Use Trail)	185	1	62.7	62.6	66	-0.1	15	----	62.6	0.0	8	-8.0
WT-2 (Sawmill Branch Multi-Use Trail)	186	1	67.6	67.1	66	-0.5	15	Snd Lvl	67.1	0.0	8	-8.0
WT-3 (Sawmill Branch Multi-Use Trail)	187	1	64.0	54.7	66	-9.3	15	----	54.7	0.0	8	-8.0
WT-4 (Sawmill Branch Multi-Use Trail)	188	1	65.7	54.8	66	-10.9	15	----	54.8	0.0	8	-8.0
WT-5 (Sawmill Branch Multi-Use Trail)	189	1	63.6	56.0	66	-7.6	15	----	56.0	0.0	8	-8.0
WT-6 (Sawmill Branch Multi-Use Trail)	190	1	67.3	67.3	66	0.0	15	Snd Lvl	67.3	0.0	8	-8.0
WT-7 (Sawmill Branch Multi-Use Trail)	191	1	67.0	67.0	66	0.0	15	Snd Lvl	67.0	0.0	8	-8.0
WT-8 (Sawmill Branch Multi-Use Trail)	192	1	67.7	67.7	66	0.0	15	Snd Lvl	67.7	0.0	8	-8.0
WT-9 (Sawmill Branch Multi-Use Trail)	193	1	67.7	67.7	66	0.0	15	Snd Lvl	67.7	0.0	8	-8.0
WT-10 (Sawmill Branch Multi-Use Trail)	194	1	63.9	63.9	66	0.0	15	----	63.9	0.0	8	-8.0
WT-11 (Sawmill Branch Multi-Use Trail)	195	1	68.0	68.0	66	0.0	15	Snd Lvl	68.0	0.0	8	-8.0
WT-12 (Sawmill Branch Multi-Use Trail)	196	1	68.6	68.6	66	0.0	15	Snd Lvl	68.6	0.0	8	-8.0
WT-13 (Sawmill Branch Multi-Use Trail)	197	1	67.2	67.2	66	0.0	15	Snd Lvl	67.2	0.0	8	-8.0
WT-14 (Sawmill Branch Multi-Use Trail)	198	1	64.4	64.4	66	0.0	15	----	64.4	0.0	8	-8.0
HUNTSMAN CT 1	203	1	56.8	56.8	66	0.0	15	----	56.8	0.0	8	-8.0
HUNTSMAN CT 2	204	1	58.3	58.3	66	0.0	15	----	58.3	0.0	8	-8.0
HUNTSMAN CT 3	205	1	58.5	58.5	66	0.0	15	----	58.5	0.0	8	-8.0
HUNTSMAN CT 4	206	1	60.1	60.1	66	0.0	15	----	60.1	0.0	8	-8.0
348 ORANGEBURG RD	209	1	65.1	65.1	66	0.0	15	----	65.1	0.0	8	-8.0
421 ORANGEBURG RD	210	1	65.3	65.3	66	0.0	15	----	65.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	179	0.0	0.0	0.0
All Impacted	12	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0


800
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13600
13800
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14200
14400
14600
14800
15000
BMP Barrier Lucretia Lane Area
Plan View
Run name: Luc20
Scale: 200 feet
Sheet 1 of 1
26 Aug 2015
Davis & Floyd, Inc.
Project/Contract No. Job No. 012252.00
TNM Version 2.5, Feb 2004
Analysis By: Wilson G. Hunter
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:

Davis & Floyd, Inc.
Wilson G. Hunter

26 August 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Job No. 012252.00
RUN: BMP 20' Barrier Lucretia Lane Area
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
116 FLOOD HEIRS RD	1	1	63.9	63.9	66	0.0	15	----	63.9	0.0	8	-8.0
381 ORANGEBURG RD	4	1	72.5	72.5	66	0.0	15	Snd Lvl	72.5	0.0	8	-8.0
353 ORANGEBURG RD	5	1	67.3	67.3	66	0.0	15	Snd Lvl	67.3	0.0	8	-8.0
Newington Plantation Pool Area	10	1	55.4	55.2	66	-0.2	15	----	55.2	0.0	8	-8.0
535 KING CHARLES CIR	13	1	50.8	50.6	66	-0.2	15	----	50.6	0.0	8	-8.0
537 KING CHARLES CIR	14	1	51.5	51.2	66	-0.3	15	----	51.2	0.0	8	-8.0
539 KING CHARLES CIR	15	1	52.3	52.0	66	-0.3	15	----	52.0	0.0	8	-8.0
541 KING CHARLES CIR	16	1	52.8	52.6	66	-0.2	15	----	52.6	0.0	8	-8.0
543 KING CHARLES CIR	17	1	53.7	53.4	66	-0.3	15	----	53.4	0.0	8	-8.0
621 KING CHARLES CIR	18	1	54.8	54.5	66	-0.3	15	----	54.5	0.0	8	-8.0
623 KING CHARLES CIR	19	1	55.5	55.1	66	-0.4	15	----	55.1	0.0	8	-8.0
625 KING CHARLES CIR	20	1	55.9	55.4	66	-0.5	15	----	55.4	0.0	8	-8.0
178 THAMES AVE	22	1	60.8	60.6	66	-0.2	15	----	60.6	0.0	8	-8.0
181 THAMES AVE	23	1	62.5	62.3	66	-0.2	15	----	62.3	0.0	8	-8.0
183 THAMES AVE	24	1	61.8	61.4	66	-0.4	15	----	61.4	0.0	8	-8.0
185 THAMES AVE	25	1	60.8	60.2	66	-0.6	15	----	60.2	0.0	8	-8.0
187 THAMES AVE	26	1	60.0	59.2	66	-0.8	15	----	59.2	0.0	8	-8.0
189 THAMES AVE	27	1	59.4	58.3	66	-1.1	15	----	58.3	0.0	8	-8.0
191 THAMES AVE	28	1	60.9	59.5	66	-1.4	15	----	59.5	0.0	8	-8.0
193 THAMES AVE	29	1	60.2	58.0	66	-2.2	15	----	58.0	0.0	8	-8.0
197 THAMES AVENUE	30	1	59.4	57.2	66	-2.2	15	----	57.2	0.0	8	-8.0
107 NELSON CT	32	1	59.8	57.1	66	-2.7	15	----	57.1	0.0	8	-8.0

109 NELSON CT	33	1	60.1	57.2	66	-2.9	15	----	57.2	0.0	8	-8.0
110 NELSON CT	34	1	60.1	56.6	66	-3.5	15	----	56.6	0.0	8	-8.0
108 NELSON CT	35	1	59.9	55.7	66	-4.2	15	----	55.7	0.0	8	-8.0
106 NELSON CT	36	1	59.0	55.0	66	-4.0	15	----	55.0	0.0	8	-8.0
205 THAMES AVE	38	1	59.1	54.1	66	-5.0	15	----	54.1	0.0	8	-8.0
207 THAMES AVE	39	1	58.5	54.1	66	-4.4	15	----	54.1	0.0	8	-8.0
209 THAMES AVE	40	1	59.4	54.3	66	-5.1	15	----	54.3	0.0	8	-8.0
211 THAMES AVE	41	1	59.8	54.2	66	-5.6	15	----	54.2	0.0	8	-8.0
213 THAMES AVE	42	1	60.5	54.4	66	-6.1	15	----	54.4	0.0	8	-8.0
215 THAMES AVE	43	1	60.5	54.5	66	-6.0	15	----	54.5	0.0	8	-8.0
217 THAMES AVE	44	1	60.4	54.7	66	-5.7	15	----	54.7	0.0	8	-8.0
219 THAMES AVE	45	1	61.3	55.3	66	-6.0	15	----	55.3	0.0	8	-8.0
221 THAMES AVE	46	1	60.4	55.4	66	-5.0	15	----	55.4	0.0	8	-8.0
APT BLDG 1 @ 350 LUDEN DR	48	4	61.9	57.6	66	-4.3	15	----	57.6	0.0	8	-8.0
APT BLDG 2 @ 350 LUDEN DR	49	4	61.6	59.2	66	-2.4	15	----	59.2	0.0	8	-8.0
APT BLDG 3 @ 350 LUDEN DR	50	4	62.1	60.9	66	-1.2	15	----	60.9	0.0	8	-8.0
APT BLDG 4 @ 350 LUDEN DR	51	1	60.2	56.4	66	-3.8	15	----	56.4	0.0	8	-8.0
APT BLDG 5 @ 350 LUDEN DR	52	1	59.9	57.3	66	-2.6	15	----	57.3	0.0	8	-8.0
APT BLDG 6 @ 350 LUDEN DR	53	1	59.9	58.6	66	-1.3	15	----	58.6	0.0	8	-8.0
69 KING CHARLES CIR	55	1	55.4	55.2	66	-0.2	15	----	55.2	0.0	8	-8.0
71 KING CHARLES CIRCLE	56	1	54.9	54.8	66	-0.1	15	----	54.8	0.0	8	-8.0
73 KING CHARLES CIR	57	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
75 KING CHARLES CIR	58	1	56.0	55.9	66	-0.1	15	----	55.9	0.0	8	-8.0
77 KING CHARLES CIR	59	1	55.7	55.6	66	-0.1	15	----	55.6	0.0	8	-8.0
79 KING CHARLES CIR	60	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
81 KING CHARLES CIR	61	1	55.1	55.1	66	0.0	15	----	55.1	0.0	8	-8.0
83 KING CHARLES CIR	62	1	54.6	54.6	66	0.0	15	----	54.6	0.0	8	-8.0
85 KING CHARLES CIR	63	1	54.6	54.5	66	-0.1	15	----	54.5	0.0	8	-8.0
87 KING CHARLES CIR	64	1	53.3	53.2	66	-0.1	15	----	53.2	0.0	8	-8.0
104 BONITA CT	66	1	54.7	54.7	66	0.0	15	----	54.7	0.0	8	-8.0
102 BONITA CT	67	1	55.2	55.1	66	-0.1	15	----	55.1	0.0	8	-8.0
100 BONITA CT	68	1	54.0	53.9	66	-0.1	15	----	53.9	0.0	8	-8.0
214 AMBERJACK WAY	69	1	55.3	55.2	66	-0.1	15	----	55.2	0.0	8	-8.0
212 AMBERJACK WAY	70	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
210 AMBERJACK WAY	71	1	55.5	55.4	66	-0.1	15	----	55.4	0.0	8	-8.0
208 AMBERJACK WAY	72	1	55.0	55.0	66	0.0	15	----	55.0	0.0	8	-8.0
206 AMBERJACK WAY	73	1	54.6	54.6	66	0.0	15	----	54.6	0.0	8	-8.0
204 AMBERJACK WAY	74	1	54.5	54.5	66	0.0	15	----	54.5	0.0	8	-8.0
202 AMBERJACK WAY	75	1	54.3	54.2	66	-0.1	15	----	54.2	0.0	8	-8.0
200 AMBERJACK WAY	76	1	55.3	55.3	66	0.0	15	----	55.3	0.0	8	-8.0

101 OUTRIGGER CT	77	1	55.3	55.2	66	-0.1	15	----	55.2	0.0	8	-8.0
103 OUTRIGGER CT	78	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
105 OUTRIGGER CT	79	1	56.0	56.0	66	0.0	15	----	56.0	0.0	8	-8.0
107 OUTRIGGER CT	80	1	56.3	56.3	66	0.0	15	----	56.3	0.0	8	-8.0
109 OUTRIGGER CT	81	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
108 OUTRIGGER CT	82	1	55.9	55.8	66	-0.1	15	----	55.8	0.0	8	-8.0
210 WILLET DR	83	1	56.7	56.7	66	0.0	15	----	56.7	0.0	8	-8.0
209 WILLET DR	84	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
207 WILLET DR	85	1	58.0	58.0	66	0.0	15	----	58.0	0.0	8	-8.0
205 WILLET DR	86	1	57.9	57.9	66	0.0	15	----	57.9	0.0	8	-8.0
203 WILLET DR	87	1	57.7	57.7	66	0.0	15	----	57.7	0.0	8	-8.0
201 WILLET DR	88	1	57.4	57.4	66	0.0	15	----	57.4	0.0	8	-8.0
231 GOLDFINCH LN	90	1	58.6	58.6	66	0.0	15	----	58.6	0.0	8	-8.0
229 GOLDFINCH LN	91	1	58.0	58.0	66	0.0	15	----	58.0	0.0	8	-8.0
227 GOLDFINCH LN	92	1	59.3	59.3	66	0.0	15	----	59.3	0.0	8	-8.0
225 GOLDFINCH LN	93	1	59.2	59.2	66	0.0	15	----	59.2	0.0	8	-8.0
223 GOLDFINCH LN	94	1	59.0	59.0	66	0.0	15	----	59.0	0.0	8	-8.0
221 GOLDFINCH LN	95	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
219 GOLDFINCH LN	96	1	57.9	57.8	66	-0.1	15	----	57.8	0.0	8	-8.0
223 CHIPPING SPARROW DR	98	1	57.2	57.2	66	0.0	15	----	57.2	0.0	8	-8.0
225 CHIPPING SPARROW DR	99	1	58.2	58.2	66	0.0	15	----	58.2	0.0	8	-8.0
226 CHIPPING SPARROW DR	100	1	59.2	59.2	66	0.0	15	----	59.2	0.0	8	-8.0
224 CHIPPING SPARROW DR	101	1	59.4	59.4	66	0.0	15	----	59.4	0.0	8	-8.0
222 CHIPPING SPARROW DR	102	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
220 CHIPPING SPARROW DR	103	1	58.5	58.5	66	0.0	15	----	58.5	0.0	8	-8.0
218 CHIPPING SPARROW DR	104	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
101 ANHINGA CT	105	1	56.2	56.2	66	0.0	15	----	56.2	0.0	8	-8.0
103 ANHINGA COURT	107	1	57.3	57.3	66	0.0	15	----	57.3	0.0	8	-8.0
105 ANHINGA CT	108	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
107 ANHINGA CT	109	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
109 ANHINGA CT	110	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
108 ANHINGA CT	111	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP #1	113	1	56.5	56.5	66	0.0	15	----	56.5	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP - #2	114	1	55.6	55.6	66	0.0	15	----	55.6	0.0	8	-8.0
Contess Dr - Royal Manor MHP = #3	115	1	53.8	55.5	66	1.7	15	----	55.5	0.0	8	-8.0
122 HIDDEN PALMS BLVD	116	1	54.8	54.8	66	0.0	15	----	54.8	0.0	8	-8.0
120 HIDDEN PALMS BLVD	117	1	54.8	54.8	66	0.0	15	----	54.8	0.0	8	-8.0
118 HIDDEN PALMS BLVD	118	1	55.1	55.1	66	0.0	15	----	55.1	0.0	8	-8.0
116 HIDDEN PALMS BLVD	119	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
114 HIDDEN PALMS BLVD	120	1	55.5	55.5	66	0.0	15	----	55.5	0.0	8	-8.0

112 HIDDEN PALMS BLVD	121	1	55.8	55.8	66	0.0	15	----	55.8	0.0	8	-8.0
110 HIDDEN PALMS BLVD	122	1	55.9	55.9	66	0.0	15	----	55.9	0.0	8	-8.0
108 HIDDEN PALMS BLVD	123	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
106 HIDDEN PALMS BLVD	124	1	56.7	56.7	66	0.0	15	----	56.7	0.0	8	-8.0
104 HIDDEN PALMS BLVD	125	1	56.9	56.9	66	0.0	15	----	56.9	0.0	8	-8.0
305 SUNNYSIDE WAY	127	1	60.4	60.4	66	0.0	15	----	60.4	0.0	8	-8.0
304 SUNNYSIDE WAY	128	1	60.3	60.3	66	0.0	15	----	60.3	0.0	8	-8.0
303 SUNNYSIDE WAY	129	1	60.7	60.7	66	0.0	15	----	60.7	0.0	8	-8.0
302 SUNNYSIDE WAY	130	1	60.7	60.7	66	0.0	15	----	60.7	0.0	8	-8.0
301 SUNNYSIDE WAY	131	1	61.1	61.1	66	0.0	15	----	61.1	0.0	8	-8.0
300 SUNNYSIDE WAY	132	1	61.2	61.2	66	0.0	15	----	61.2	0.0	8	-8.0
205 SUNNYSIDE WAY	133	1	60.1	60.1	66	0.0	15	----	60.1	0.0	8	-8.0
204 SUNNYSIDE WAY	134	1	59.4	59.4	66	0.0	15	----	59.4	0.0	8	-8.0
203 SUNNYSIDE WAY	135	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
202 SUNNYSIDE WAY	136	1	58.7	58.7	66	0.0	15	----	58.7	0.0	8	-8.0
201 SUNNYSIDE WAY	137	1	58.3	58.2	66	-0.1	15	----	58.2	0.0	8	-8.0
200 SUNNYSIDE WAY	138	1	57.7	57.7	66	0.0	15	----	57.7	0.0	8	-8.0
104 LUCRETIA LN	140	1	63.9	58.4	66	-5.5	15	----	58.4	0.0	8	-8.0
102 LUCRETIA LANE	141	1	60.7	56.5	66	-4.2	15	----	56.5	0.0	8	-8.0
100 LUCRETIA LN	142	1	61.1	57.9	66	-3.2	15	----	57.9	0.0	8	-8.0
101 LUCRETIA LN	143	1	68.0	63.8	66	-4.2	15	----	63.8	0.0	8	-8.0
100 LIPTON ST	145	1	58.9	58.0	66	-0.9	15	----	58.0	0.0	8	-8.0
300 ELIZABETH ST	146	1	61.2	60.5	66	-0.7	15	----	60.5	0.0	8	-8.0
301 ELIZABETH ST	147	1	60.8	60.2	66	-0.6	15	----	60.2	0.0	8	-8.0
400 ELIZABETH ST	148	1	65.1	64.8	66	-0.3	15	----	64.8	0.0	8	-8.0
312 E SHEPARD LN	149	1	60.3	59.8	66	-0.5	15	----	59.8	0.0	8	-8.0
321 E SHEPARD LN	150	1	57.4	56.7	66	-0.7	15	----	56.7	0.0	8	-8.0
100 CORALIE DR	155	1	54.9	55.5	66	0.6	15	----	55.5	0.0	8	-8.0
116 E SHEPARD LN	156	1	54.1	52.6	66	-1.5	15	----	52.6	0.0	8	-8.0
101 CORALIE DR	157	1	54.9	53.2	66	-1.7	15	----	53.2	0.0	8	-8.0
103 LIPTON ST	158	1	56.4	55.3	66	-1.1	15	----	55.3	0.0	8	-8.0
302 E SHEPARD LN	159	1	58.8	58.1	66	-0.7	15	----	58.1	0.0	8	-8.0
309 E SHEPARD LN	160	1	56.8	56.0	66	-0.8	15	----	56.0	0.0	8	-8.0
200 PEKOE CT	161	1	57.5	56.4	66	-1.1	15	----	56.4	0.0	8	-8.0
192 PEKOE CT	162	1	59.6	58.3	66	-1.3	15	----	58.3	0.0	8	-8.0
180 PEKOE CT	163	1	57.4	56.3	66	-1.1	15	----	56.3	0.0	8	-8.0
181 PEKOE CT	164	1	59.4	58.2	66	-1.2	15	----	58.2	0.0	8	-8.0
106 HUGHES ST	165	1	55.7	54.6	66	-1.1	15	----	54.6	0.0	8	-8.0
105 HUGHES ST	166	1	56.5	55.3	66	-1.2	15	----	55.3	0.0	8	-8.0
103 HUGHES ST	167	1	54.8	53.7	66	-1.1	15	----	53.7	0.0	8	-8.0

102 GARDEN HILL RD	170	1	61.1	61.0	66	-0.1	15	----	61.0	0.0	8	-8.0
104 GARDEN HILL RD	171	1	61.4	61.4	66	0.0	15	----	61.4	0.0	8	-8.0
106 GARDEN HILL RD	172	1	61.7	61.7	66	0.0	15	----	61.7	0.0	8	-8.0
108 GARDEN HILL RD	173	1	62.5	62.5	66	0.0	15	----	62.5	0.0	8	-8.0
111 GARDEN HILL RD	176	1	62.7	62.7	66	0.0	15	----	62.7	0.0	8	-8.0
SUMMERVILLE CC #13 Tee Box	178	1	67.1	67.1	66	0.0	15	Snd Lvl	67.1	0.0	8	-8.0
104 HUGHES ST	181	1	54.1	54.0	66	-0.1	15	----	54.0	0.0	8	-8.0
205 PEKOE CT	183	1	55.1	54.9	66	-0.2	15	----	54.9	0.0	8	-8.0
WT-1 (Sawmill Branch Multi-Use Trail)	185	1	62.7	62.6	66	-0.1	15	----	62.6	0.0	8	-8.0
WT-2 (Sawmill Branch Multi-Use Trail)	186	1	67.6	67.6	66	0.0	15	Snd Lvl	67.6	0.0	8	-8.0
WT-3 (Sawmill Branch Multi-Use Trail)	187	1	64.0	58.6	66	-5.4	15	----	58.6	0.0	8	-8.0
WT-4 (Sawmill Branch Multi-Use Trail)	188	1	65.7	55.4	66	-10.3	15	----	55.4	0.0	8	-8.0
WT-5 (Sawmill Branch Multi-Use Trail)	189	1	63.6	56.3	66	-7.3	15	----	56.3	0.0	8	-8.0
WT-6 (Sawmill Branch Multi-Use Trail)	190	1	67.3	67.3	66	0.0	15	Snd Lvl	67.3	0.0	8	-8.0
WT-7 (Sawmill Branch Multi-Use Trail)	191	1	67.0	67.0	66	0.0	15	Snd Lvl	67.0	0.0	8	-8.0
WT-8 (Sawmill Branch Multi-Use Trail)	192	1	67.7	67.7	66	0.0	15	Snd Lvl	67.7	0.0	8	-8.0
WT-9 (Sawmill Branch Multi-Use Trail)	193	1	67.7	67.7	66	0.0	15	Snd Lvl	67.7	0.0	8	-8.0
WT-10 (Sawmill Branch Multi-Use Trail)	194	1	63.9	63.9	66	0.0	15	----	63.9	0.0	8	-8.0
WT-11 (Sawmill Branch Multi-Use Trail)	195	1	68.0	68.0	66	0.0	15	Snd Lvl	68.0	0.0	8	-8.0
WT-12 (Sawmill Branch Multi-Use Trail)	196	1	68.6	68.6	66	0.0	15	Snd Lvl	68.6	0.0	8	-8.0
WT-13 (Sawmill Branch Multi-Use Trail)	197	1	67.2	67.2	66	0.0	15	Snd Lvl	67.2	0.0	8	-8.0
WT-14 (Sawmill Branch Multi-Use Trail)	198	1	64.4	64.4	66	0.0	15	----	64.4	0.0	8	-8.0
HUNTSMAN CT 1	203	1	56.8	56.8	66	0.0	15	----	56.8	0.0	8	-8.0
HUNTSMAN CT 2	204	1	58.3	58.3	66	0.0	15	----	58.3	0.0	8	-8.0
HUNTSMAN CT 3	205	1	58.5	58.5	66	0.0	15	----	58.5	0.0	8	-8.0
HUNTSMAN CT 4	206	1	60.1	60.1	66	0.0	15	----	60.1	0.0	8	-8.0
348 ORANGEBURG RD	209	1	65.1	65.1	66	0.0	15	----	65.1	0.0	8	-8.0
421 ORANGEBURG RD	210	1	65.3	65.3	66	0.0	15	----	65.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	179	0.0	0.0	0.0
All Impacted	11	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Davis & Floyd, Inc.
Wilson G. Hunter

26 August 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Job No. 012252.00
RUN: BMP 25' Barrier Lucretia Lane Area
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
116 FLOOD HEIRS RD	1	1	63.9	63.9	66	0.0	15	----	63.9	0.0	8	-8.0
381 ORANGEBURG RD	4	1	72.5	72.5	66	0.0	15	Snd Lvl	72.5	0.0	8	-8.0
353 ORANGEBURG RD	5	1	67.3	67.3	66	0.0	15	Snd Lvl	67.3	0.0	8	-8.0
Newington Plantation Pool Area	10	1	55.4	55.2	66	-0.2	15	----	55.2	0.0	8	-8.0
535 KING CHARLES CIR	13	1	50.8	50.6	66	-0.2	15	----	50.6	0.0	8	-8.0
537 KING CHARLES CIR	14	1	51.5	51.2	66	-0.3	15	----	51.2	0.0	8	-8.0
539 KING CHARLES CIR	15	1	52.3	52.0	66	-0.3	15	----	52.0	0.0	8	-8.0
541 KING CHARLES CIR	16	1	52.8	52.6	66	-0.2	15	----	52.6	0.0	8	-8.0
543 KING CHARLES CIR	17	1	53.7	53.4	66	-0.3	15	----	53.4	0.0	8	-8.0
621 KING CHARLES CIR	18	1	54.8	54.5	66	-0.3	15	----	54.5	0.0	8	-8.0
623 KING CHARLES CIR	19	1	55.5	55.1	66	-0.4	15	----	55.1	0.0	8	-8.0
625 KING CHARLES CIR	20	1	55.9	55.4	66	-0.5	15	----	55.4	0.0	8	-8.0
178 THAMES AVE	22	1	60.8	60.6	66	-0.2	15	----	60.6	0.0	8	-8.0
181 THAMES AVE	23	1	62.5	62.3	66	-0.2	15	----	62.3	0.0	8	-8.0
183 THAMES AVE	24	1	61.8	61.4	66	-0.4	15	----	61.4	0.0	8	-8.0
185 THAMES AVE	25	1	60.8	60.2	66	-0.6	15	----	60.2	0.0	8	-8.0
187 THAMES AVE	26	1	60.0	59.2	66	-0.8	15	----	59.2	0.0	8	-8.0
189 THAMES AVE	27	1	59.4	58.3	66	-1.1	15	----	58.3	0.0	8	-8.0
191 THAMES AVE	28	1	60.9	59.5	66	-1.4	15	----	59.5	0.0	8	-8.0
193 THAMES AVE	29	1	60.2	58.0	66	-2.2	15	----	58.0	0.0	8	-8.0
197 THAMES AVENUE	30	1	59.4	57.2	66	-2.2	15	----	57.2	0.0	8	-8.0
107 NELSON CT	32	1	59.8	57.1	66	-2.7	15	----	57.1	0.0	8	-8.0

109 NELSON CT	33	1	60.1	57.2	66	-2.9	15	----	57.2	0.0	8	-8.0
110 NELSON CT	34	1	60.1	56.6	66	-3.5	15	----	56.6	0.0	8	-8.0
108 NELSON CT	35	1	59.9	55.7	66	-4.2	15	----	55.7	0.0	8	-8.0
106 NELSON CT	36	1	59.0	55.0	66	-4.0	15	----	55.0	0.0	8	-8.0
205 THAMES AVE	38	1	59.1	54.1	66	-5.0	15	----	54.1	0.0	8	-8.0
207 THAMES AVE	39	1	58.5	54.1	66	-4.4	15	----	54.1	0.0	8	-8.0
209 THAMES AVE	40	1	59.4	54.3	66	-5.1	15	----	54.3	0.0	8	-8.0
211 THAMES AVE	41	1	59.8	54.2	66	-5.6	15	----	54.2	0.0	8	-8.0
213 THAMES AVE	42	1	60.5	54.4	66	-6.1	15	----	54.4	0.0	8	-8.0
215 THAMES AVE	43	1	60.5	54.5	66	-6.0	15	----	54.5	0.0	8	-8.0
217 THAMES AVE	44	1	60.4	54.7	66	-5.7	15	----	54.7	0.0	8	-8.0
219 THAMES AVE	45	1	61.3	55.3	66	-6.0	15	----	55.3	0.0	8	-8.0
221 THAMES AVE	46	1	60.4	55.4	66	-5.0	15	----	55.4	0.0	8	-8.0
APT BLDG 1 @ 350 LUDEN DR	48	4	61.9	57.6	66	-4.3	15	----	57.6	0.0	8	-8.0
APT BLDG 2 @ 350 LUDEN DR	49	4	61.6	59.2	66	-2.4	15	----	59.2	0.0	8	-8.0
APT BLDG 3 @ 350 LUDEN DR	50	4	62.1	60.9	66	-1.2	15	----	60.9	0.0	8	-8.0
APT BLDG 4 @ 350 LUDEN DR	51	1	60.2	56.4	66	-3.8	15	----	56.4	0.0	8	-8.0
APT BLDG 5 @ 350 LUDEN DR	52	1	59.9	57.3	66	-2.6	15	----	57.3	0.0	8	-8.0
APT BLDG 6 @ 350 LUDEN DR	53	1	59.9	58.6	66	-1.3	15	----	58.6	0.0	8	-8.0
69 KING CHARLES CIR	55	1	55.4	55.2	66	-0.2	15	----	55.2	0.0	8	-8.0
71 KING CHARLES CIRCLE	56	1	54.9	54.8	66	-0.1	15	----	54.8	0.0	8	-8.0
73 KING CHARLES CIR	57	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
75 KING CHARLES CIR	58	1	56.0	55.9	66	-0.1	15	----	55.9	0.0	8	-8.0
77 KING CHARLES CIR	59	1	55.7	55.6	66	-0.1	15	----	55.6	0.0	8	-8.0
79 KING CHARLES CIR	60	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
81 KING CHARLES CIR	61	1	55.1	55.1	66	0.0	15	----	55.1	0.0	8	-8.0
83 KING CHARLES CIR	62	1	54.6	54.6	66	0.0	15	----	54.6	0.0	8	-8.0
85 KING CHARLES CIR	63	1	54.6	54.5	66	-0.1	15	----	54.5	0.0	8	-8.0
87 KING CHARLES CIR	64	1	53.3	53.2	66	-0.1	15	----	53.2	0.0	8	-8.0
104 BONITA CT	66	1	54.7	54.7	66	0.0	15	----	54.7	0.0	8	-8.0
102 BONITA CT	67	1	55.2	55.1	66	-0.1	15	----	55.1	0.0	8	-8.0
100 BONITA CT	68	1	54.0	53.9	66	-0.1	15	----	53.9	0.0	8	-8.0
214 AMBERJACK WAY	69	1	55.3	55.2	66	-0.1	15	----	55.2	0.0	8	-8.0
212 AMBERJACK WAY	70	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
210 AMBERJACK WAY	71	1	55.5	55.4	66	-0.1	15	----	55.4	0.0	8	-8.0
208 AMBERJACK WAY	72	1	55.0	55.0	66	0.0	15	----	55.0	0.0	8	-8.0
206 AMBERJACK WAY	73	1	54.6	54.6	66	0.0	15	----	54.6	0.0	8	-8.0
204 AMBERJACK WAY	74	1	54.5	54.5	66	0.0	15	----	54.5	0.0	8	-8.0
202 AMBERJACK WAY	75	1	54.3	54.2	66	-0.1	15	----	54.2	0.0	8	-8.0
200 AMBERJACK WAY	76	1	55.3	55.3	66	0.0	15	----	55.3	0.0	8	-8.0

101 OUTRIGGER CT	77	1	55.3	55.2	66	-0.1	15	----	55.2	0.0	8	-8.0
103 OUTRIGGER CT	78	1	55.8	55.7	66	-0.1	15	----	55.7	0.0	8	-8.0
105 OUTRIGGER CT	79	1	56.0	56.0	66	0.0	15	----	56.0	0.0	8	-8.0
107 OUTRIGGER CT	80	1	56.3	56.3	66	0.0	15	----	56.3	0.0	8	-8.0
109 OUTRIGGER CT	81	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
108 OUTRIGGER CT	82	1	55.9	55.8	66	-0.1	15	----	55.8	0.0	8	-8.0
210 WILLET DR	83	1	56.7	56.7	66	0.0	15	----	56.7	0.0	8	-8.0
209 WILLET DR	84	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
207 WILLET DR	85	1	58.0	58.0	66	0.0	15	----	58.0	0.0	8	-8.0
205 WILLET DR	86	1	57.9	57.9	66	0.0	15	----	57.9	0.0	8	-8.0
203 WILLET DR	87	1	57.7	57.7	66	0.0	15	----	57.7	0.0	8	-8.0
201 WILLET DR	88	1	57.4	57.4	66	0.0	15	----	57.4	0.0	8	-8.0
231 GOLDFINCH LN	90	1	58.6	58.6	66	0.0	15	----	58.6	0.0	8	-8.0
229 GOLDFINCH LN	91	1	58.0	58.0	66	0.0	15	----	58.0	0.0	8	-8.0
227 GOLDFINCH LN	92	1	59.3	59.3	66	0.0	15	----	59.3	0.0	8	-8.0
225 GOLDFINCH LN	93	1	59.2	59.2	66	0.0	15	----	59.2	0.0	8	-8.0
223 GOLDFINCH LN	94	1	59.0	59.0	66	0.0	15	----	59.0	0.0	8	-8.0
221 GOLDFINCH LN	95	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
219 GOLDFINCH LN	96	1	57.9	57.8	66	-0.1	15	----	57.8	0.0	8	-8.0
223 CHIPPING SPARROW DR	98	1	57.2	57.2	66	0.0	15	----	57.2	0.0	8	-8.0
225 CHIPPING SPARROW DR	99	1	58.2	58.2	66	0.0	15	----	58.2	0.0	8	-8.0
226 CHIPPING SPARROW DR	100	1	59.2	59.2	66	0.0	15	----	59.2	0.0	8	-8.0
224 CHIPPING SPARROW DR	101	1	59.4	59.4	66	0.0	15	----	59.4	0.0	8	-8.0
222 CHIPPING SPARROW DR	102	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
220 CHIPPING SPARROW DR	103	1	58.5	58.5	66	0.0	15	----	58.5	0.0	8	-8.0
218 CHIPPING SPARROW DR	104	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
101 ANHINGA CT	105	1	56.2	56.2	66	0.0	15	----	56.2	0.0	8	-8.0
103 ANHINGA COURT	107	1	57.3	57.3	66	0.0	15	----	57.3	0.0	8	-8.0
105 ANHINGA CT	108	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
107 ANHINGA CT	109	1	57.5	57.5	66	0.0	15	----	57.5	0.0	8	-8.0
109 ANHINGA CT	110	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
108 ANHINGA CT	111	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP #1	113	1	56.5	56.5	66	0.0	15	----	56.5	0.0	8	-8.0
Cavalier Dr - Royal Manor MHP - #2	114	1	55.6	55.6	66	0.0	15	----	55.6	0.0	8	-8.0
Contess Dr - Royal Manor MHP = #3	115	1	53.8	55.5	66	1.7	15	----	55.5	0.0	8	-8.0
122 HIDDEN PALMS BLVD	116	1	54.8	54.8	66	0.0	15	----	54.8	0.0	8	-8.0
120 HIDDEN PALMS BLVD	117	1	54.8	54.8	66	0.0	15	----	54.8	0.0	8	-8.0
118 HIDDEN PALMS BLVD	118	1	55.1	55.1	66	0.0	15	----	55.1	0.0	8	-8.0
116 HIDDEN PALMS BLVD	119	1	55.2	55.2	66	0.0	15	----	55.2	0.0	8	-8.0
114 HIDDEN PALMS BLVD	120	1	55.5	55.5	66	0.0	15	----	55.5	0.0	8	-8.0

112 HIDDEN PALMS BLVD	121	1	55.8	55.8	66	0.0	15	----	55.8	0.0	8	-8.0
110 HIDDEN PALMS BLVD	122	1	55.9	55.9	66	0.0	15	----	55.9	0.0	8	-8.0
108 HIDDEN PALMS BLVD	123	1	56.4	56.4	66	0.0	15	----	56.4	0.0	8	-8.0
106 HIDDEN PALMS BLVD	124	1	56.7	56.7	66	0.0	15	----	56.7	0.0	8	-8.0
104 HIDDEN PALMS BLVD	125	1	56.9	56.9	66	0.0	15	----	56.9	0.0	8	-8.0
305 SUNNYSIDE WAY	127	1	60.4	60.4	66	0.0	15	----	60.4	0.0	8	-8.0
304 SUNNYSIDE WAY	128	1	60.3	60.3	66	0.0	15	----	60.3	0.0	8	-8.0
303 SUNNYSIDE WAY	129	1	60.7	60.7	66	0.0	15	----	60.7	0.0	8	-8.0
302 SUNNYSIDE WAY	130	1	60.7	60.7	66	0.0	15	----	60.7	0.0	8	-8.0
301 SUNNYSIDE WAY	131	1	61.1	61.1	66	0.0	15	----	61.1	0.0	8	-8.0
300 SUNNYSIDE WAY	132	1	61.2	61.2	66	0.0	15	----	61.2	0.0	8	-8.0
205 SUNNYSIDE WAY	133	1	60.1	60.1	66	0.0	15	----	60.1	0.0	8	-8.0
204 SUNNYSIDE WAY	134	1	59.4	59.4	66	0.0	15	----	59.4	0.0	8	-8.0
203 SUNNYSIDE WAY	135	1	59.1	59.1	66	0.0	15	----	59.1	0.0	8	-8.0
202 SUNNYSIDE WAY	136	1	58.7	58.7	66	0.0	15	----	58.7	0.0	8	-8.0
201 SUNNYSIDE WAY	137	1	58.3	58.2	66	-0.1	15	----	58.2	0.0	8	-8.0
200 SUNNYSIDE WAY	138	1	57.7	57.7	66	0.0	15	----	57.7	0.0	8	-8.0
104 LUCRETIA LN	140	1	63.9	57.6	66	-6.3	15	----	57.6	0.0	8	-8.0
102 LUCRETIA LANE	141	1	60.7	55.7	66	-5.0	15	----	55.7	0.0	8	-8.0
100 LUCRETIA LN	142	1	61.1	57.4	66	-3.7	15	----	57.4	0.0	8	-8.0
101 LUCRETIA LN	143	1	68.0	63.5	66	-4.5	15	----	63.5	0.0	8	-8.0
100 LIPTON ST	145	1	58.9	57.9	66	-1.0	15	----	57.9	0.0	8	-8.0
300 ELIZABETH ST	146	1	61.2	60.5	66	-0.7	15	----	60.5	0.0	8	-8.0
301 ELIZABETH ST	147	1	60.8	60.2	66	-0.6	15	----	60.2	0.0	8	-8.0
400 ELIZABETH ST	148	1	65.1	64.8	66	-0.3	15	----	64.8	0.0	8	-8.0
312 E SHEPARD LN	149	1	60.3	59.8	66	-0.5	15	----	59.8	0.0	8	-8.0
321 E SHEPARD LN	150	1	57.4	56.7	66	-0.7	15	----	56.7	0.0	8	-8.0
100 CORALIE DR	155	1	54.9	55.2	66	0.3	15	----	55.2	0.0	8	-8.0
116 E SHEPARD LN	156	1	54.1	52.3	66	-1.8	15	----	52.3	0.0	8	-8.0
101 CORALIE DR	157	1	54.9	53.0	66	-1.9	15	----	53.0	0.0	8	-8.0
103 LIPTON ST	158	1	56.4	55.3	66	-1.1	15	----	55.3	0.0	8	-8.0
302 E SHEPARD LN	159	1	58.8	58.0	66	-0.8	15	----	58.0	0.0	8	-8.0
309 E SHEPARD LN	160	1	56.8	56.0	66	-0.8	15	----	56.0	0.0	8	-8.0
200 PEKOE CT	161	1	57.5	56.4	66	-1.1	15	----	56.4	0.0	8	-8.0
192 PEKOE CT	162	1	59.6	58.3	66	-1.3	15	----	58.3	0.0	8	-8.0
180 PEKOE CT	163	1	57.4	56.3	66	-1.1	15	----	56.3	0.0	8	-8.0
181 PEKOE CT	164	1	59.4	58.2	66	-1.2	15	----	58.2	0.0	8	-8.0
106 HUGHES ST	165	1	55.7	54.6	66	-1.1	15	----	54.6	0.0	8	-8.0
105 HUGHES ST	166	1	56.5	55.3	66	-1.2	15	----	55.3	0.0	8	-8.0
103 HUGHES ST	167	1	54.8	53.7	66	-1.1	15	----	53.7	0.0	8	-8.0

102 GARDEN HILL RD	170	1	61.1	61.0	66	-0.1	15	----	61.0	0.0	8	-8.0
104 GARDEN HILL RD	171	1	61.4	61.4	66	0.0	15	----	61.4	0.0	8	-8.0
106 GARDEN HILL RD	172	1	61.7	61.7	66	0.0	15	----	61.7	0.0	8	-8.0
108 GARDEN HILL RD	173	1	62.5	62.5	66	0.0	15	----	62.5	0.0	8	-8.0
111 GARDEN HILL RD	176	1	62.7	62.7	66	0.0	15	----	62.7	0.0	8	-8.0
SUMMERVILLE CC #13 Tee Box	178	1	67.1	67.1	66	0.0	15	Snd Lvl	67.1	0.0	8	-8.0
104 HUGHES ST	181	1	54.1	54.0	66	-0.1	15	----	54.0	0.0	8	-8.0
205 PEKOE CT	183	1	55.1	54.9	66	-0.2	15	----	54.9	0.0	8	-8.0
WT-1 (Sawmill Branch Multi-Use Trail)	185	1	62.7	62.6	66	-0.1	15	----	62.6	0.0	8	-8.0
WT-2 (Sawmill Branch Multi-Use Trail)	186	1	67.6	67.6	66	0.0	15	Snd Lvl	67.6	0.0	8	-8.0
WT-3 (Sawmill Branch Multi-Use Trail)	187	1	64.0	58.6	66	-5.4	15	----	58.6	0.0	8	-8.0
WT-4 (Sawmill Branch Multi-Use Trail)	188	1	65.7	55.4	66	-10.3	15	----	55.4	0.0	8	-8.0
WT-5 (Sawmill Branch Multi-Use Trail)	189	1	63.6	56.3	66	-7.3	15	----	56.3	0.0	8	-8.0
WT-6 (Sawmill Branch Multi-Use Trail)	190	1	67.3	67.3	66	0.0	15	Snd Lvl	67.3	0.0	8	-8.0
WT-7 (Sawmill Branch Multi-Use Trail)	191	1	67.0	67.0	66	0.0	15	Snd Lvl	67.0	0.0	8	-8.0
WT-8 (Sawmill Branch Multi-Use Trail)	192	1	67.7	67.7	66	0.0	15	Snd Lvl	67.7	0.0	8	-8.0
WT-9 (Sawmill Branch Multi-Use Trail)	193	1	67.7	67.7	66	0.0	15	Snd Lvl	67.7	0.0	8	-8.0
WT-10 (Sawmill Branch Multi-Use Trail)	194	1	63.9	63.9	66	0.0	15	----	63.9	0.0	8	-8.0
WT-11 (Sawmill Branch Multi-Use Trail)	195	1	68.0	68.0	66	0.0	15	Snd Lvl	68.0	0.0	8	-8.0
WT-12 (Sawmill Branch Multi-Use Trail)	196	1	68.6	68.6	66	0.0	15	Snd Lvl	68.6	0.0	8	-8.0
WT-13 (Sawmill Branch Multi-Use Trail)	197	1	67.2	67.2	66	0.0	15	Snd Lvl	67.2	0.0	8	-8.0
WT-14 (Sawmill Branch Multi-Use Trail)	198	1	64.4	64.4	66	0.0	15	----	64.4	0.0	8	-8.0
HUNTSMAN CT 1	203	1	56.8	56.8	66	0.0	15	----	56.8	0.0	8	-8.0
HUNTSMAN CT 2	204	1	58.3	58.3	66	0.0	15	----	58.3	0.0	8	-8.0
HUNTSMAN CT 3	205	1	58.5	58.5	66	0.0	15	----	58.5	0.0	8	-8.0
HUNTSMAN CT 4	206	1	60.1	60.1	66	0.0	15	----	60.1	0.0	8	-8.0
348 ORANGEBURG RD	209	1	65.1	65.1	66	0.0	15	----	65.1	0.0	8	-8.0
421 ORANGEBURG RD	210	1	65.3	65.3	66	0.0	15	----	65.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	179	0.0	0.0	0.0
All Impacted	11	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

APPENDIX 10

SCDOT Feasibility & Reasonableness Worksheets

SCDOT Feasibility and Reasonableness Worksheet

Date: Aug 26, 2015

Project Name Berlin Myers Parkway - Phase 3

Highway Traffic Noise Abatement Measure Noise Wall - Thames Ave. Area 20'

Feasibility

Number of Impacted Receivers: 22

Number of Benefited Receivers: 8

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 36

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible. ☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description: Wall length = 1650 ft.

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When mpleting the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 8

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 1

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 12.5

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: $35

Estimated construction cost for noise abatement measure: $1,155,000

Estimated cost per Benefited Receiver: $144,375

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure

SCDOT Feasibility and Reasonableness Worksheet

Date: Aug 26, 2015

Project Name Berlin Myers Parkway - Phase 3

Highway Traffic Noise Abatement Measure NBiSQ Wall - Thames Ave. Area -25'

Feasibility

Number of Impacted Receivers: 22

Number of Benefited Receivers: 11

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 50

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description: Wall length = 1650 ft

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When mpleting the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 11

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 1

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 9

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: $35

Estimated construction cost for noise abatement measure: 1,443,750

Estimated cost per Benefited Receiver: $131,250

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure

SCDOT Feasibility and Reasonableness Worksheet

Date: Aug 26, 2015

Project Name Berlin Myers Parkway - Phase 3

Highway Traffic Noise Abatement Measure Noise Wall - Lucretia Lane Area - 20'

Feasibility

Number of Impacted Receivers	1	Number of Benefited Receivers	1
Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure	0		

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible. ☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description: Wall length = 820 ft

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When mpleting the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 1

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 0

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 0

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: $35

Estimated construction cost for noise abatement measure: $574,000

Estimated cost per Benefited Receiver: $574,000

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure

SCDOT Feasibility and Reasonableness Worksheet

Date: Aug 26, 2015

Project Name Berlin Myers Parkway - Phase 3

Highway Traffic Noise Abatement Measure Noise Wall - Lucretia Lane Area -25

Feasibility

Number of Impacted Receivers: 1

Number of Benefited Receivers: 2

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 0

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description: Wall length = 820 ft.

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When mpleting the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 2

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 0

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable: 0

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: $35

Estimated construction cost for noise abatement measure: $717,500

Estimated cost per Benefited Receiver: $358,750

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure

SCDOT Feasibility and Reasonableness Worksheet

Date: May 18, 2018

Project Name Berlin Myers Parkway, Dorchester County, SC

Highway Traffic Noise Abatement Measure Walking Trail Noise Barrier

Feasibility

Number of Impacted Receivers: 14

Number of Benefited Receivers: 9

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 64

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Wall length = 7,400 feet

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 9

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 2

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 22

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure: 35

Estimated construction cost for noise abatement measure: 5,180,000

Estimated cost per Benefited Receiver: 575,555

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☒ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Noise abatement is not feasible or cost effective for reducing or eliminating noise impacts for this project.

Supplemental Cultural Resource Reports and Concurrence Letters

South Carolina
Department of Transportation

May 14, 2014

Ms. Elizabeth Johnson
Deputy State Historic Preservation Officer
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905

RE: Archaeological Survey of Possible Wetland Mitigation Areas, Proposed SC Route 165 (Berlin Myers Parkway) Extension Project, Dorchester County, SC. PIN: 23349

Dear Ms. Johnson:

Brockington and Associates completed an archaeological survey of portions of the Sawmill Branch floodway that could be impacted by the Berlin Myers Extension Project. Investigators noted that the project's Area of Potential Effects (APE) had been previously disturbed through maintenance activities and utilities.

Based on the results of background research and field investigations, the Department has determined that the proposed undertaking would have **no effect** upon historic properties.

It is requested that you review the enclosed material and, if appropriate, indicate your concurrence in the Department's findings. Please respond within 30 days if you have any objections or if you have need of additional information.

Sincerely,

Chad Long Digitally signed by Chad Long DN: cn=Chad Long, o=SCDOT, ou=ESD, email=longcc@scdot.org, c=US Date: 2014.05.14 08:55:04 -04'00'

Chad C. Long
Archaeologist

CCL:ccl
Enclosure

I ~~(do not)~~ concur in the above determination.

Signed: Sarah Stephens Date: 5/14/14

cc: Shane Belcher, FHWA
Keith Derting, SCIAA
Dr. Wenonah Haire, CIN-THPO

File: Env/RPG1/Dorchester/US 17 AL Berlin Myers

ARCHAEOLOGICAL FIELD REPORT
SCDOT ENVIRONMENTAL SECTION

TITLE: Cultural Resources Assessment of Floodway Mitigation Areas, Berlin Myers Parkway (SC Route 165) Extension Project, Dorchester County, South Carolina
CONSULTANT: Brockington and Associates, Inc. (Brockington)
DATE OF RESEARCH: **June** 2016
ARCHAEOLOGISTS: Larry James and Ralph Bailey
COUNTY: Dorchester
PROJECT: Floodway Mitigation Areas of Berlin Myers Parkway (SC Route 165)

DESCRIPTION: Brockington and Associates, Inc. completed an archaeological survey of Alternate 2 of the proposed extension of the Berlin Myers Parkway in 2003 (Shuler and Bailey 2003). No historic properties were identified within the 100 foot wide Area of Potential Effect (APE). In 2013, Brockington re-surveyed the proposed roadway embankment APE after the USACE and FEMA determined that the floodway encroachment would require mitigation (Baluha and Bailey 2014). The 2013 survey was performed for the additional APE associated with floodplain mitigation adjacent to the proposed roadway alignment. The floodplain mitigation in this area includes excavation along the existing Sawmill Branch to provide floodplain conveyance to offset the proposed roadway fill into the floodplain. The 2013 survey expanded the project area to include the floodplain limits and Sawmill Branch within the area of the proposed roadway project.

The proposed scope of work in the 2016 extended APE, incudes additional floodplain mitigation downstream of the roadway project area extending to just upstream of Dorchester Road along Sawmill Branch. The design team has performed a very detailed hydraulic analysis as part of the USACE permit and review process. The modeling is a complex, unsteady HEC-RAS analysis. The results of the analysis appear to be conservative based on a comparison of the model results versus the actual conditions from the October 2015 storm. The modeled 100-year storm is approximately three feet higher than the conditions observed after the October 2015 storm.

The proposed scope of work includes the removal of the existing spoil berm along the channel. The spoil berms were created during the original construction of Sawmill Branch flood conveyance project by the USACE. As earthen material was excavated, the excavated material was placed adjacent to the Branch. The proposed undertaking will remove the spoil berms and deposit the excavated material outside of the floodplain in upland areas. The spoil berms were placed as part of the original construction of the Sawmill Branch flood improvement project. The spoil berm removal will reduce some of the obstructions along the floodplain and provide additional flow area. The soil from the spoil berms will be deposited in upland areas. There is no attempt to recreate the floodplain. The APE is defined as the area adjacent to Sawmill Branch with the potential for physical impacts. Figure 5 from the 2016 EA re-evaluation is included and identifies the location of the downstream spoil removal floodplain mitigation. This study specifically includes a cultural resources assessment for this additional APE.

LOCATION: The project is located along either side of Sawmill Branch Canal from the Ashley River near Colonial Dorchester State Historic Site northwest to the southern terminus of a section of the canal just west of Bacon's Bridge Road.

USGS QUADRANGLES: *Stallsville, SC* and *Summerville, SC*
DATES: 1979, 1990 **SCALE:** 7.5' **UTM: ZONE:** 17 **DATUM**: NAD27
NORTHERN TERMINUS: EASTING: 576015 **NORTHING:** 3651775
SOUTHERN TERMINUS: EASTING: 573717 **NORTHING:** 3649157

ENVIRONMENTAL SETTING: The APE study area lies within the former channel and floodplain of Bossa/Dorchester Creek, later known as Sawmill Branch and its natural, undisturbed inlet which flows into the Ashely River. The upper portions of the creek have been extensively altered through channelization. The APE study area mostly is graded and open. Several small drainages empty in to the channel. Some of these drainages are open, while some are piped through large concrete or plastic pipes. The drainage is managed by the USACE. Buried sewer and gas lines parallel the channel on both sides and a paved recreational path runs along the channel for most of its

length. The undisturbed portions at the mouth of the creek consist of hardwood uplands and lowland wetlands on both sides of the natural waterway.

NEAREST RIVER/STREAM (DISTANCE): Sawmill Branch (0 feet south)

SOIL TYPES: Grifton fine sandy loam. Poorly drained and frequently flooded.

REFERENCE FOR SOILS INFORMATION: Eppinette, Robert T./1990/*Soil Survey of Dorchester County, South Carolina*. USDA, Soil Conservation Service, Washington, DC.

GROUND SURFACE VISIBILITY: **0% __ 1-25% _X_ 26-50% __ 51-75% __ 76-100% __**

CURRENT VEGETATION: The APE study area near the Sawmill Branch canal is graded and kept clear of vegetation to ensure the channel, buried utilities, and recreational path are maintained. The natural setting along the creeks inlet to the Ashley River is surrounded by hardwood forest and thick bottomland vegetation.

INVESTIGATION: Brockington and Associates completed a cultural resources assessment of the floodway mitigation areas of the Berlin Myers Parkway (SC Route 165) Extension in February 2016. Because the Sawmill Branch has been severely impacted over the years and is well within the floodplain of the former Bossa/Dorchester Creek, the potential for new intact archaeological deposits to be present within the new APE is very low. However, because the mitigation area extends into the natural floodplain of waterway of Bossa/Dorchester Creek and well into the boundary of Old Dorchester National Register Property (now known as Colonial Dorchester State Historic Site), and the Ashley River Historic District there is some potential for impact to known historic properties.

Brockington consulted the NRHP property listings at SCDAH and the state site files at SCIAA to obtain information regarding previous cultural resources investigations and to determine the locations of cultural resources located within 500 feet of the proposed project. This data was accessed through ArchSite (http://archsite.cas.sc.edu/ArchSite), the online cultural resource system sponsored and maintained by SCDAH and SCIAA. Below we summarize the cultural resources investigations that have occurred in the area and the archaeological and architectural resources located within 500 feet of the proposed project.

Five relevant studies have occurred within 500 feet of the project: The Ashley River: A Survey of Seventeenth Century Sites (Hartley 1984), the Archeological Survey of the Proposed SC Route 642 Improvements Project (Fletcher et al. 2007), the Archaeological Survey of Possible Wetland Mitigation Areas, Proposed SC Route 165 (Berlin Myers Parkway) Extension Project (Baluha and Bailey 2014) (Figure 2).

The Ashley River: A Survey of Seventeenth Century Sites (Hartley 1984)
In the mid-1980s, The University of South Carolina, Institute of Archaeology and Anthropology, conducted a reconnaissance survey of residential home sites documented on the Thorton-Morden map (1695). Investigators recorded one site (38DR0093) within 500 feet of the project area. Site 38DR0093 is listed as potentially eligible for the NRHP. The site is situated on high ground above the current and proposed 100 year flood line and therefore will not be impacted by the proposed undertaking.

The Archeological Survey of the Proposed SC Route 642 Improvements Project (Fletcher et al. 2007).
Brockington conducted an intensive cultural resources survey of the proposed SC Route 642 Improvement Project in Dorchester County, South Carolina. We identified five historic architectural resources (prefix [491] 1147, 1148, 1149, 1150, and 1151). All five sites are not eligible for the NRHP. None of the resources are within 500 feet of the project APE.

Cultural Resources Survey of the Proposed SC Route 165 Improvement Project, Dorchester County, South Carolina. (Salo et al. 2007)
Brockington conducted an intensive cultural resources survey of the proposed SC Route 165 Improvement Project. No documented resources are within 500 feet of the project APE.

The Archaeological Survey of Possible Wetland Mitigation Areas, Proposed SC Route 165 (Berlin Myers Parkway) Extension Project (Baluha and Bailey 2014)
Brockington completed an archaeological survey of possible wetland mitigation areas of Alternate 2 of the proposed extension of the Berlin Myers Parkway surveyed in 2003 (Shuler and Bailey 2003). No additional resources were recorded during the survey.

Three archaeological sites (38DR0003, 38DR0093, and 38DR0368), one previously identified historic resource ([prefix 491] 0872), and one Historic District are located within 500 feet of the project tract.

Colonial Dorchester State Historic Site (38DR0003)/Old Dorchester Historic Property: In January of 1697, a group of Puritan Dissenters from Boston founded the town of Dorchester. Strategically located at the highest navigable point of the river, the village was positioned between the undeveloped frontier and the expanding colonial progression. Dorchester emerged as an attractive place of trade during the early-to-mid eighteenth century, as local Anglican traders and planters bought property, conducted trade, and built the St. George Parish Church (1715). The British army left a path of destruction in their wake burning St. George's Church and a number of buildings in the town. The town never recovered and was left abandoned. Today the site is protected as an archaeological preserve called Colonial Dorchester State Historic Site (Bell 1995).

In 1969, Colonial Dorchester SHS or "Old Dorchester" was listed on the National Register of Historic Places (entry No. 69.1241.0009). The site's contributing elements include: the ruins of the St. George Parish church and cemetery, a tabby fort, a market square, two crib docks, and several foundations of former buildings. A plan of the town was drafted in 1742 depicting the eighteenth-century town as a commercial and residential "place of trade" that included 52 quarter-acre parcel lots (Bell 1995). The Park's current 7-acre boundary between the Ashley River, Dorchester Road, and the Bossa/Dorchester Creek encompasses the entire footprint of the former town. The current APE study area intercepts a large portion of this boundary. Figure 3 presents an aerial photograph showing the project flood impacts to this resource based on current conditions compared to flood impacts based on proposed conditions. Based on this model, a small portion of the entrance road to the park near Dorchester Road would be impacted by 100 year flooding under the proposed conditions. None of the structures or archaeological resources associated with the park would be affected.

Site 38DR0093/Resource 491 0872: This is a surface scatter of seventeenth and early eighteenth-century artifacts located within the confines of an unnamed twentieth century cemetery (491 0872) located north of Dorchester Road. The site was first discovered by Michael Hartley and Stanley South of the USC Institute of Archaeology and Anthropology in the mid-1980s (Hartley 1984). Their surface inspection interpreted the site as the possibly location of the "Mr. Norman" residence, documented on the Thorton-Morden map (1695). However, further examination of historical plats by historian H.A.M. Smith (1988) shows the location of the Norman Tract further to the west, near the present-day intersection of Dorchester Road (SC 642) and Bacon's Bridge Road (SC 165). Site 38DR0093 has not been assessed for NRHP eligibility. The cemetery (491 0872) is has also not been assessed for the NRHP; however, it is protected by state cemetery laws. Both sites are located on the western side of the APE near its northern terminus. Both areas are situated on high ground above the current and proposed 100 year flood line and therefore will not be impacted (see Figure 3).

Site 38DR0368: This is a subsurface scatter of Pre- and Post-Contact artifacts located approximately 1,312 feet north of the Dorchester Road crossing of the Sawmill Canal. The site is situated between a wooded area 40 m west of the canal and a drainage ditch located 35 m to the north. The site was documented by Brockington during the cultural resource survey of the SC Route 642 potential storm water pond sites project but was removed from the project area at the time of discovery (Fletcher 2008; Fletcher and Salo 2008). The site represents possibly intact deposits from Pre-Contact occupations associated with the Ceramic Late Archaic through Middle Woodland Periods. Site 38DR0368 has not been assessed for NRHP eligibility. The site is located on the western side of the APE near its southern-most terminus. Site 38DR0368 is within the 100 year flood line under current conditions; the addition of approximately one additional inch of water under the proposed conditions would have no additional impact (see Figure 3).

The Ashley River Historic District: This is a 23,828.26-acre significant cultural landscape bounded by the Ashley River, the Ashley-Stono Canal, and former roads, the buildings, structures, landscape features, and archaeological sites of the late-17th century through the mid-20th century situated along the banks of the Ashley River. The district contains 136 contributing resources and 68 noncontributing resources. The large area was listed in the National Register September 12, 1994; the limits of the district were increased on October 22, 2010. The District's northern boundary overlaps with the Old Dorchester Historic Property southern and eastern boundaries. Both historic properties intersect with the southern terminus of the APE. As stated above, the additional impacts of flooding based on proposed conditions would be very minor and limited to the northern terminus of the park entrance road near its intersection with Dorchester Road. The park entrance road crosses the floodplain and already floods from time to time.

FIELD INVESTIGATIONS: Field investigations were not necessary for this review. A literary review of the sites within a 500 feet radius of the expanded APE was sufficient enough to verify the absence of historic landscape features located in the study area. By examining the current boundary, it is clear the southernmost terminus of the APE study area intercepts large portions of the site 38DR0003 and the Ashley River Historic District would be most affected by the undertaking. To illustrate this observation, we were able to retrieved images of the park and Bossa/Dorchester Creek during the most recent flood in October 2015. Figures 4-6 show the Dorchester Creek Bridge at Dorchester Road and Colonial Dorchester State Historic Site during the October 2014 flooding that are currently within APE study area (images courtesy of Park Manager, Ashley Chapman).

REMARKS AND RECOMMENDATIONS: There are several previously recorded cultural resources within the APE. Site 38DR0003 is located at the southernmost terminus of the project area and consists of a nationally significant historic property and state park known as Colonial Dorchester. In addition, the Ashley River Historic District extends within the same footprint of the proposed APE study area that encompasses a majority of the southern extreme of the project area. Proposed conditions under the floodway mitigation project would impact a small portion of the entrance road to the park. The entrance road crosses the Dorchester Creek floodplain and already floods in areas from time to time. This small amount of additional flooding along the entrance road and would have no adverse effect on these historic properties.

Site 38DR0368 is situated in an area of upland woods 40 m west of the canal but is surrounded by low, drained wetlands once associated with the former creek. Site 38DR0093 is a surface scatter of seventeenth and early eighteenth-century artifacts. Resource 491 0872 is an historic cemetery. The cemetery has not been assessed for NRHP eligibility; however, it is protected by state cemetery laws. Both of these resources are situated on high ground above the current and proposed 100 year flood line and will not be impacted by the undertaking. Site 38DR0368 has not been assessed for NRHP eligibility. Site 38DR0368 is within the 100 year flood line under current conditions; the addition of approximately one additional inch of water under the proposed conditions will have no additional impact on this resource.

SIGNATURE: _____ **DATE:** June 15, 2016

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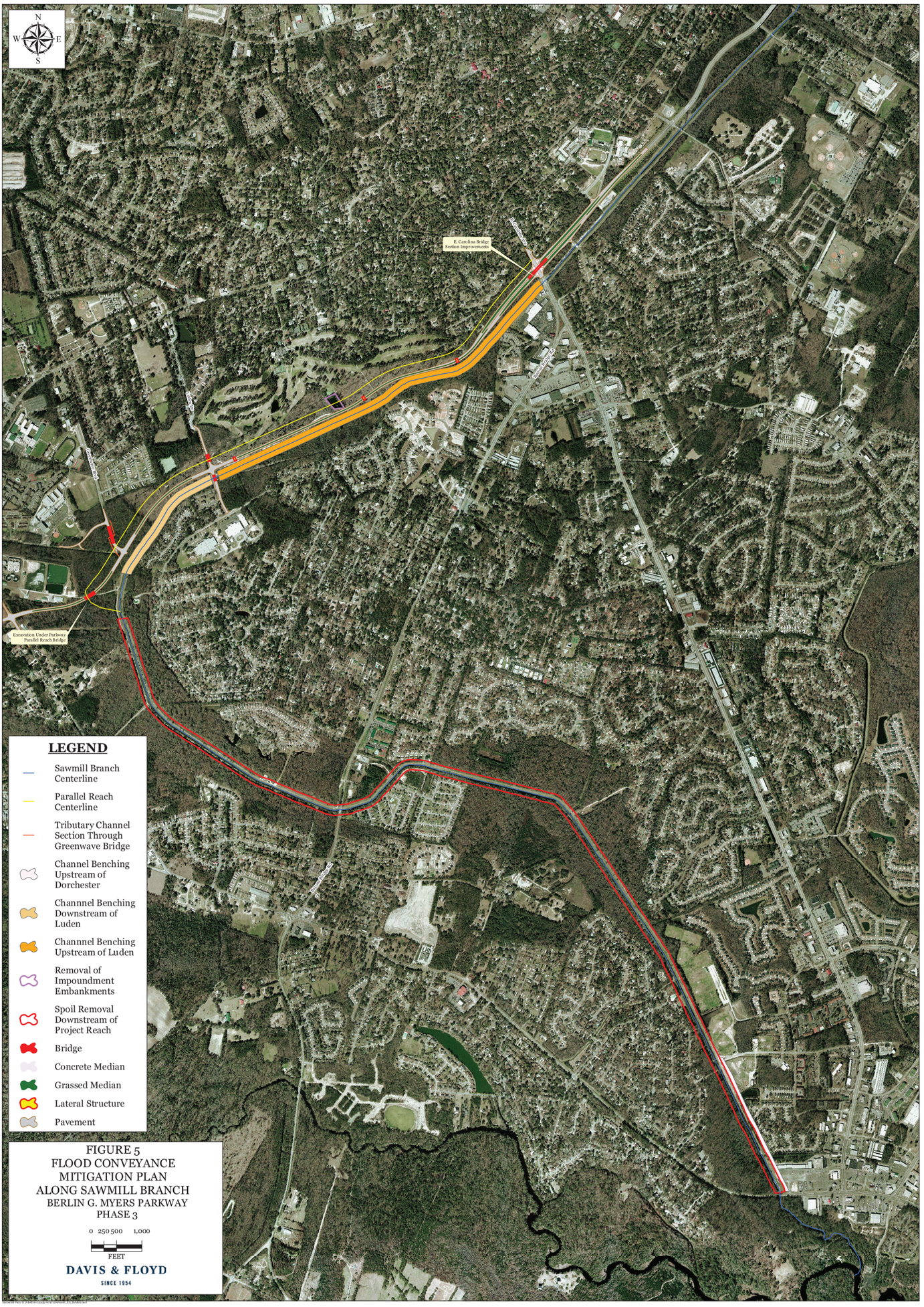

Figure 1. The 2016 Environmental Assessment re-evaluation showing the location of the downstream spoil removal floodplain mitigation.

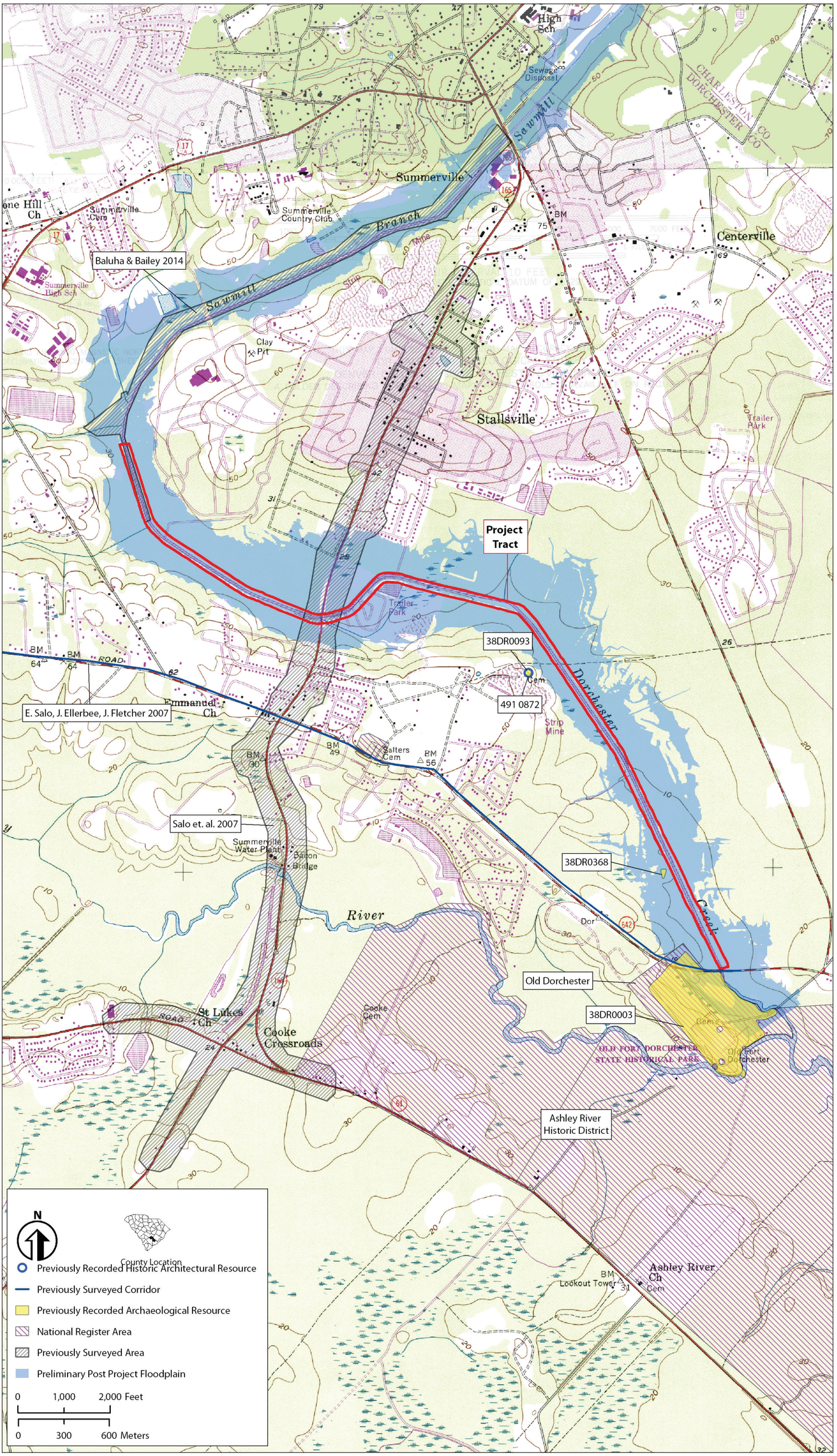

Figure 2. Quadrangle map showing resources within 500 ft. buffer.

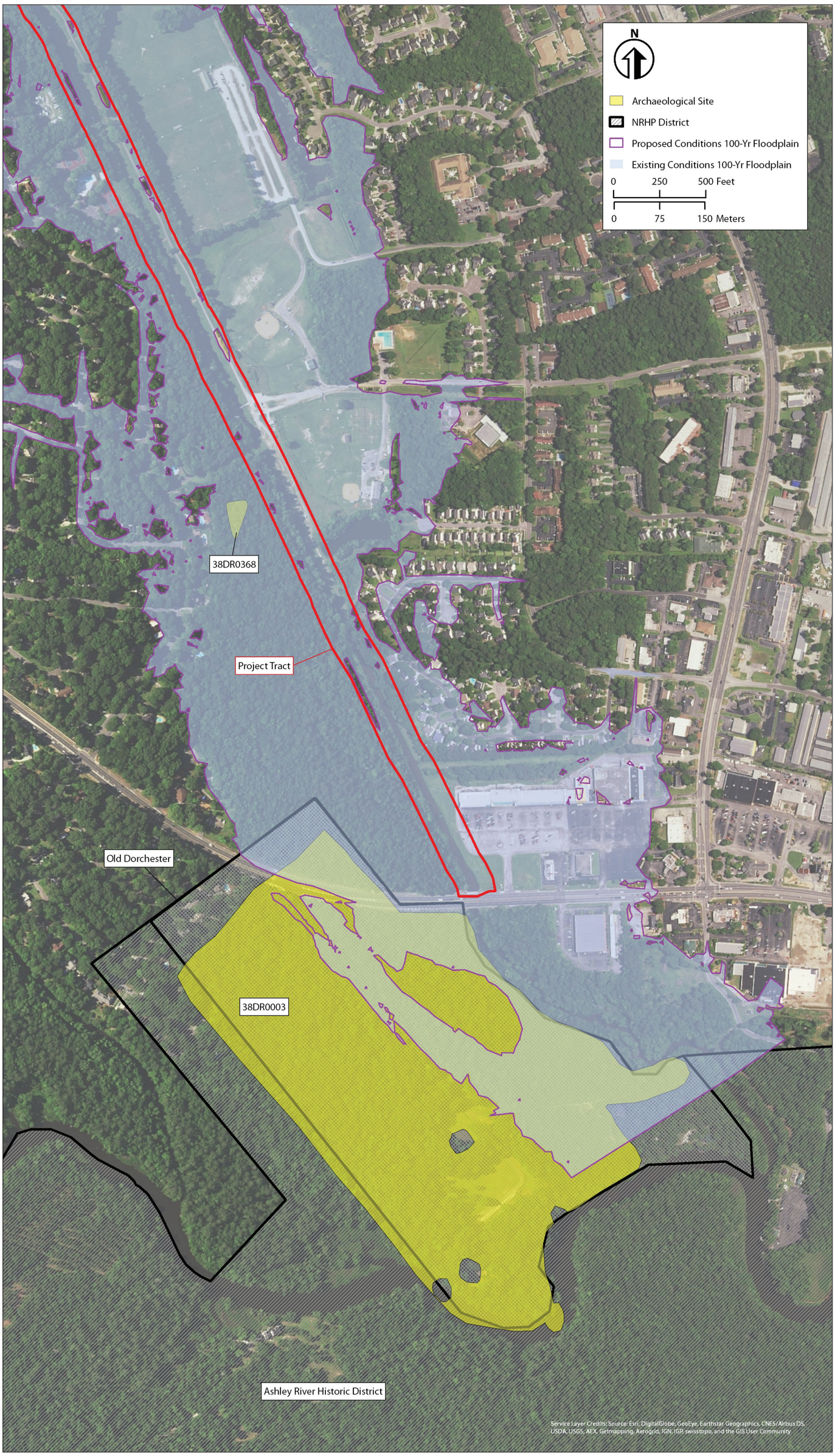

Figure 3. Map of the project area showing the impacts of 100 year flooding based on current conditions compared to proposed conditions.

Figure 4. Dorchester Road Bridge during recent flooding in October 2015, facing east.

Figure 5. Dorchester State Historic Site during recent Ashley River flooding in October 2015, facing south.

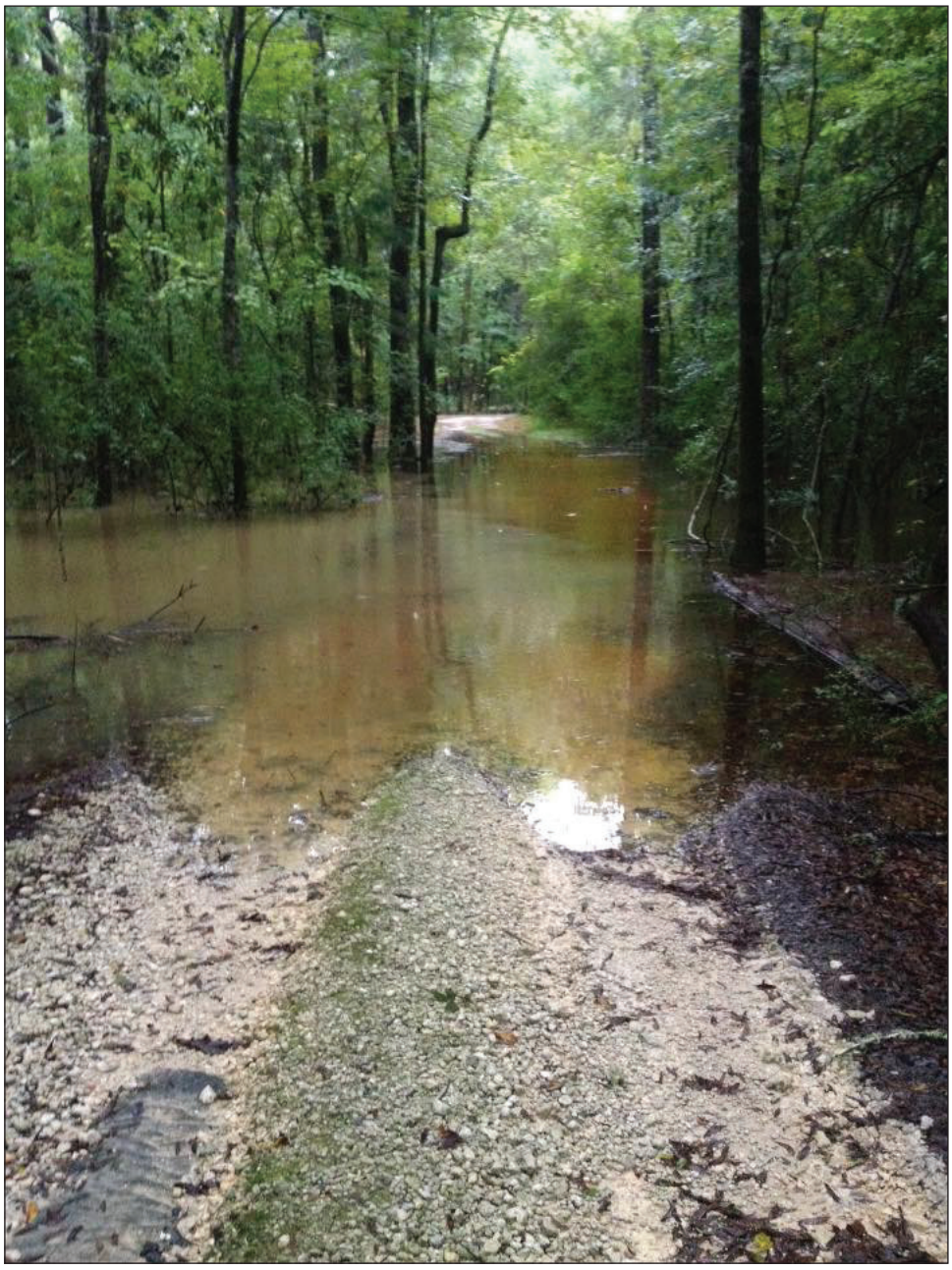

Figure 6. Dorchester State Historic Site near Dorchester Creek during flooding in October 2015, facing east.

SCDOT
South Carolina
Department of Transportation

May 19, 2016

Ms. Elizabeth Johnson
Deputy State Historic Preservation Officer
South Carolina Department of Archives & History
8301 Parklane Road
Columbia, South Carolina 29223-4905

Re: Cultural Resources Assessment of Floodway Mitigation Areas, Berlin Myers Parkway (SC Route 165) Extension Project, Dorchester County, South Carolina

Dear Ms. Johnson:

Enclosed is a copy of a cultural resources assessment of proposed floodway mitigation areas associated with Phase III of the Berlin Myers Parkway Extension Project in Dorchester County, South Carolina. The proposed scope of work includes the removal of the existing spoil berm along the channel. The spoil berms were created during the original construction of the Sawmill Branch flood conveyance project by the United States Army Corps of Engineers. The floodplain mitigation required for the extension of Berlin Myers Parkway includes the excavation, removal, and off-site disposal of the spoil berms.

The analysis of the proposed ground disturbing activities associated with the excavation and removal of the spoil berms determined that no field investigations were necessary since the work would be restricted to areas previously disturbed by construction activities associated with the construction of the Sawmill Branch flood conveyance project. Further analysis of the areas subject to additional downstream flooding (one additional inch of water) took into consideration potential impacts on Colonial Dorchester State Historic Site and associated resources. The entrance road to the park is already subject to flooding as witnessed during the October 2015 flood event. The additional flooding that would occur to the park and archaeological site 38DR368 (currently unassessed for National Register eligibility) would have no adverse effect upon these resources.

Based on the results of the cultural resources assessment, the Department has determined that the proposed undertaking will have **no adverse effect upon historic properties**.

Per the terms of the Section 106 Programmatic Agreement executed on August 18, 2014, the Department is providing this information on behalf of the Federal Highway Administration.

It is requested that you review the enclosed material and, if appropriate, indicate your concurrence with SCDOT findings, thus completing the Section 106 consultation process. Please respond within 30 days if you have any objections or if you have need of additional information.

Sincerely,

Chad C. Long
Archaeologist/NEPA Coordinator

CCL:ccl

I (~~do not~~) concur in the above determination.

Signed: _____ Date: 27 June 2016

ec: Shane Belcher, FHWA

cc: Ashley Chapman, Colonial Dorchester Historic Site

File: ENV/CCL

Post Office Box 191
Columbia, South Carolina 29202-0191
Phone: (803) 737-2314
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Memo

Date:	Thursday, October 05, 2017
Project:	Berlin Myers Parkway Phase 3
To:	Mark Mohr – SCDOT Chad Long -- SCDOT
From:	Josh Fletcher, RPA -- HDR
Subject:	Cultural Resource Review

A cultural resources survey report for the Berlin Myers Parkway – Phase 3 project was completed in 2005, which concluded that the project would have no adverse impacts on any archaeological sites or historic properties. The South Carolina State Historic Preservation Officer (SHPO) concurred with this finding.

The project is located in proximity to the Summerville Historic District, and through coordination with SCDOT, SHPO concurred that the project would have no adverse impacts on the district. However, SCDOT, FHWA, and SHPO entered into a Memorandum of Understanding (MOU) (included in the 2006 EA) to allow consultation to ensure that the design of the proposed interchange bridge at E. Carolina Avenue would not create a negative visual impact on the Summerville Historic District. This MOU was signed in March 2006. SHPO and other interested parties were allowed to review the design of the bridge and lighting and offer comments on this design prior to any construction.

Subsequent to that original cultural resources survey, it was determined that mitigation efforts associated with floodplain impacts would be necessary to ensure no changes in flood elevations as a result of this project. These mitigation efforts are located outside of the area covered by the original cultural resources survey. Therefore, in March 2014, a supplemental archaeological survey was conducted by Brockington and Associates (Baluha and Bailey 2014) in possible floodway mitigation areas. No cultural resources were identified during this survey and SHPO concurred with the results of the survey on May 14, 2014.

Subsequent to the 2014 supplemental survey, it was determined that mitigation for flood conveyance impacts would require removal of the spoil berm adjacent to Sawmill Branch from the location of the Summerville CPW pump station located near the wastewater treatment plant, down to Dorchester Road. Therefore, a second supplemental cultural resources survey was conducted along this segment of Sawmilll Branch. This report identified three sites (38DR03, 38DR093, and 38DR368), one resource (491 0872 – an unnamed twentieth century cemetery), and one historic district (The Ashley River Historic District) that could potentially be adversely affected by the mitigation efforts. The report recommended avoidance to any alterations or dramatic changes to these resources. The mitigation efforts have been designed to avoid any impact to these resources. The report concludes that with these mitigation efforts, the project

would have no adverse effect on these historic properties. The SHPO concurred with the results of the 2016 study on June 27, 2016.

On October 3, 2017, a review of the study area was conducted on ArchSite, South Carolina's online cultural resources system that combines data from recorded archaeological sites, above-ground resources, and cultural resource investigations. The review was conducted to determine if any additional cultural resource survey is needed for the Preferred Alternative, as well as for the areas that may be impacted by increased water surface elevations along Sawmill Branch. Through a desktop review and per conversations with SCDOT Environmental Services Office, it was determined that **no additional archaeological or architectural survey is necessary.**

An examination of Google Earth along the previously surveyed Preferred Alternative indicates that there are likely no additional survey-eligible (50 years or older) structures that were not already surveyed during Brockington and Associates' 2003 survey. Additionally, it does not appear that there are any survey-eligible structures in neighborhoods adjacent to Sawmill Branch, all the way down to its intersection with Dorchester Road.

References Cited

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Protected Species Assessment

Berlin G. Meyers Extension Corridor

Dorchester County, South Carolina

March 9, 2016

South Carolina Department of Transportation

Project ID: 0023349

TIDEWATER
A JMT Division

Protected Species Assessment

Berlin G. Meyers Parkway Extension Corridor

Dorchester County, South Carolina

South Carolina Department of Transportation (Project ID – 0023349)

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APPENDICES

1.0 INTRODUCTION

1.1 Project Description

South Carolina Department of Transportation (SCDOT) proposes to extend the Berlin G. Meyers Parkway, from its current terminus at East Carolina Avenue, to Orangeburg Road. Refer to **Figure 1** for a map of the project location. Development of the proposed extension will include the roadway construction, sidewalks and maintenance work throughout the project corridor. Sawmill Branch Canal will be widened in several locations, requiring removal of the adjacent maintenance berm approximately 2-4' above the ordinary high water mark (OHWM). The maintenance berm will be moved further upslope.

A Threatened and Endangered Species Study was completed in June 2015 for the above project area resulting in a finding of "not likely adversely affected" to federally listed endangered and/or threatened species (**Appendix A**). The floodplain mitigation design for the project enlarged the footprint of the project to include the overbank areas of Sawmill Branch downstream of the project. The mitigation design will include excavating fill placed along the Branch Channel from the project area to just upstream of the Ashley River. The Threatened and Endangered Species study for the project was revised to reflect the additional project area and this biological assessment encompasses the entire project area.

1.2 Purpose

The primary purpose of the project is to improve traffic flow in the region and relieve traffic congestion on Highway 17-Alternative.

1.3 Methodology

A literature search and an on-site survey were conducted to determine the likelihood of the presence or absence of each of the species identified in the USFWS South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species for Dorchester County (**Appendix B**). The literature search was used to identify species of interest to the project area, their specific habitat requirements and known populations within the area. Project biologists coordinated with Julie Holling of South Carolina Department of Natural Resources (SCDNR) to confirm potential protected species occurrences. Aerial photography (**Figure 3**) and a site investigation were used to identify possible habitat within the project boundary.

Numerous field reviews of the project corridor were conducted between February 2014 and January 2016. Tidewater/JMT biologists reviewed the project corridor for community types and protected species habitat, most recently in January 2016. Results of previous wildlife surveys conducted within the project area, and USFWS communications are provided in Appendix C.

2.0 ENVIRONMENTAL SETTING

The project site is located in a predominantly undeveloped area of Dorchester County which is comprised of remnant bottomland hardwood swamp habitat, mixed hardwood/pine forest, freshwater non-tidally influenced ditches and channels, and ruderal areas consisting of ditch edges and Sawmill Branch Canal maintenance berms. A golf course and residential properties are also located within the project corridor.

Vegetation within the remnant bottomland hardwood swamp areas consists of:

Bald cypress (*Taxodium distichum*)
Red maple (*Acer rubrum*)
America elm (*Ulmus americana*)
Sweetgum (*Liquidambar styraciflua*)
Swamp tupelo (*Nyssa biflora*)
American sycamore (*Planatus occidentalis*)
Chinese privet (*Ligustrum sinense*)
Common fetterbush (*Lyonia lucida*)
Wax myrtle (*Myrica cerifera*)
Slender wood oats (*Chasmanthium laxum*)
Netted chain fern (*Woodwardia areolata*)
Virginia chain fern (*Woodwardia virginica*)
False nettle (*Boehmeria cylindrica*)
Royal fern (*Osmunda regalis*)
Poison ivy (*Toxicodendron radicans*)
Muscadine (*Vitis rotundifolia*)
Crossvine (*Bignonia capreolata*)

Vegetation within the mixed hardwood/pine forest areas consists of:

Loblolly pine (*Pinus taeda*)
Water oak (*Quercus nigra*)
Black gum (*Nyssa sylvatica*)
Chinese privet (*Ligustrum sinense*)
Partridge berry (*Mitchella repens*)
Switchcane (*Arundnaria gigantea*)
Virginia creeper (*Parthenocissus quiquefolia*)
Longleaf wood oats (*Chasmanthium sessiliflorum*)
Wax myrtle
Netted chain fern
Red maple
Poison ivy
Muscadine

Vegetation within the residential areas within the project corridor consists of:
English ivy (*Hedera helix*)
Crepe myrtle (*Lagerstroemia indica*)
Live oak (*Quercus virginiana*)
Yaupon (*Ilex vomitoria*)
American holly (*Ilex opaca*)
Japanese camellia (*Camellia japonica*)
American beautyberry (*Callicarpa americana*)
Southern Indica Azalea (*Rhododendron indica*)
Virginia creeper
Loblolly pine
Sweetgum
Red maple
Poison ivy

Little, to no, vegetation occurs within the freshwater channels and ditches within the project corridor. Alligatorweed (*Alternanthera philoxeroides*) occurs within Sawmill Branch Canal sporadically. Sparse mature Loblolly pine and Bermuda grass (*Cynodon dactylon*) are located within the golf course areas within the project corridor. Ruderal areas are commonly vegetated with species such as bahiagrass (*Paspalum notatum*), Vasey's grass (*Paspalum urvillei*), common dandelion (*Taraxacum officianale*), and white clover (*Trifolium repens*). Please refer to **Appendix C** for representative photo descriptions of existing conditions.

3.0 THREATENED AND ENDANGERED SPECIES

The Endangered Species Act (ESA) of 1973, as amended, is the federal regulatory tool that serves to administer permits, implement recovery plans, and monitor listed endangered and threatened species. The USFWS and the National Oceanic and Atmospheric Administration (NOAA) share responsibility for administration of the ESA. The amended Act provides for the conservation of threatened and endangered species and the habitat upon which they depend. Species with the federal classification of Endangered (E) or Threatened (T) are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range", and the term "threatened species" is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532). Tidewater/JMT conducted a protected species assessment to determine the likelihood for protected species presence within the project boundary.

3.1 Background Information

A review of the South Carolina List of At-Risk, Candidate, Endangered and Threatened Species provided by the USFWS (updated August 10, 2015) indicated that the aquatic and natural resources in Dorchester County can support the following known Federally Threatened and Endangered species, and species protected by the Bald Eagle and Golden Eagle Protection Act (BGEPA):

Common Name	Scientific Name	Status
American chaffseed	*Schwalbea americana*	E
Atlantic sturgeon	*Acipenser oxyrinchus*	E
Bald eagle	*Haliaeetus leucocephalus*	BGEPA
Canby's dropwort	*Oxypolis canbyi*	E
Pondberry	*Rudbeckia heliopsidis*	E
Red-cockaded woodpecker	*Picoides borealis*	E
Shortnose sturgeon	*Acipenser brevirostrum*	E
Wood stork	*Mycteria americana*	T

A review of the SCDNR's Heritage Trust's Rare, Threatened, and Endangered Species Inventory did not reveal any occurrences of protected species within or near the project area.

3.2 Discussion by Species

American chaffseed – American chaffseed is a perennial herb with large, purplish-yellow flowers. It occurs in seasonally moist to dry sandy and acidic soils. It is found in fire-maintained savannas open, moist pine flatwoods, open sedge/grass systems, and ecotonal areas between xeric sandy soils and peaty wetlands. Chaffseed habitat requires disturbance through mowing, fire or changing water tables.

Suitable habitat for American chaffseed is not present within the project area, nor was the species observed during the site investigation. Based upon these findings, it is determined that the project will have a biological conclusion of ***'no effect'*** on American chaffseed.

Atlantic Sturgeon – The Atlantic sturgeon is a large, estuarine dependent, anadromous fish that can grow to approximately 14 feet (4.3 m) long and can weigh up to 800 pounds (370 kgs). The coloration of the fish is generally bluish-black or olive above, lighter on the sides, and white below. Atlantic sturgeon are similar in appearance to shortnose sturgeon, but can be distinguished by their larger size, smaller mouth, different snout shape, and scutes. The Atlantic sturgeon occurs in large river systems, estuaries and marine waters along the east coast of North America.

Suitable habitat for the Atlantic sturgeon is not present within the project area, nor was the species observed during the site investigation. Historically, bottomland swaps in the area may have supported spawning of this species. However, manmade channelization and ditching is has destroyed any suitable habitat. Sawmill Branch Canal is perennially flowing with a range of depth from several inches to several feet depending on recent rainfall events and seasonal changes. A series of check dams near its connection to the Ashley River prevent the upstream flow of most aquatic vertebrate species. Based upon these findings, it is determined that the project will have a biological conclusion of ***'no effect'*** on Atlantic sturgeon.

Bald eagle – The bald eagle was listed as endangered on March 11, 1967 (USFWS 1967). The species was reclassified from endangered to threatened throughout the lower 48 states on July 12, 1995 (USFWS 1995a). The U.S. Department of the Interior declassified the species from threatened throughout the lower 47 states, with the exception of Arizona, on August 9, 2007 (USFWS 2007). The species remains protected under the Bald Eagle and Golden Eagle Protection Act.

The bald eagle, with a wingspan of nearly 7 feet, is mainly dark brown and adults have a pure white head and tail. The bald eagle's diet consists primarily of fish but it is known to feed on a variety of bird, mammal, and turtle species when fish are not readily available (USFWS 1989). It nests in large, sturdy tress typically near large open water bodies. The nesting season in the Southeast extends from October to May 15 (USFWS 1987).

Marginal foraging and nesting habitat occurs within freshwater channels and ditches and within the golf course and remnant bottomland hardwood swamps respectively. There are large, sturdy loblolly pines within the golf course which could serve as a nesting sites for the bald eagle. However, disturbance from golf course activities may reduce the likelihood of a bald eagle nesting within this habitat. Several suitable trees are also located within the remnant bottomland hardwood swamp habitat. No nests were observed within this habitat during the site investigation. However, not all suitable trees were observed. Additionally, there are no documented or survey sightings of bald eagle nest within the project corridor and no derelict bald eagle nests were observed during the site investigation.

A formal effect determination is not made for the bald eagle as it is not protected by the ESA. This project is not likely to adversely affect the bald eagle.

Canby's dropwort – Canby's dropwort is a 2.6 - 3.9 feet tall perennial herb, with white compound umbel flowers. It occurs in a variety of coastal plain habitats, such as grass/sedge dominated Carolina bays, natural ponds dominated by pond cypress, wet pine savannas, cypress/pine sloughs or swamps and shallow pineland ponds with acidic peat mucks or sandy loams underlain by clay layers.

Suitable habitat for the Canby's dropwort is not present within the project area, nor was the species observed during the site investigation. Historic manmade channelization and ditching is expected to have destroyed any suitable habitat within the old growth bottomland forest within the project corridor. Based upon these findings, it is determined that the project will have a biological conclusion of ***'no effect'*** on Canby's dropwort.

Pondberry – Pondberry deciduous shrub with pale yellow flowers. It occurs in wetland habitats including the margins of ponds, sinks or other depressions in coastal areas and hardwood and bottomlands in interior sites.

Suitable habitat for the Pondberry is not present within the project area, nor was the species observed during the site investigation. Historic manmade channelization and ditching is expected to have destroyed any suitable habitat within the old growth bottomland forest within the project corridor. Based upon these findings, it is determined that the project will have a biological conclusion of ***'no effect'*** on Pondberry.

Red-cockaded woodpecker (RCW) – The RCW is about 7 inches long, with a wingspan of about 15 inches. It is 1 of 8 woodpecker species that inhabit the southeast (USFWS 2002).

The RCW is endemic to mature, open pine forest of the southeast, where it is the only woodpecker known to excavate its roosting and nesting cavity in living pine trees. The species is known to prefer longleaf pine (*Pinus palustris*) forest, however it has been found to inhabit other southern pines. The aggregate of cavity trees is called a cluster and may include 1 to 20 cavity trees in a 3 to 20 acre area (USFWS 2002). Cavity trees must be in open pine stands with little or no hardwood midstory and few or no overstory hardwoods. Hardwood encroachment resulting in fire suppression is a well-known cause of cluster abandonment. For the purpose of surveying, suitable nesting habitat consists of pine, pine-hardwood, and hardwood-pine stands that contain pines 60 years in age or older and that are within 0.5 mile of suitable foraging habitat (USFWS 2003).

RCWs also require abundant foraging habitat, where they feed primarily on insects in the egg, larvae and adult stages, with a small portion of their diet being made up of fruits and seeds (USFWS 2002). For the purpose of surveying, suitable foraging habitat consists of open pine forest where trees are generally 30 years in age or older (USFWS 2003). Suitable nesting or foraging habitat for the RCW, such as an open pine forest, is not present within the project area and no individuals were observed or heard during the site investigation. Furthermore, there are no known occurrences of RCW within the project area. Based upon these findings, it is determined that the project will have a biological conclusion of ***'no effect'*** on RCW.

Shortnose Sturgeon – The shortnose sturgeon is a medium sized fish with mature females reaching a size of approximately 47 inches in length and mature males reaching a size of approximately 32 inches in length (SCDNR 2005). The coloration of the fish is generally brownish above, lighter on the sides, and white below. The species is distinct from the Atlantic sturgeon in that the adult shortnose sturgeon is much smaller than the adult Atlantic sturgeon (SCDNR 2005).

The shortnose sturgeon occurs in estuaries and rivers along the east coast of North America (NOAA 1998). The species prefers the nearshore estuarine and riverine habitat of large river systems (NOAA 2008) and is probably more commonly found in areas with salinities between 1-2

ppm (Crance 1986). The shortnose sturgeon is anadromous, living mainly in the slower moving tidal estuarine or brackish channels, and migrating periodically into freshwater reaches to spawn (SCDNR 2005). Typically, shortnose sturgeons spawn at the farthest upstream location to which they have access. Due to the highly migratory nature of the shortnose sturgeon, this species requires access to an expansive variety of high quality freshwater and marine habitats (SCDNR 2005). The species has been found to spend most of their life in their natal river systems, only occasionally entering the marine environment (NOAA 1998). There are five known populations, based on river basin, of shortnose sturgeon in South Carolina: the Waccamaw-Pee Dee, Santee, Cooper, ACE Basin (Ashepoo, Combahee and Edisto Rivers) and Savannah River drainage basins (SCDNR 2005).

Spawning typically occurs in tidally influenced freshwater areas during the spring when water temperature is 9 to 14 °C (Crance 1986). However, some shortnose sturgeons have been known to migrate to freshwater spawning sites during the fall where they will overwinter in deep areas until spring. In South Carolina, studies indicate that maturing fish begin their spawning migration in January or February (Crance 1986). Spawning generally occurs in deep freshwater areas where the dominate substrate type is a combination of gravel, rubble and/or cobble and where water velocities are between 36 and 125 cm/s (Crance 1986).

Post-spawning fish generally migrate downstream to summer feeding grounds (Crance 1986). Juvenile shortnose sturgeons may remain in freshwater areas year-around until they reach 2 to 8 years of age or may choose to move rapidly down river and into brackish water or the freshwater-saltwater interface (Crance 1986). Overwintering typically occurs in deep estuarine environments with moderate tidal currents (Crance 1986).

The shortnose sturgeon is a benthic feeder. Juveniles are thought to live in deep channel regions feeding on benthic insects and crustaceans (NOAA 2008). Adults are thought to feed primarily on mollusks and large benthic crustaceans and insects (NOAA 2008). During the summer, adults forage in shallow midestuary areas with little or no current where salinities range from about 0.5 to 3 ppt (Crance 1986). Foraging sites typically occur in saline areas over gravel-silt bottoms, and in freshwater areas with shallow, muddy bottoms and abundant macrophytes (Crance 1986).

Suitable habitat for the Shortnose sturgeon is not present within the project area, nor was the species observed during the site investigation. Historically, bottomland swaps in the area may have supported spawning of this species. However, manmade channelization and ditching is expected to have destroyed any suitable habitat. Sawmill Branch Canal is perennially flowing with a range of depth from several inches to several feet depending on recent rainfall events and seasonal changes. A series of check dams near its connection to the Ashley River prevent the upstream flow of most aquatic vertebrate species. Based upon these findings, it is determined that the project will have a biological conclusion of ***'no effect'*** on Shortnose sturgeon.

Wood stork – The wood stork is a large, long-legged wading bird, about 45 inches tall, with a wingspan of 60 to 65 inches. The plumage is white except for black primaries and secondaries and a short black tail. The head and neck are largely unfeathered and dark gray in color. The bill is black, thick at the base and slightly decurved. Immature birds have dingy gray feathers on their head and a yellowish bill (USFWS 1990b).

Wood storks can be found in swamps, marshes and ponds in the southern United States and as far south as Argentina in South America, where they walk along slowly in shallow waters looking for food such as small fish, tadpoles and crayfish. The wood stork is a resident late winter breeder in lowland wetlands and builds large stick nests in the tops of mature trees. Wood storks live in colonies called rookeries.

Suitable foraging habitat and marginal nesting habitat for wood stork occur within the project corridor. Although no nests or individuals were observed during the site investigation, individuals have been historically been observed foraging within the Sawmill Branch Canal. Some bald cypress trees within the bottomland hardwood swamp areas may provide suitable nesting locations, however, a lack of surface water due to historic channelization and ditching is likely to reduce the likelihood of wood stork nesting in this location. Based upon these findings, it is determined that the project will have a biological conclusion of ***'may affect, not likely to adversely affect'*** wood stork.

4.0 DETERMINATION OF EFFECT

A review of the project corridor by biologists did not identify the presence of, or habitat for, any federally protected species except wood stork and bald eagle.

Wood stork foraging habitat may be lost due to clearing of forested habitat within the project corridor. However, Sawmill Branch Canal should provide a suitable alternative for wood stork foraging. It is considered unlikely that addition pedestrian and vehicular traffic will result in impact to wood storks given their previously observed use of Sawmill Branch Canal. However, further consultation may be required with USFWS given the likely temporary impacts to foraging habitat.

Bald eagle are unlikely to nest within, or in close proximity to, the project corridor given human encroachment and high pedestrian traffic within the project corridor. Foraging is more likely to take place within the nearby Ashley River with open, deep-water aquatic habitat, outside the project corridor.

Given a lack of suitable habitat, no known occurrences, no observations of listed species, and no other indicators of species presence during field surveys, except wood stork or bald eagle, it is determined that the project will have a biological conclusion of ***'not likely adversely affect'*** federally listed species or critical habitat.

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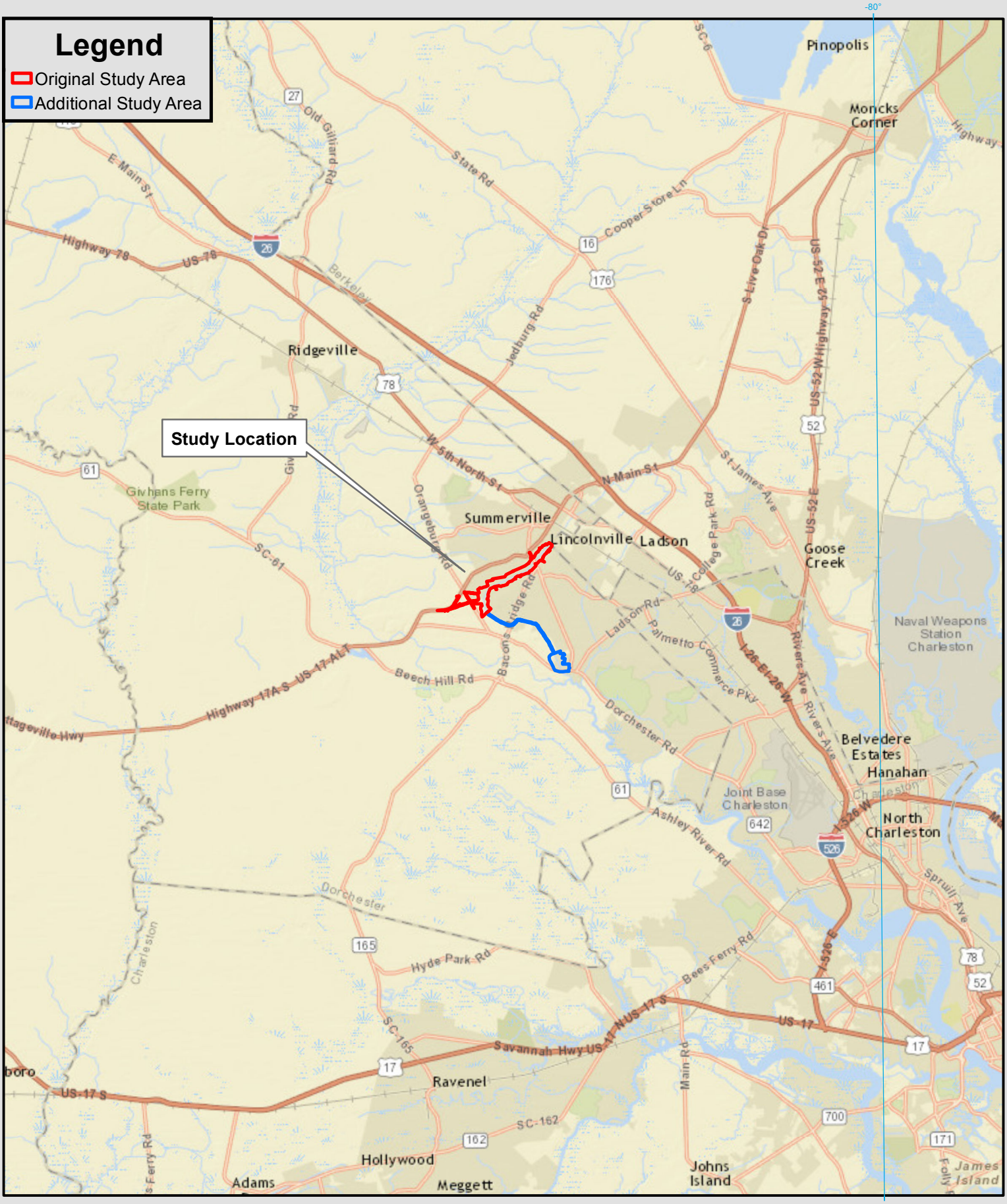
FIGURES



TIDEWATER
A JMT Division
March, 2016

Study Location Map

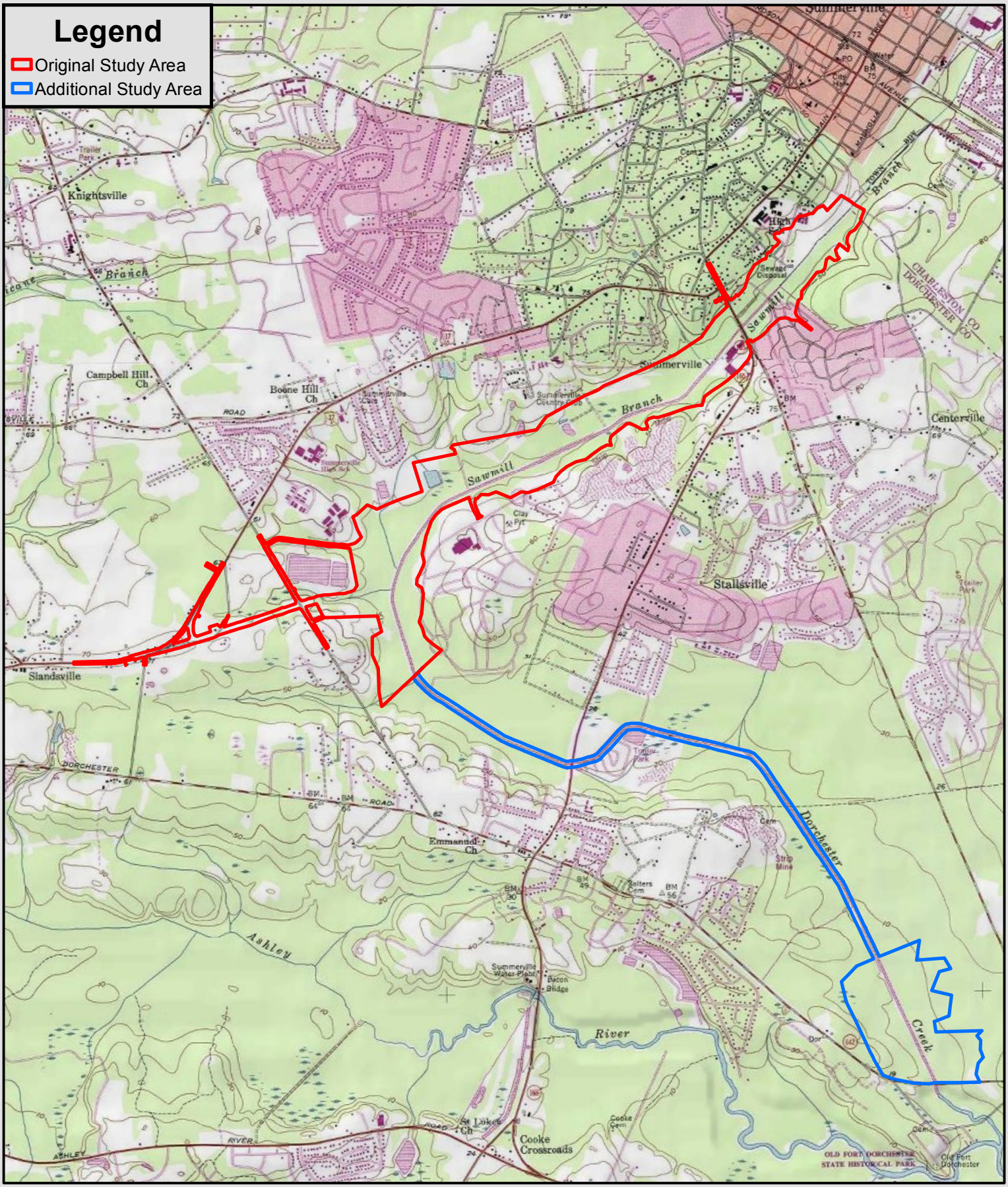
Berlin G Meyers Parkway Extension Corridor

Dorchester County, South Carolina

N W E S

0 2.5 5 Miles

Figure 1



TIDEWATER
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March, 2016

Topographic Map

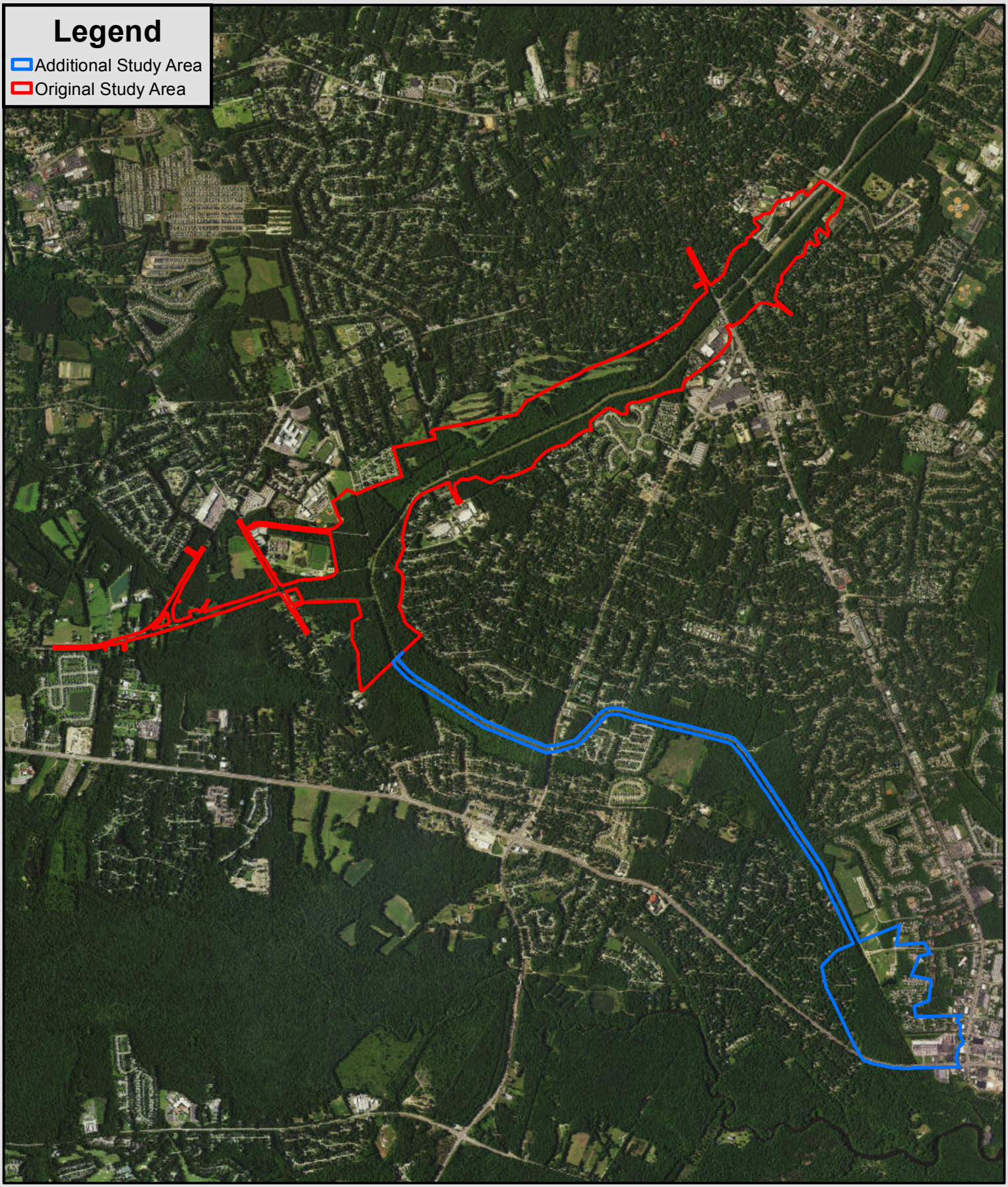
Berlin G Meyers Parkway Extension Corridor

Dorchester County, South Carolina

N
W E
S

0 0.25 0.5 Miles

Figure 2



TIDEWATER
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March, 2016

Aerial Location Map

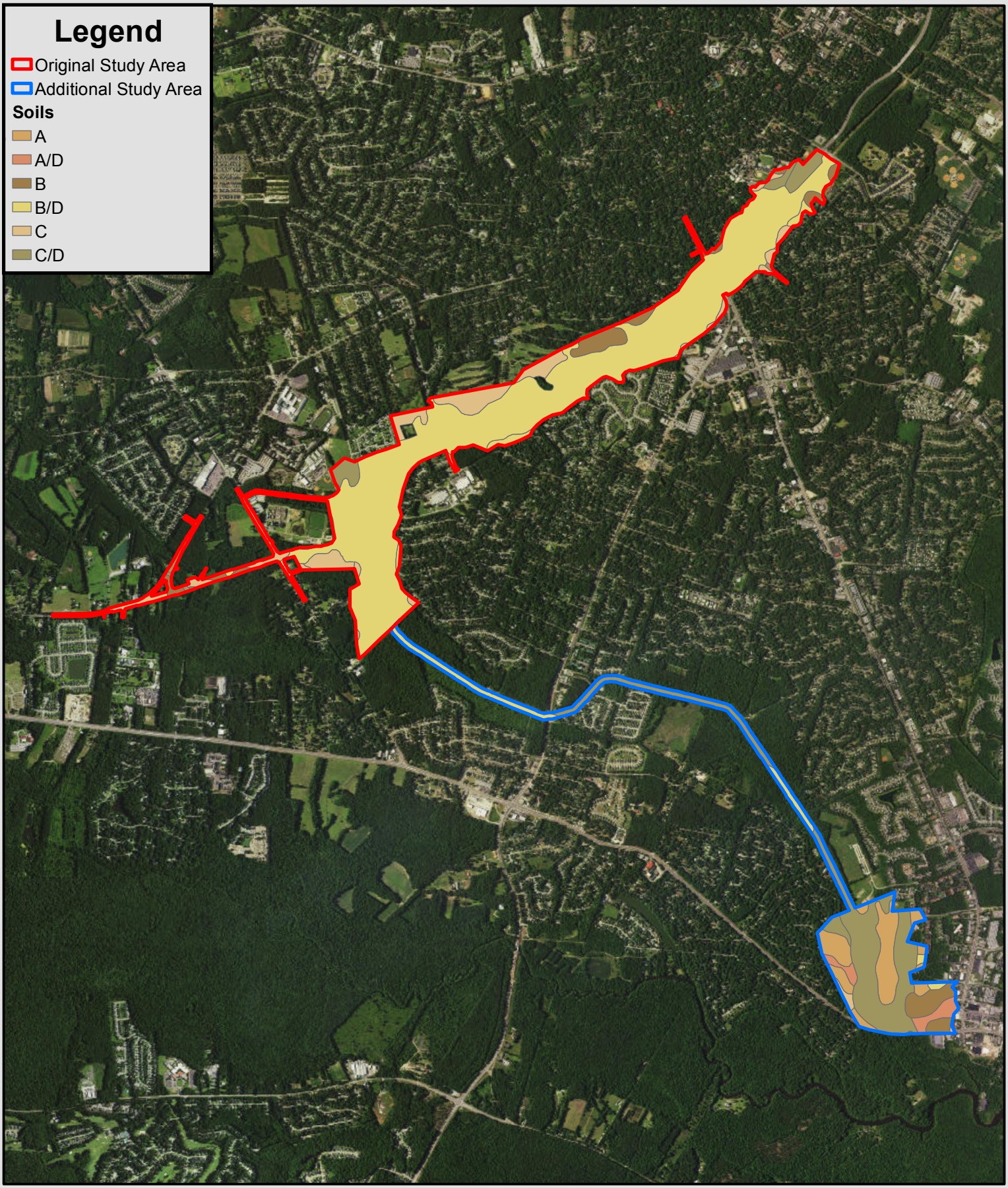
Berlin G Meyers Parkway Extension Corridor

Dorchester County, South Carolina

N
W E
S

0 0.25 0.5 Miles

Figure 3



TIDEWATER
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March, 2016

NRCS Soils Map

Berlin G Meyers Parkway Extension Corridor

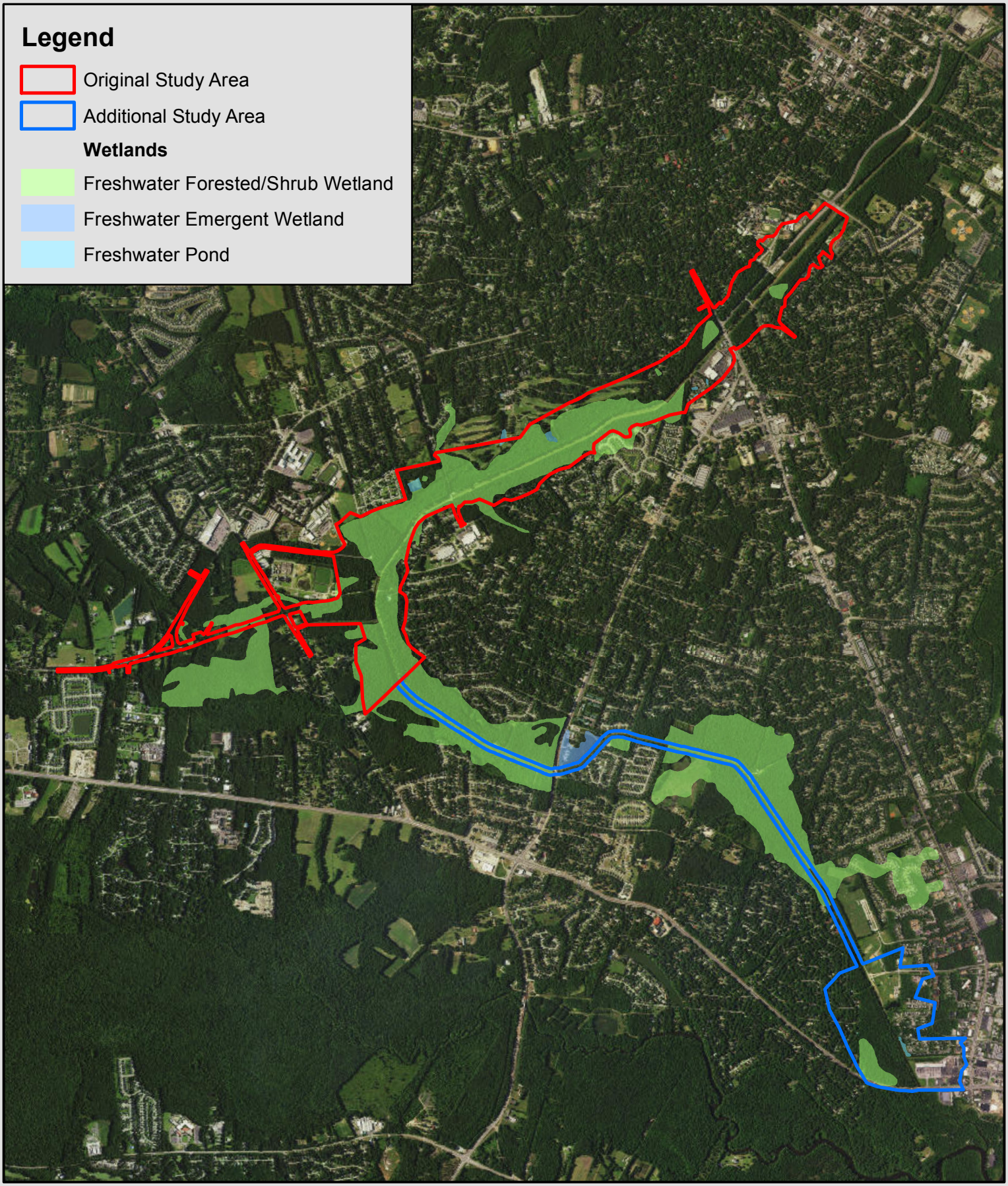
Dorchester County, South Carolina

N
W E
S

0 0.25 0.5 Miles

Source: NRCS

Figure 4



TIDEWATER
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March, 2016

NWI Wetlands within Project Corridor
Berlin G Meyers Parkway Extension Corridor
Dorchester County, South Carolina

N
W E
S

0 0.25 0.5 Miles

Source: NWI

Figure 5

APPENDICES

Appendix A: 2015 T&E Survey and USFWS Concurrence Letter

Appendix B: South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species; Dorchester County (08/10/15)

Appendix C: Project Area Photographs

Appendix A
2015 T&E Survey and USFWS Concurrence Letter

SABINE & WATERS
ENVIRONMENTAL LAND MANAGEMENT CONSULTANTS

June 25, 2015

Mr. Mark Caldwell
U. S. Fish & Wildlife Service
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

SUBJECT: Results of a protected species survey conducted on an approximately 557 acre Berlin G. Myers Parkway extension corridor, beginning at Gahagan Road and extending westward to Orangeburg Rd. in Summerville, Dorchester County, South Carolina.

Dear Mr. Caldwell:

This letter is written to initiate Informal Consultation with the U.S. Fish and Wildlife Service, Charleston Field Office, under Section 7 of the Endangered Species Act regarding the site referenced above.

PROJECT LOCATION AND LIMITS / PROPOSED ACTION

The planned project is for the extension of Berlin G. Myers Parkway, from its current terminus at East Carolina Ave., to Orangeburg Road, in Summerville. The proposed action will include the construction of the extension road, as well as sidewalk construction and maintenance work throughout the corridor limits, and the widening of Sawmill Branch in a select number of locations. This widening will entail removing the adjacent maintenance berm approximately 2-4' above the ordinary high water mark (OHWM) and moving it farther upslope of the canal feature. The location of the corridor limits is shown on the attached location map.

HABITAT DESCRIPTION

The site of the proposed action consists of **remnant bottomland hardwood habitat, mixed hardwood/pine forest, freshwater non-tidally influenced ditches and channels, golf course, residential housing**, and **ruderal areas** along the maintenance berms for Sawmill Branch.

The **remnant bottomland hardwood swamp** habitat primarily parallels Sawmill Branch throughout the project limits. Evidence of this remnant habitat is characterized by overstory coverage of bald cypress (*Taxodium distichum*), red

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maple (*Acer rubrum*), American elm (*Ulmus americana*), and sweetgum (*Liquidambar styraciflua*), with sporadic swamp tupelo (*Nyssa biflora*) and American sycamore (*Planatus occidentalis*). The canopy is moderately dense, approximately 40-50%. The sub-canopy is less dense, and consists primarily of red maple and sweetgum. Depending on light availability and presence of standing water, the shrub layer is somewhat sparse, 10-15%, in some sections to extremely dense, 70-80%, in others. Common species include Chinese privet (*Ligustrum sinense*), common fetterbush (*Lyonia lucida*), and wax myrtle (*Morella cerifera*). Herbaceous density and species is highly variable. In areas with higher canopy, sub-canopy and shrub density, herbaceous vegetation is sparse, 5-10%, and consists primarily of slender woodoats (*Chasmanthium laxum*) and netted chain fern (*Woodwardia aereolata*). Where canopy density is more open, common herbaceous species include Virginia chain fern (*Woodwardia virginica*), false nettle (*Boehmeria cylindrica*), and royal fern (*Osmunda regalis*). Common vines were poison ivy (*Toxicodendron radicans*), muscadine (*Vitis rotundifolia*), and crossvine (*Bignonia capreolata*). This habitat, once likely encompassing large swaths of land within the project limits as well as the surrounding Summerville area, has undergone extensive ditching and drainage. The remnant areas remaining likely do not withstand prolonged ponding and/or flooding as they once did prior to man-induced drainage. While some areas still support this hydrologic regime and obligate wetland vegetation, facultative vegetation species have encroached into this habitat in areas that would not have previously supported their growth.

The **mixed hardwood/pine forest** exists as upland habitat within the corridor limit, as an ecotone between the uplands and wetlands, and as wetland in areas that have sufficiently been drained of surface hydrology with a prevalence of facultative vegetation. This habitat, specifically the wetter areas, likely existed as bottomland hardwood swamp prior to ditching. Overstory coverage primarily consists of loblolly pine (*Pinus taeda*), water oak (*Quercus nigra*), sweetgum, black gum (*Nyssa sylvatica*), and red maple. Overstory coverage was somewhat dense, approximately 35-50%. The sub-canopy is comprised of the same species as the overstory and is also somewhat dense in coverage, 35-50%. The shrub layer consists of wax myrtle and Chinese privet and ranges from somewhat sparse, 10-15%, to very dense, 60-70%. Herbaceous coverage is sparse, 5-10%, due to the overstory and shrub layers. Common species observed are longleaf woodoats (*Chasmanthium sessiliflorum*) and partridge berry (*Mitchella repens*), with netted chain fern and switchcane (*Arundinaria tecta*) in the wetter areas. Common vines include poison ivy, Virgina creeper (*Parthenocissus quinquefolia*), and muscadine.

Freshwater channels and ditches in the project corridor, including Sawmill Branch, are man-made excavated drainage features constructed for the purpose of

draining the greater Summerville area. These drainage features exist in all the above listed habitat areas. Some of the ditch features contain perennial surface water flow, while others are only seasonally inundated and others only move surface water during large rainfall events. However, all ditch features eventually terminate into Sawmill Branch and connect to the Branch under the maintenance berm through a series of constructed culverts and pipes. Sawmill Branch terminates farther downstream, outside of the project limits, into the Ashley River. Most drainage features contain little, if any vegetation. Some alligatorweed (*Alternanthera philoxeroides*) occurs sporadically within Sawmill Branch.

The **golf course** habitat encompasses an area within the corridor limits from Luden Drive to Coralie Drive in Summerville and is managed as such. Overstory and herbaceous vegetative coverage dominate this landscape. The overstory is primarily comprised of mature loblolly pine (>20" DBH) and is very sparse. Herbaceous coverage is dominated by Bermuda grass (*Cynodon dactylon*). Several of the freshwater ditches that terminate into Sawmill Branch pass through this habitat.

Residential housing areas exist within the project limits and are primarily characterized by single family residential housing units. Some multi-family townhouse and apartment complexes exist in these areas, but are sparsely distributed. Primarily, these areas are void of overstory vegetation, with loblolly pine, sweetgum, and red maples as the dominant species, if present. Sub-canopy coverage varies in density, but is usually sparse, and species have been introduced for aesthetic purposes. Crapemyrtle (*Lagerstroemia indica*) and live oaks (*Quercus virginiana*) are common planted species. Shrubs observed in this habitat are also introduced or planted for aesthetics. Observed species included yaupon (*Ilex vomitoria*), American holly (*Ilex opaca*), southern indica azalea (*Rhododendron indica*), Japanese camellia (*Camellia japonica*), and American beautyberry (*Callicarpa americana*). Common vines included Virgina creeper, poison ivy, and English ivy (*Hedera helix*).

Ruderal areas along the maintenance berms and ditch edges were largely grown in with grasses and naturalized species. Common species observed include bahiagrass (*Paspalum notatum*), Vasey's grass (*Paspalum urvillei*), common dandelion (*Taraxacum officianale*), and white clover (*Trifolium repens*). This habitat is periodically mowed throughout the year above the OHWM.

LISTED SPECIES AND HABITAT REQUIREMENTS

Prior to field investigations, we consulted the February 10, 2015, update of the South Carolina List of Endangered, Threatened and Candidate Species, provided to us by the U.S. Fish and Wildlife Service and the South Carolina Department of Natural Resources

(SCDNR) Rare, Threatened & Endangered Species Inventory, and contacted Julie Holling of SCDNR to determine what protected species may occur on site. Based on the list for Dorchester County and a preliminary assessment of the site based on aerial photography, the list of potentially occurring species was narrowed as follows:

Common Name	Scientific Name	Federal Status
American chaffseed	*Schwalbea americana*	Endangered
Atlantic sturgeon	*Acipenser brevirostrum*	Endangered
Bald eagle	*Haliaeetus leucocephalus*	B&GEPA
Canby's dropwort	*Oxypolis canbyi*	Endangered
Pondberry	*Lindera melissifolia*	Endangered
Red-cockaded Woodpecker	*Picoides borealis*	Endangered
Shortnose Sturgeon	*Acipenser borealis*	Endangered
Wood Stork	*Mycteria americana*	Threatened

American chaffseed – American chaffseed occurs in sandy, acidic, seasonally moist to dry soils. Habitats where it most commonly occurs include open, moist pine flatwoods, fire-maintained savannas, ecotones between peaty wetlands and xeric sandy soils, and other open grass-sedge systems (USFWS 1995). American chaffseed is dependent on factors such as fire, mowing, or fluctuating water tables that maintain the open, early successional conditions that it requires.

Atlantic sturgeon – The Atlantic sturgeon is an anadromous species of fish found on the Atlantic coast of North America. It inhabits marine, estuarine, and freshwater reaches of the major river basins along the Atlantic coast from North Florida to New Brunswick, Canada. Atlantic sturgeon are similar in appearance to shortnose sturgeon; however, differences lie in the larger body size, smaller mouth, and different snout shape of the Atlantic sturgeon. They are bluish-black to olive on the back and white or pale brown underneath.

Atlantic sturgeon spawn in moderately flowing water, typically in deep rivers. Preferred spawning habitats include high-gradient rapids-complex river sections with cobble, bedrock, gravel and coarse sand substrates. When not spawning, adults frequent coastal waters and estuaries (NOAA 2012).

Bald eagle – The bald eagle requires shallow open water and wetland areas for foraging and undisturbed coastal, river or lakeshore areas with large trees for roosting and nesting. In the Southeast, nests are usually constructed in living dominant or codominant pine or cypress trees. Nesting sites are usually within one-half mile of water with a clear flight path to the water. The nest tree is usually the largest live tree in the area with an open view of the surrounding area (USFWS 1992).

Canby's dropwort – Typical habitat for this species includes wet meadows, wet pineland savannas, ditches, sloughs, and around the edges of pond cypress/pine ponds (USFWS 1992). The largest and most vigorous populations have been found to occur in open bays or ponds that are wet throughout most of the year but which have little or no canopy cover (USFWS 1990).

Pondberry – Pondberry (*Lindera melissifolia*) is a deciduous, aromatic shrub growing 0.5 to 1.8 meters in height with thin, drooping glabrous or pubescent leaves that smell like sassafras when crushed. Pale yellow flowers appear in the spring before the leaves. The bright red 12-millimeter long oval-shaped fruits mature in the fall.

Pondberry is primarily found in association with wetland habitats (USFWS 1992). In South Carolina, pondberry is associated with the margins of seasonally flooded sinks, ponds, and depression in pinelands (USFWS 1993).

Red-cockaded woodpecker – Typical nesting habitat for red-cockaded woodpeckers consists of open stands of pines with an age of 80 to 120 years (USFWS 1992), although nesting occasionally occurs in younger trees. Longleaf pine seems to be preferred, although nests may be found in any species of southern yellow pine. Stands that are primarily hardwood or that have a dense hardwood understory are usually avoided. Foraging habitat usually consists of pine or pine-hardwood stands at least 30 years old, and with relatively open understory.

Shortnosed sturgeon – The shortnose sturgeon (*Acipenser brevirostrum*) is an anadromous fish approximately 41 to 91 centimeters long, inhabiting marine and tidal freshwater river systems along the Atlantic coast. The fish is brown to gray or black on the back, turning gold or yellow on the sides, and to white underneath. The blunt snout and 11 dorsal plates are distinctive characteristics of this sturgeon.

During winter, this species occurs in salt water bays and estuaries of medium to high salinity. During late winter to early spring the shortnose sturgeon moves upstream into freshwater swamps where it will spawn among flooded trees when water temperatures reach 10-15 degrees centigrade. During summer the adults will congregate in low salinity estuaries to feed on bottom dwelling invertebrates. Eggs and larvae may be susceptible to siltation effects (Coop. Ext. Ser/Univ. Ga. 1992).

Wood stork – The wood stork (*Mycteria americana*) is a large wading bird approximately 127 centimeters tall, with a wingspan of 1 to 1.5 meters. This species is highly colonial, usually nesting in large rookeries and feeding in flocks. The plumage is generally white, with black primary and secondary wing feathers and a short black tail. The head displays a prominent bill that is slightly decurved, thick at the base and black.

Wood storks are typically associated with freshwater and brackish wetlands. Most nesting colonies in the Southeast are located in woody vegetation, such as bald cypress, over standing water, or on islands surrounded by open water. Foraging habitat may include freshwater marshes, flooded pastures and flooded ditches (USFWS 1992).

EVALUATION CRITERIA AND RESULTS

An examination of the South Carolina Department of Natural Resources' Rare, Threatened and Endangered Species Inventory indicated that there are no documented occurrences of any federally listed species near the proposed project site. Field surveys were conducted over a year period, starting in February 2014 and ending in March 2015. In total, two weeks of non-continuous field surveying was completed over this period. Field investigations consisted of pedestrian surveys with the purpose of identifying potential habitat for the species referenced above and was conducted concurrently with a wetland delineation of the project corridor.

Our investigations led to the following conclusions regarding habitat suitability for the species referenced above:

American chaffseed – No suitable habitat for this species occurs within the project area, nor were any individuals observed during the pedestrian surveys.

Atlantic sturgeon – No suitable habitat for this species occurs with the project area. Sawmill Branch is a perennially flowing canal feature that varies in depth, from a few inches to a few feet depending on previous rainfall events and seasonal fluctuations. It connects with the Ashley River south of Dorchester Rd; however, a series of check dams near Dorchester Rd. prevent the upstream flow of most aquatic vertebrate species. Historically, the intact bottomland hardwood swamps in the greater Summerville area may have supported spawning habitat for this species. However, manmade ditching and channelization of these aquatic features likely destroyed any suitable habitat. No individuals were observed during the pedestrian surveys.

Bald eagle – Marginal nesting habitat occurs primarily within the golf course and remnant bottomland hardwood habitat. Marginal foraging habitat occurs within the freshwater channels and ditch habitat. Mature loblolly pines in the gold course potentially could serve as candidate nesting trees. However, frequent, ongoing interaction with golf course members potentially negates the likelihood of a bald eagle being present within this habitat. A small number of suitable nest trees exists within the remnant bottomland hardwood swamp habitat. No nests were observed in any of these candidate trees; however, there are candidate trees within this habitat that were not observed during the pedestrian survey. The freshwater channels and ditches hold a varying degree of water depending based on seasonal and temporal fluctuations. These aquatic resources could potentially serve as forage habitat for bald eagles; however, bald eagles typically prefer

more open, deep water habitats for foraging. No individuals were observed during the pedestrian surveys.

Canby's dropwort – No potential habitat for this species occurs in the project area, nor were any individuals observed during the pedestrian surveys. Historical ditching and draining of the old growth bottomland forest habitat likely destroyed any potential habitat that might have existed within the project limits for this species.

Pondberry – No suitable habitat for this species occurs in the project area, nor were any individuals observed during the pedestrian surveys. Historical ditching and draining of the old growth bottomland forest habitat likely destroyed any potential habitat that might have existed within the project limits for this species.

Red-cockaded woodpecker – No suitable nesting or feeding habitat for this species occurs in the project area, nor were any individuals observed during the pedestrian surveys.

Shortnosed sturgeon – No suitable habitat for this species occurs with the project area. While Sawmill Branch is a perennially flowing canal feature that varies in depth, from a few inches to a few feet depending on previous rainfall events and seasonal fluctuations and also connects with the Ashley River south of Dorchester Rd, a series of check dams near Dorchester Rd. prevent the upstream flow of most aquatic vertebrate species. Historically, the intact bottomland hardwood swamps in the greater Summerville area may have supported spawning habitat for this species. However, manmade ditching and channelization of these aquatic features likely destroyed any suitable habitat. No individuals were observed during the pedestrian surveys.

Wood stork – Marginal nesting habitat and suitable foraging habitat exists for this species within the project limits. While no individuals or nests were observed during these surveys, the species has been observed by Sabine & Waters staff in the past utilizing Sawmill Branch for foraging. Some of the bald cypress trees present in the remnant bottomland hardwood swamp habitat could potentially serve as nesting trees; however, the lack of perennial surface water caused by previous ditching and drainage reduces the likelihood of these species using this habitat for nesting.

DETERMINATION OF EFFECT

Based on our findings, we believe that execution of the proposed action would "not likely adversely affect" federally listed endangered and/or threatened species. The close proximity of human encroachment and frequent usage of the pedestrian walkways within the project limits likely negates the presence of nesting bald eagles. Furthermore, while Sawmill Branch does have perennial surface water flow, bald eagles are more likely to utilize open, deepwater aquatic resources for foraging, such as the Ashley River further

downstream. The proposed actions of widening Sawmill Branch may temporarily impact foraging habitat for wood stork. While some foraging habitat may be lost with the clearing of forested habitat within the project limits in order to extend the Berlin G. Myers Parkway, Sawmill Branch will still have perennial surface water flow needed for wood stork foraging. We do not anticipate that the presence of additional pedestrian walkways and/or high volume traffic areas will impact the wood storks use of this habitat, as they have been seen foraging in Sawmill Branch in these areas in the recent past. However, further consultation with USFWS and/or pedestrian surveys may be necessary to better gauge the proposed actions' impacts to this species.

We ask for your concurrence with these findings. If you have questions or comments, please contact me at (843) 871-5383. Thank you for your assistance.

Sincerely,

Tyler Sgro
Sabine & Waters, Inc.

LITERATURE CITED

National Oceanic and Atmospheric Administration. 2012. Office of Protected Resources. Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*). Web.

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U.S. Fish and Wildlife Service. 1995. List of Endangered, threatened and candidate species habitat, fruiting, flowering period and county occurrences. USFWS Charleston Office.

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EXTERNAL SOURCES: NAIP 2013 TRUE COLOR AERIAL, DAVIS & FLOYD PROJECT CORRIDOR, U.S. CENSUS ROADS

Created By: Stephen Bennett
Date Created: June 25, 2015

Environmental Land Management Consultants
P.O. Box 1072 Summerville, SC 29484
843.871.5383 (phone) 843.871.2050 (fax)
R:\custdat\davis&bgmIII\sawmill usace package maps\loc_aerial.mxd

Disclaimer: This map is a graphic respresentation of data obtained from various sources. All efforts have been made to warrant the accuracy of this map. However, Sabine & Waters, Inc. disclaims all responsibility and liability for the use of this map.

REVISED: 6/25/2015

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LOCATION MAP
SAWMILL BGM III
DORCHESTER COUNTY, SC

0 2,000 4,000
Feet

LEGEND

- PROJECT STUDY AREA: +/- 557 AC
- ROADS

LAT: 32.982296
LONG: -80.211344

United States Department of the Interior

FISH AND WILDLIFE SERVICE
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

July 21, 2015

Mr. Tyler Sgro
Sabine & Waters, Inc.
P.O. Box 1072
Summerville, SC 29484

Re: Sabine & Waters, Inc.: Berlin G. Myers Parkway Extension Corridor- Protected Species Habitat Assessment Dorchester County, South Carolina
FWS Log No. 2015-I-0459

Dear Mr. Sgro:

The U.S. Fish and Wildlife Service (Service) has reviewed your assessment of habitat suitability for federally-protected species (Assessment) dated June 25, 2015. Your Assessment provided us with a brief project description, species descriptions, an action area map, and effect determinations for eight federally-protected species. Pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544) (ESA) you are requesting our concurrence with your determination that the proposed project would "*not likely adversely affect*" federally listed endangered and/or threatened species based on your findings.

The proposed project consists of the construction of a road and sidewalk to extend Berlin G. Myers Parkway from its terminus at East Carolina Avenue to Orangeburg Road in Summerville, South Carolina. The proposed extension would entail the widening of Sawmill Branch in select areas. The construction schedule is to be determined.

Based on the Service's records and the information provided in the Assessment, we agree with your characterization of habitat quality for the eight species[1] evaluated and your determination that the proposed project is not likely to adversely affect federally listed species or designated critical habitat. Therefore, no further action is required at this time.

Please be aware that obligations under section 7 of the ESA must be reconsidered if: (1) new information reveals impacts of this identified action that may affect endangered or threatened species or critical habitat in a manner not previously considered, (2) this action is subsequently

[1] Please be aware that the National Marine Fisheries Service (NMFS) is the consulting agency for Atlantic and shortnose sturgeon. Please contact NMFS for their concurrence with your determination of effect for these species.

modified in a manner not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the action.

The Service recommends that you contact the South Carolina Department of Natural Resources regarding potential impacts to State protected species. If the proposed project will impact streams or wetlands, you should contact the U.S. Army Corps of Engineers, Charleston District. If you need further assistance, please contact Mr. Byron Hamstead at (843) 727-4707 ext. 205, and reference FWS Log No. 2015-I-0459.

Sincerely,

Thomas D. McCoy

Thomas D. McCoy
Field Supervisor

TDM/BAH

Electronic copies to:
Mr. Greg Mixon, SCDNR, Columbia, SC

Appendix B

South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species; Dorchester County (08/10/15)

South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species - Dorchester County

CATEGORY	COMMON NAME/STATUS	SCIENTIFIC NAME	SURVEY WINDOW/ TIME PERIOD	COMMENTS
Amphibian	Gopher frog (ARS)	*Lithobates capito*	Breeding: October-March	Call survey: February-April
Bird	American wood stork (T)	*Mycteria americana*	February 15-September 1	Nesting season
	Bald eagle (BGEPA)	*Haliaeetus leucocephalus*	October 1-May 15	Nesting season
	Red-cockaded woodpecker (E)	*Picoides borealis*	April 1-July 31	Nesting season
Crustacean	None Found			
Fish	American eel (ARS)	*Anguilla rostrata*	March 1-May 30; October 1-December 15	Temperature dependent: normally (17-20^{o}C); can be found between 13-25^{o}C
	Atlantic sturgeon* (E)	*Acipenser oxyrinchus**	February 1-April 30	Spawning migration
	Blueback herring (ARS)	*Alosa aestivalis*	Mid-January-mid May	Peak: March-April
	Shortnose sturgeon* (E)	*Acipenser brevirostrum**	February 1-April 30	Spawning migration
Insect	None Found			
Mammal	Rafinesque's big-eared bat (ARS)	*Corynorthinus rafinesquii*	Year round	Found in mines, caves, large hollow trees, buildings, and bat towers
	Tri-colored bat (ARS*)	*Perimyotis subflavus*	Year round	Found in mines and caves in the winter
Mollusk	None Found			
Plant	American chaffseed (E)	*Schwalbea americana*	May-August	1-2 months after a fire
	Bog asphodel (ARS*)	*Narthecium americanum*	June-July	
	Boykin’s lobelia (ARS)	*Lobelia boykinii*	May-July/August	
	Canby's dropwort (E)	*Oxypolis canbyi*	Mid-July-September	
	Carolina bishopweed (ARS)	*Ptilimnium ahlesii*	May-July	
	Ciliate-leaf tickseed (ARS)	*Coreopsis integrifolia*	August-November	
	Pondberry (E)	*Lindera melissifolia*	February-March	
	Raven’s seedbox (ARS)	*Ludwigia ravenii*	June-October	
	Sun-facing coneflower (ARS)	*Rudbeckia heliopsidis*	July-September	
Reptile	Eastern diamondback rattlesnake (ARS)	*Crotalus adamanteus*	Most of the year	Peak: April-November
	Southern hognose snake (ARS)	*Heterdon simus*	Most of the year	
	Spotted turtle (ARS)	*Clemmys guttata*	February-mid April	

South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species - Dorchester County

*	Contact National Marine Fisheries Service (NMFS) for more information on this species
**	The U.S. Fish and Wildlife Service (FWS) and NMFS share jurisdiction of this species
ARS	Species that the FWS has been petitioned to list and for which a positive 90-day finding has been issued (listing may be warranted); information is provided only for conservation actions as no Federal protections currently exist.
ARS*	Species that are either former Candidate Species or are emerging conservation priority species
BGEPA	Federally protected under the Bald and Golden Eagle Protection Act
C	FWS or NMFS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list these species
CH	Critical Habitat
E	Federally Endangered
P or P - CH	Proposed for listing or critical habitat in the Federal Register
S/A	Federally protected due to similarity of appearance to a listed species
T	Federally Threatened

These lists should be used only as a guideline, not as the final authority. The lists include known occurrences and areas where the species has a high possibility of occurring. Records are updated as deemed necessary and may differ from earlier lists.

For a list of State endangered, threatened, and species of concern, please visit https://www.dnr.sc.gov/species/index.html.

Appendix C
Project Area Photographs

Representative Site Photographs

Protected Species Assessment
Berlin G Meyers Parkway Extension Corridor
Dorchester County, South Carolina

Typical Dorchester Creek at Lower Extent

Typical Southeastern Ditch at Lower Extent (at Confluence with Dorchester Creek)

Tidewater, A JMT Division
952 Houston Northcutt Blvd., Suite 100, Mt. Pleasant, SC 29464
Ph: (843) 556-2624 Fax: (843) 556-4329
www.JMT.com

Representative Site Photographs

Protected Species Assessment
Berlin G Meyers Parkway Extension Corridor
Dorchester County, South Carolina

Typical Wetland in Maintained Area

Typical Excavated Ditch

Tidewater, A JMT Division
952 Houston Northcutt Blvd., Suite 100, Mt. Pleasant, SC 29464
Ph: (843) 556-2624 Fax: (843) 556-4329
www.JMT.com

Representative Site Photographs

Protected Species Assessment
Berlin G Meyers Parkway Extension Corridor
Dorchester County, South Carolina

Typical Southeastern Ditch at Upper Extent

Typical Stormwater Pond (Water – Open Water Excavated Area)

Tidewater, A JMT Division
952 Houston Northcutt Blvd., Suite 100, Mt. Pleasant, SC 29464
Ph: (843) 556-2624 Fax: (843) 556-4329
www.JMT.com

Representative Site Photographs

Protected Species Assessment
Berlin G Meyers Parkway Extension Corridor
Dorchester County, South Carolina

Typical Tributary – Perennial B (Remnant Channel of Dorchester Creek)

Tidewater, A JMT Division
952 Houston Northcutt Blvd., Suite 100, Mt. Pleasant, SC 29464
Ph: (843) 556-2624 Fax: (843) 556-4329
www.JMT.com

United States Department of the Interior

FISH AND WILDLIFE SERVICE
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

May 5, 2016

Ms. Nicole Riddle
Assistant NEPA Coordinator
South Carolina Department of Transportation
955 Park Street
Columbia, SC 29202

Re: Protected Species Assessment, Berlin G. Myers Parkway, Dorchester County, South Carolina, FWS Log No. 2015-I-0459

Dear Ms. Riddle:

The U.S. Fish and Wildlife Service (Service) has reviewed your protected species assessment of dated April 22, 2016. The assessment was performed in advance of the proposed extension of the Berlin G. Myers Parkway in the Town of Summerville, Dorchester County, South Carolina. The assessment provided a brief project description, species descriptions, an action area map, and effect determinations for federally-protected species that may occur in the project area. Pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544) (ESA), the South Carolina Department of Transportation (SCDOT) is requesting our concurrence with the determination that the proposed project would not likely adversely affect federally listed endangered and/or threatened species.

The proposed project consists of the construction of a road and sidewalk to extend Berlin G. Myers Parkway from its terminus at East Carolina Avenue to Orangeburg Road in Summerville, South Carolina. The proposed extension would also entail the widening of Sawmill Branch in select areas. A previous protected species study was submitted June 2015, for the above project area resulting in a finding of not likely adversely affect federally listed endangered and/or threatened species. However, the current floodplain mitigation design for the project enlarged the footprint of the project to include the overbank areas of Sawmill Branch downstream of the project. The mitigation design will include excavating fill placed along the Sawmill Branch channel from the project area to just upstream of the Ashley River. As a result, the species assessment study for the project was expanded to include the additional project area.

Based on the Service's records and the information provided in the species assessment, we agree with your characterization of habitat quality for the species evaluated and your determination that the proposed project is not likely to adversely affect federally listed species or designated critical habitat. However, the Service recommends that SCDOT contact the National Oceanic

and Atmospheric Administration – Protect Services Division for consultation requirements regarding the shortnose sturgeon. Due to obligations under section 7 of the ESA must be reconsidered if: (1) new information reveals impacts of this identified action that may affect endangered or threatened species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner, not considered in this review; or (3) a new species is listed or critical habitat is determined that may be affected by the action.

The Service recommends that you contact the South Carolina Department of Natural Resources regarding potential impacts to State protected species. If the proposed project will impact streams or wetlands, you should contact the U.S. Army Corps of Engineers, Charleston District. If you need further assistance, please contact Mr. Mark Caldwell at (843) 727-4707 ext. 215, and reference FWS Log No. 2015-I-0459.

Sincerely,

Thomas D. McCoy

Thomas D. McCoy
Field Supervisor

TDM/MAC

Stone, Barrett

From: Long, Chad C. <LongCC@scdot.org>
Sent: Wednesday, May 11, 2016 3:43 PM
To: Owens, Ed
Cc: McGoldrick, Will
Subject: FW: BGM

Fyi

From: Riddle, Nicole L.
Sent: Tuesday, May 10, 2016 2:09 PM
To: Long, Chad C.; McGoldrick, Will
Subject: Fwd: BGM

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: Keith Hanson - NOAA Affiliate <keith.hanson@noaa.gov>
Date: 5/10/16 2:01 PM (GMT-05:00)
To: "Riddle, Nicole L." <RiddleNL@scdot.org>
Subject: Re: BGM

Hi Nicole,

Per our conversation yesterday, and in reference to the Berlin G Myers Parkway project, shortnose and Atlantic sturgeon do not occur in the area of the proposed project. Both species of sturgeon do occur in the Cooper River, however, the Cooper River is more than 13 linear miles from the site of the proposed project.

Please contact me if you have any questions.

Thanks,
Keith

On Mon, May 9, 2016 at 11:49 AM, Riddle, Nicole L. <RiddleNL@scdot.org> wrote:

Nicole Levinson Riddle

Assistant NEPA Coordinator (Lowcountry)

Environmental Services Office

South Carolina Department of Transportation

O: 803-737-0841 C: 803-351-8480

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Keith M. Hanson
Contractor, Jamison Professional Services, Inc.
Environmental Specialist, NOAA - National Marine Fisheries Service
Southeast Regional Office - Habitat Conservation Division
219 Fort Johnson Road
Charleston, SC 29412
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