TRAFFIC NOISE TECHNICAL MEMORANDUM ADDENDUM

For

ADMINISTRATIVE ACTION

ENVIRONMENTAL IMPACT STATEMENT

Gaston East-West Connector
Gaston and Mecklenburg Counties

STIP Project No. U-3321

Prepared for:

NORTH CAROLINA
Turnpike Authority

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1.0 Introduction

In April 2009, a Draft Environmental Impact Statement (Draft EIS) was published for the Gaston East-West Connector project in Gaston and Mecklenburg counties. A noise study was prepared for all Detailed Study Alternatives (DSA) as part of the Draft EIS, and is documented in *Traffic Noise Technical Memorandum for Administrative Action Environmental Impact Statement Gaston East-West Connector* (July 2008), referred to here as the *July 2008 Traffic Noise Technical Memorandum*.

Since that time, a Preferred Alternative has been selected (DSA 9), design modifications have been made, and projected traffic volumes have been updated. **Figure 1** shows the Detailed Study Alternatives originally considered, with the Preferred Alternative highlighted.

As a result of design changes and revisions to 2035 traffic projections along the Preferred Alternative alignment, this addendum to the *July 2008 Traffic Noise Technical Memorandum* has been prepared. The previous noise study has been updated to include the revised design information and updated traffic volumes. Areas that were re-examined in this addendum include areas potentially affected by the design changes and/or changes in the projected traffic (see **Section 6** for details).

2.0 Modifications to the Preferred Alternative Preliminary Design

Several design modifications were made to the Preferred Alternative as a result of public involvement activities, coordination with environmental resource and regulatory agencies, and comments received during the Draft EIS public review period.

The preliminary design refinements include mainline design changes (median width and realignment), access road changes, interchange reconfiguration or elimination, and the addition of service roads, as listed below.

- Reduce Median by 20 Feet and Revise Typical Section
- Modify Access to Matthews Acres Subdivision
- Retain the US 29-74 Interchange
- Modify the Forbes Road Grade Separation
- Compress the Robinson Road Interchange
- Eliminate the Bud Wilson Road Interchange
- Compress the NC 274 (Union Road) Interchange
- Relocate Tucker Road Connection to Canal Road
- Realign Mainline to Avoid Recreation Fields and Provide Access Road to NC 273 (Southpoint Road)
- Reconfigure the NC 273 (Southpoint Road) Interchange to Avoid Historic Boundary of Mt. Pleasant Baptist Church Cemetery
- Relocate Boat Club Road Connection North of Mainline to NC 273 (Southpoint Road)
- Reconfigure the I-485 Interchange and Dixie River Road Interchange

These design changes were made to avoid and minimize impacts to the human and natural environment, and resulted in shifts to the alignment throughout the corridor.

3.0 Incorporation of New Traffic Forecasts

In the time since the *July 2008 Traffic Noise Technical Memorandum*, a revised traffic forecast scenario was developed for the Gaston East-West Connector to update the forecast year to 2035 and to incorporate the Preferred Alternative refined preliminary design, including the elimination of the Bud Wilson Road interchange.

The updated 2035 traffic forecast for the Preferred Alternative is documented in the *Gaston East-West Connector Updated Traffic Forecast and Revised Preliminary Design Traffic Capacity Analysis for the Preferred Alternative* (HNTB, March 2010), incorporated by reference.

Table 1 lists the year 2035 traffic volumes along the Preferred Alternative mainline. **Appendix A** includes the more detailed forecast sheets used in this addendum.

Table 1: 2035 Traffic Volumes Along the Preferred Alternative

Segment	2035 Annual Average Daily Traffic Volume
I-85 to US 29-74	21,300
US 29-74 to Linwood Rd (SR 1133)	28,400
Linwood Rd to US 321	23,500
US 321 to Robinson Rd (SR 2416)	33,400
Robinson Rd to NC 274 (Union Rd)	36,400
NC 274 to NC 279 (S New Hope Rd)	37,200
NC 279 to NC 273 (Southpoint Rd)	53,800
NC 273 to Dixie River Rd (SR 1155)	69,300
Dixie River Rd to I-485	64,200
East of I-485	26,800

Source: Gaston East West Connector Updated Traffic Forecast and Revised Preliminary Design Traffic Capacity Analysis for the Preferred Alternative, Prepared by HNTB, March 2010

The 2035 forecast volumes along the Gaston East-West Connector are projected to be higher than the previously forecasted 2030 toll scenario volumes based on the use of a different version of the Metrolina Regional Model (Version MRM06v1.1), updated socio-economic data, and the additional five years of traffic growth. Also, as the existing roadway network becomes more congested and reaches or exceeds traffic capacity from 2030 to 2035, motorists would be more inclined to access the Gaston East-West Connector because this facility would remain under capacity and should allow for higher travel speeds and lower travel times than alternate routes in 2035. Given the expected increase in future congestion and delays along the I-85 corridor in the Project Study Area, it is anticipated that motorists would be more willing to travel the Gaston East-West Connector.

4.0 Revision to Noise Contours

The same analysis methodology used to perform the original analysis was used for this addendum. Noise analysis for this project used a two-step approach to estimate noise levels along the Preferred Alternative and to screen the number of receptors to be included in detailed three-dimensional models in the second step, using Federal Highway Administration's (FHWA) Traffic Noise Model Version 2.5 (TNM).

The first step used TNM to develop noise contours and to identify the sensitive receptors potentially impacted by the Preferred Alternative. Because of the increased traffic volumes, changes in typical section, and alignment shifts, updated noise contours were developed using TNM and North Carolina Department of Transportation (NCDOT) standard procedures for the purpose of identifying potential impacts to receptors.

The basic approach was to select receptor locations at various distances from the Preferred Alternative to estimate future noise levels, then to determine the distances at which the predicted peak hour noise levels would be at 60 dBA Leq (representing a substantial increase for receptors with existing noise levels of 45 dBA Leq), or at 66 dBA and 71 dBA (representing noise levels approaching 67 dBA Leq and 72 dBA Leq, which are the Noise Abatement Criteria (NAC) for Activity Categories B and C, respectively). Terrain features and shielding were not included in these model runs. The noise contours represent conservative estimates of noise levels valid only for preliminary identification of receptors potentially impacted by future traffic noise.

The noise contours were overlaid onto base mapping and the Preferred Alternative refined preliminary design; and sensitive receptors within the contours were identified and numbered. The *July 2008 Traffic Noise Technical Memorandum* originally identified a range of 204 to 309 unique receptors per DSA. This addendum found an additional 49 receptors within the 60 dBA contour of the Preferred Alternative, resulting from changes in the traffic projections and roadway preliminary design, as discussed in **Section 5**.

The 2035 noise contours (71 dBA Leq, 66 dBA Leq, and 60 dBA Leq) and the sensitive receptors within these contours are shown in **Figures 1-16** in **Appendix B**. **Appendix C** includes the noise contour summary spreadsheets listing the sensitive receptors labeled in **Appendix B**.

Table 2 shows the maximum extent of the 72 and 67 dBA Leq 2035 peak hour traffic noise level contours for the Preferred Alternative, along with the approximate numbers of impacted receptors based on the 2035 noise contours. There are 38 additional impacted receptors (for a total of 283 impacted receptors) based on the updated analysis compared to the numbers reported for DSA 9 in the *July 2008 Traffic Noise Technical Memorandum* and in Table 4-4 in the Draft EIS (245 impacted receptors).

The number of impacted businesses changed from eight in the *July 2008 Traffic Noise Technical Memorandum* to four in this addendum for the following reasons. Receptors along Tuffy Lane (Receptors E2-E10) were incorrectly labeled as existing businesses. Of these, six were impacted and were included in the business impacts in *July 2008 Traffic Noise Technical Memorandum*. Two impacted receptors (M212/213 and M291) were incorrectly labeled residential in the *July 2008 Traffic Noise Technical Memorandum*, and have been added to the impacted Category C receptors in this addendum.

The revised contours presented in **Table 2** are generally slightly farther from the roadway centerline than those reported in the *July 2008 Traffic Noise Technical Memorandum*. The one notable exception is the segment of the Preferred Alternative east of I-485, where the contour is closer to the roadway centerline due to reduced traffic projections for this segment. It should be noted when reviewing this table that the right-of-way width of a typical section for the Preferred Alternative is 280 feet, so

receptors closer than 140 feet to the roadway centerline would be taken by the project, and this was accounted for in reporting impacts.

As discussed in the *July 2008 Traffic Noise Technical Memorandum*, this information should assist local authorities in exercising land use control over the remaining undeveloped lands adjacent to the roadway within the local jurisdiction. For example, with proper information on noise, the local authorities can prevent further development of incompatible activities and land uses with the predicted noise levels of an adjacent highway.

Table 2: 2035 Noise Contours and Impact Summary for the Preferred Alternative

Mainline Segment	Leq Noise Levels (dBA)[1]			Maximum Contour Distances (ft)[2]		Approximate Number of Impacted Receptors By Category				
	50 ft	100 ft	200 ft	72 dBA	67 dBA	A	B	C	D	E
I-85 to US 29-74	75	72	67	130	245	0	46	1	0	0
US 29-74 to Linwood Rd	76	73	69	150	270	0	11	0	0	0
Linwood Rd to US 321	75	72	68	140	260	0	52	0	0	0
US 321 to Robinson Rd	77	74	70	170	290	0	38	2	0	0
Robinson Rd to NC 274	78	75	71	190	305	0	30	0	0	0
NC 274 to NC 279	77	74	70	180	300	0	6	0	0	0
NC 279 to NC 273	78	76	71	215	330	0	52	0	0	0
NC 273 to Dixie River Rd	80	77	73	260	400	0	43	1	0	0
Dixie River Rd to I-485	80	77	73	260	390	0	1	0	0	0
East of I-485	76	73	68	145	260	0	0	0	0	0
					TOTALS	0	279	4	0	0

1- Distance from center of nearest travel lanes.
2 -Distance from the roadway centerline.

5.0 Identification of New Receptors

Identification of receptors for potential new noise impacts and modifications to noise barriers was based on a review of recent aerial photography (March 2009) and developing new noise contours as described in **Section 4**. These new noise contours were overlaid on the most recent aerial photography available (March 2009), and the list of potentially impacted receptors was updated.

All structures that were located within the revised 60 dBA noise contours were included in the reassessment of noise impacts. This process located 48 additional receptors to be included in the addendum. Two of these receptors were located in the western portion of the corridor, 18 in the middle section and 28 in the eastern section. These receptors were added primarily due to the design refinements. The receptors are shown in purple on the 2035 noise contour maps (**Figures 1-16** in **Appendix B)**.

6.0 Results of Revised Analysis

The noise sensitive receptors predicted to be impacted based on the 2035 traffic noise contours (i.e., experience noise levels that approach or exceed the FHWA Noise Abatement Criteria or show a substantial increase over existing levels) that were not considered isolated sites (generally areas with three or less receptors) were further evaluated as described below.

Areas where design changes occurred that could affect the noise analysis, and also areas where additional potentially impacted receptors were added as a result of the changes to the preliminary design or increase in noise contour distances were reviewed.

No areas were identified where increases in noise contours added enough sensitive receptors to warrant a new detailed barrier evaluation where one was not previously evaluated in the *July 2008 Traffic Noise Technical Memorandum*.

Next, the Barrier Evaluation Areas (BEAs) along DSA 9 modeled in detail in the *July 2008 Traffic Noise Technical Memorandum* were reviewed. These BEAs are shown in the *July 2008 Traffic Noise Technical Memorandum* (Figure 3a-b) and include BEAs where barriers were determined potentially feasible and reasonable (BEAs 1, 4, 7, 12, 17, 29, and 33) and BEAs where barriers were determined not to be (BEAs 20, 22, 22A, 24, 27, and 31).

In BEAs where barriers were previously determined not to be feasible and reasonable, there were few to no new receptors added based on the updated noise contours and refined preliminary design that would have changed this finding. Therefore, these areas did not need to be reevaluated in this addendum.

In BEAs where preliminary barriers were previously recommended in the *July 2008 Traffic Noise Technical Memorandum*, each was reviewed to determine if the design changes made for the Preferred Alternative would affect the design of the preliminary noise barrier. In BEAs where the designs did not change significantly, it was assumed that the preliminary barrier would still be determined reasonable and feasible.

Two BEAs were identified where design changes occurred that would affect the recommended preliminary noise barrier. These are BEA 29 at the NC 273 (Southpoint Road) interchange and BEA 33 at the I-485 interchange.

Barrier Evaluation Area 29

This BEA is located along the mainline of the Preferred Alternative on either side of Southpoint Road (NC 273). This BEA includes one area west of NC 273 and two areas east of NC 273. The area is shown in **Figure 13** and **Figure 14** in **Appendix B**. Spreadsheets presenting results for the detailed noise analysis are in **Appendix D**.

Previous Noise Study. In the *July 2008 Traffic Noise Technical Memorandum*, barriers were evaluated in the northwest, northeast, and southeast quadrants of the interchange. Preliminary barriers were recommended in the northwest quadrant (Barrier 29-1) and the northeast quadrant (Barrier 29-2).

Design Changes for the Preferred Alternative. The refined design shifts the mainline slightly northward near the NC 273 (Southpoint Road interchange) to avoid the Duke Energy Corporation/Belmont Optimist Club recreational fields in the southeast quadrant. The refined preliminary design also reconfigures the northwest quadrant of the interchange from a loop and ramp to a compressed ramp to minimize impacts to a cemetery.

Detailed Noise Models. There were 19 additional receptors included in the detailed noise models for the interchange at Southpoint Road (NC 273). On the east side of the interchange, one receptor was added in the southeast quadrant and three were added in the northeast quadrant. On the west side of the interchange, 15 additional receptors were included in the northwest quadrant because the design refinements in this area left receptors in place that would have been acquired in the designs analyzed in the *July 2008 Traffic Noise Technical Memorandum*.

Detailed noise models were developed for the northwest, northeast, and southeast quadrants of the interchange. The southwest quadrant contains three isolated receptors (E229-E231) that did not warrant a detailed noise model.

The northwest quadrant of the NC 273 (Southpoint Road) interchange includes 31 existing residences in the Brook Forest subdivision on Brook Forest Drive and South Forest Lane (E79-E98, E101-E106, E413-419) and two undeveloped residential lots (E99 and E100). The area also includes eight additional existing residences on Tucker Road (E420, E421, and E424-429).

The northeast quadrant of the NC 273 (Southpoint Road) interchange includes twelve residences on Boat Club Road (E107-110, E118-122, E354-355, and E382), eight residences on Drennan Horne Drive (E75-77, E347-348, E431, and E436-437), one industrial business on Drennan Horne Drive (E78), and seven residences in the Joye Mobile Home Park on Joye Lane (E111-117).

The southeast quadrant of the NC 273 (Southpoint Road) interchange includes seven existing residences and two undeveloped residential lots in the Wilson/Allen neighborhood on Allison Street and Sunderland Road (Existing: E232-E234, E384, E388-389, E430, and Undeveloped: E235 and E346), four existing residences on Boat Club Road (E236-238, E387), and a private recreation area owned by Duke Power that includes a baseball field (E410) and a recreation field (E411).

Barriers were preliminarily found to be feasible and reasonable in the northwest quadrant (Barrier 29-1), and for the northeast quadrant (Barrier 29-2). Barrier 29-1 is shown in **Figure 2a**, and Barrier 29-2 is shown in **Figure 2b**.

Barrier 29-1 would be 14-20 feet high to reduce noise for residences in the northwest quadrant of the NC 273 (Southpoint Road) interchange. The 3,760-foot long barrier would provide at least a 5 dBA reduction in noise to 15 impacted and benefitted receptors and 16 other benefitted-only receptors, at a cost of $28,806 per benefitted receptor. The undeveloped lots (E99 and E100) were not counted.

Barrier 29-2 would be 18-20 feet high to reduce noise for the residences in the northeast quadrant of the NC 273 (Southpoint Road) interchange. The 2,460-foot long barrier would provide at least a 5 dBA reduction in noise to 20 impacted and benefitted receptors and 2 other benefitted-only receptors at a cost of $30,608 per benefitted receptor.

For the area east of NC 273 and south of the mainline, a 12-14 foot high barrier (Barrier 29-3) was modeled for the residences on Boat Club Road and the Duke Power recreation fields. The barrier could provide at least a 5 dBA reduction in noise, but it was determined to be not cost effective at $59,520 per benefitted receptor. This cost exceeds the NCDOT allowance of $44,500 per benefitted receptor.

Barrier Evaluation Area 33

This BEA is located south of the mainline just west of I-485. This BEA includes 24 residences in the Garrison Road community south of the mainline (E28-35, E38, E58-66, E69, E422-432, and E438-439). Two additional residences on Horton Road (E438-439) also are included.

Previous Noise Study. In the *July 2008 Traffic Noise Technical Memorandum*, a barrier was evaluated in the southwest quadrant of the interchange. A barrier was preliminarily recommended (Barrier 33-1).

Design Changes for the Preferred Alternative. The interchange at I-485 was shifted north and the configuration of the ramps was modified. An access road is proposed south of the Gaston East-West Connector to connect Garrison Road to Dixie River Road. Due to the interchange shifting north and the change in property impacts, the originally proposed access road on the north side of the Gaston East-West Connector is not needed.

Detailed Noise Model. Because the interchange was reconfigured, seven receptors were left in place that would have been acquired in the designs analyzed for the Draft EIS (E422, E432-E435, E438, E439). Only one receptor was predicted to experience noise impacts (E422) based on the 2035 noise contour spreadsheets included in **Appendix C.** However, the results in **Appendix C** are based on the 2035 noise contours that do not account for the ramp that would be adjacent to the receptors in the southwest quadrant of the I-485 interchange. Therefore, since this area had a previously recommended barrier, the decision was made to perform an updated detailed analysis in this area.

The detailed noise model results also showed that only one receptor (E422) would be impacted by noise. Therefore, no noise barrier is warranted in BEA 33.

7.0 Preliminary Noise Barriers for the Preferred Alternative

Table 3 lists all the preliminary feasible and reasonable noise barriers for the Preferred Alternative. These include previously recommended barriers and updates to BEAs 29 and 33 as described above. **Figure 3a-b** shows the preliminary feasible and reasonable noise barriers.

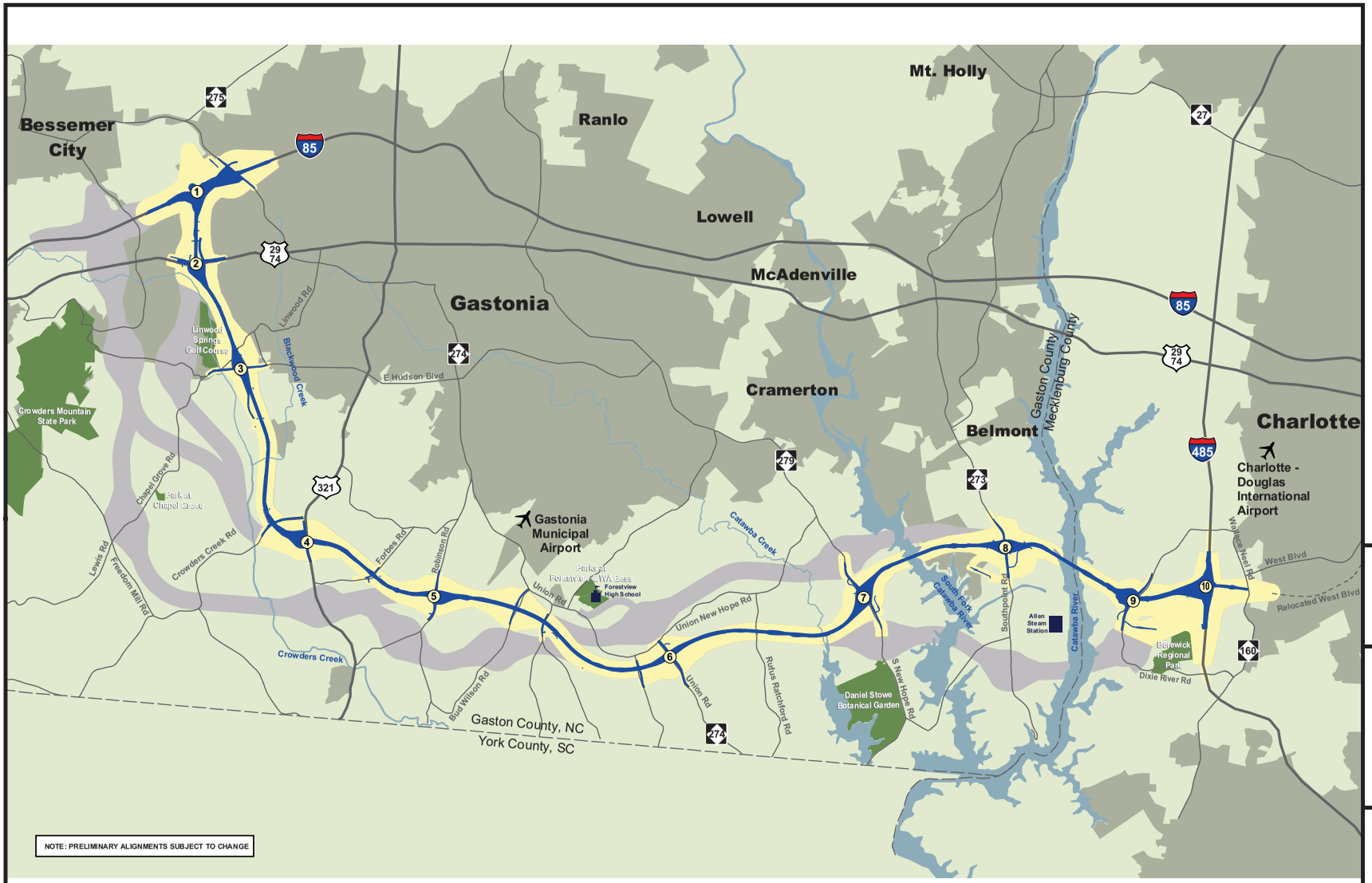
Eleven barriers, with a total length of 20,865 feet, have been identified as preliminarily feasible and reasonable for the Preferred Alternative at a total estimated cost of $4,527,690. These barriers are projected to benefit a total of 175 Category B receptors. A Design Noise Study will be prepared during final design of the Preferred Alternative. The Design Noise Study will include the final design of the Preferred Alternative and more detailed evaluation of feasibility and reasonableness.

Table 3: Preliminary Feasible and Reasonable Noise Barriers for the Preferred Alternative

Proposed Barriers	Segment	Description	Modeled Receptor #'s	Number of Impacted Receptors in BEA		Average dBA Reduction for Benefited Receptors	Benefited Receptors	Barrier Length (ft)	Barrier Height (ft)	Approximate Cost	Cost Per Receptor / Allowable Cost per Receptor
				Without Barrier	With Barrier						
BEA 1 Barrier 1-1	H2A	North of US29-74, westbound side of the alignment.	W1 to W3, W20 to W51, W426	22	0	9	34	2,640	12	$ 475,200	$13,976 $40,824
BEA 4 Barrier 4-1	H3	East of Linwood Springs Golf Course, at Linwood Rd, on westbound side of the alignment.	W4-W19	11	0	9	16	1,605	20	$ 481,500	$30,094 $41,188
BEA 7 Barrier 7-1	H3	East of Stable Gate Farms neighborhood, south of Linwood Rd on the westbound side of the alignment.	W58, W62-W71	8	0	8	11	1,500	16	$ 360,000	$32,727 $41,909
BEA 12 Barrier 12-1	J4A	North of Crowder's Creek Rd, Falls Estates neighborhood, westbound side of the alignment.	M171, M202-M205	2	0	5	4	600	10	$ 90,000	$22,500 $40,000
BEA 12 Barrier 12-2	J4A	North of Crowder's Creek Road, Falls Estates neighborhood, westbound side of the alignment.	M172-M178	7	1	8	6	1,395	12	$ 251,100	$41,850 $44,000
BEA 17 Barrier 17-1	J4A	East of US321, westbound side of the alignment.	M179-M184, M215-M219	4	1	7	8	1,092	12/14	$ 224,760	$28,095 $38,188
BEA 17 Barrier 17-2	J2C	East of US321, westbound side of the alignment.	M230-M243	4	0	8	11	1,558	10/12/ 16/14	$ 316,860	$28,805 $38,818

Table 3: Preliminary Feasible and Reasonable Noise Barriers for the Preferred Alternative

Proposed Barriers	Segment	Description	Modeled Receptor #'s	Number of Impacted Receptors in BEA		Average dBA Reduction for Benefited Receptors	Benefited Receptors	Barrier Length (ft)	Barrier Height (ft)	Approximate Cost	Cost Per Receptor / Allowable Cost per Receptor
				Without Barrier	With Barrier						
BEA 17 Barrier 17-3	J2C	East of US321, westbound side of the alignment.	M247-M274, M286	13	1	7	16	2,306	12/14/ 12/10	$ 393,600	$24,600 $42,125
BEA 17 Barrier 17-4	J2C	West of Robinson Rd, eastbound side of the alignment.	M3-M23, M159	15	1	7	16	1,949	10/12/ 14/12	$ 368,280	$23,018 $42,969
BEA 29 Barrier 29-1	K3A	Westbound side of mainline. West of Southpoint Rd. (NC 273)	E79-E106, E413-E421, E424-E429	16	1	6	31	3,760	14/16/1 8/20/18/ 16/14	$ 893,010	$28,807 $39,597
BEA 29 Barrier 29-2	K3B	Westbound side of mainline. East of Southpoint Rd. (NC 273)	E107-E122, E354, E355, E382, E75-E78, E347, E348, E382, E437, E437	23	3	7	22	2,460	20/18	$ 673,380	$30,608 $43,636



NOTE: PRELIMINARY ALIGNMENTS SUBJECT TO CHANGE

POTENTIAL INTERCHANGE LOCATIONS

① I-85	④ US 321	⑧ NC 273 (Southpoint Road)
② US 29-74	⑤ Robinson Road	⑨ Dixie River Road
③ Linwood Road	⑥ NC 274 (Union Road)	⑩ I-485
	⑦ NC 279 (S. New Hope Rd)	

Legend

- Preferred Alternative Right of Way
- Preferred Alternative Study Corridor
- Other Detailed Study Corridors
- Parks and Recreation Areas
- Municipal Areas
- Rivers and Streams

Source: Gaston County and Mecklenburg County GIS
Map printed March 2010

N

0 0.5 1 Miles

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STIP PROJECT NO. U-3321

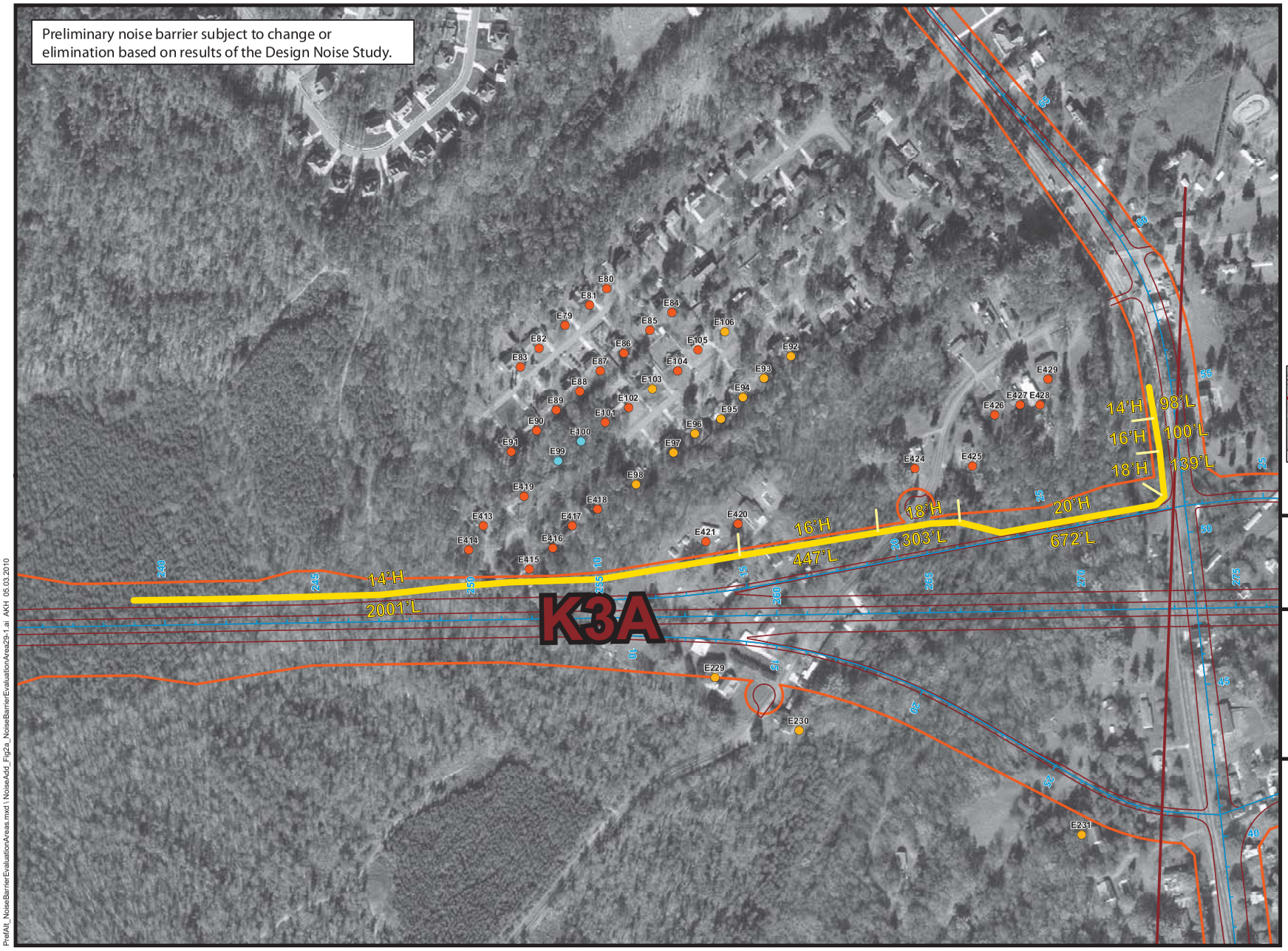
Gaston County and Mecklenburg County

GASTON EAST-WEST CONNECTOR

PREFERRED ALTERNATIVE DSA 9

Figure 1

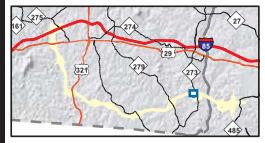
NoiseAdd_Fig1_PreferredAlternativeDSA9.ai AKH 03.31.10



Legend

- Benefited Receptor Points
- Receptor Points
- Undeveloped Lots
- Preferred Alternative Preliminary Noise Barriers
- Preferred Alternative Stationing
- Preferred Alternative Segment Breaks
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- K3A Segment Name

H = Height of barrier segment
L = Length of barrier segment



Source: Gaston County and Mecklenburg County
Map printed April 2010.

N

0 150 300
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

BARRIER EVALUATION AREA 29

BARRIER 29-1

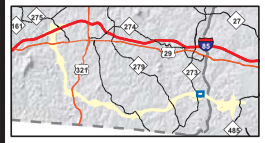
Figure 2a

PrefAlt_NoiseBarrierEvaluationAreas.mxd \ NoiseAdd_Fig2a_NoiseBarrierEvaluationArea29-1.ai AKH 05.03.2010

Legend

- Benefited Receptor Points
- Receptor Points
- Preferred Alternative Preliminary Noise Barriers
- Preferred Alternative Stationing
- Preferred Alternative Segment Breaks
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- K3A Segment Name

H = Height of barrier segment
L = Length of barrier segment



Source: Gaston County and Mecklenburg County
Map printed April 2010.

N

0 100 200
Feet

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NO. U-3321

Gaston County and
Mecklenburg County

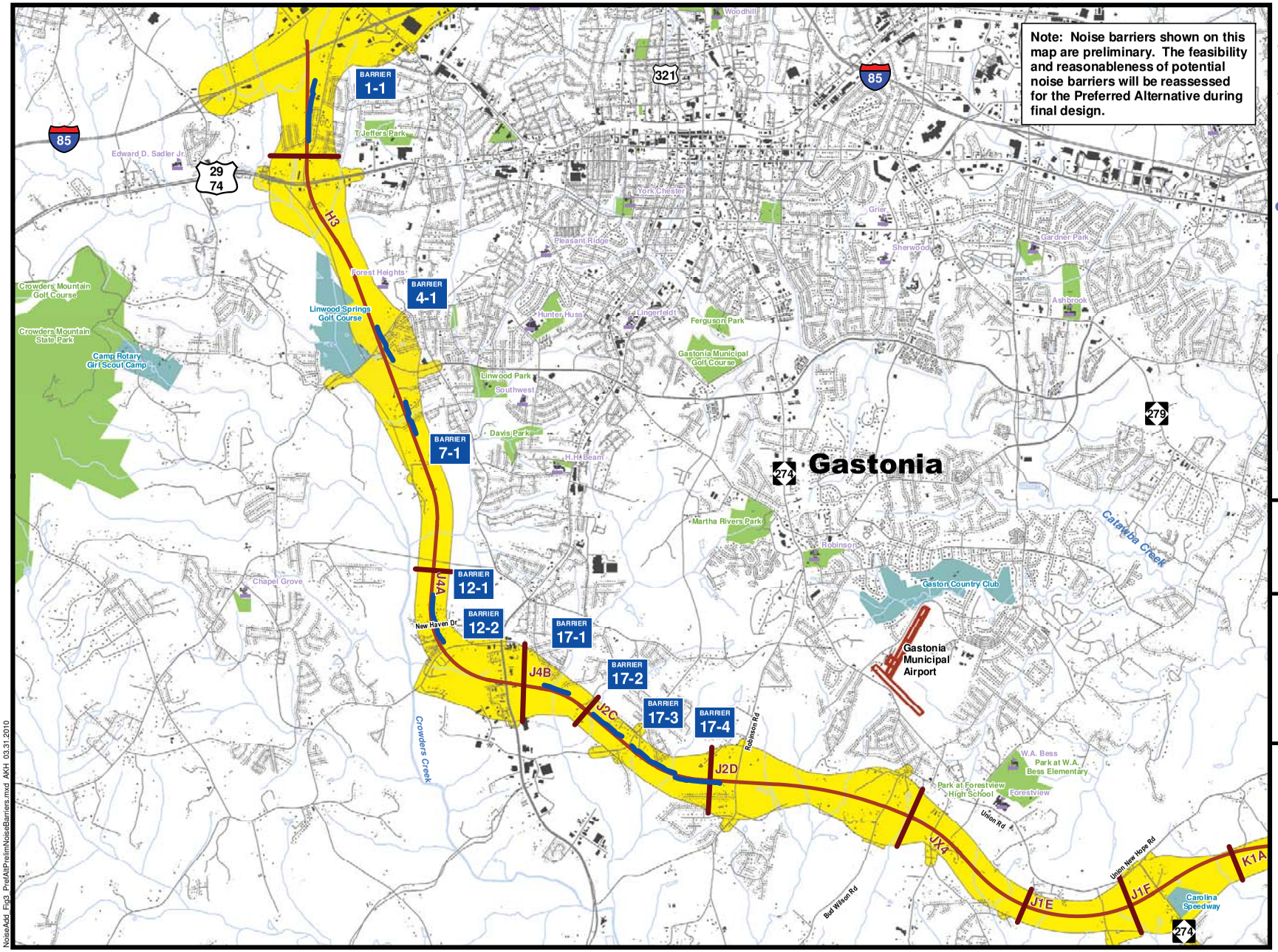
GASTON EAST-WEST CONNECTOR

BARRIER EVALUATION AREA 29

BARRIER 29-2

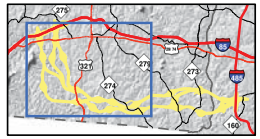
Figure 2b

PrefAlt_NoiseBarrierEvaluationAreas.mxd \ NoiseAdd_Fig2b_NoiseBarrierEvaluationArea29-1.ai AKH 05.03.2010



Legend

- Preliminary Noise Barriers
- Preferred Alternative Refined Centerline
- SegmentBreaks
- Preferred Alternative Refined DSA Corridor
- West Blvd Realignment (Construction by Others)
- Schools
- County Line
- State Line
- Buildings
- Streets
- Hydrology
- Parks
- Private Recreation Facilities and Attractions
- K3A Segment Name



Source: Gaston County and Mecklenburg County
Map printed March 2010.

N

0 0.375 0.75
Miles

NORTH CAROLINA Turnpike Authority

STIP PROJECT NO. U-3321

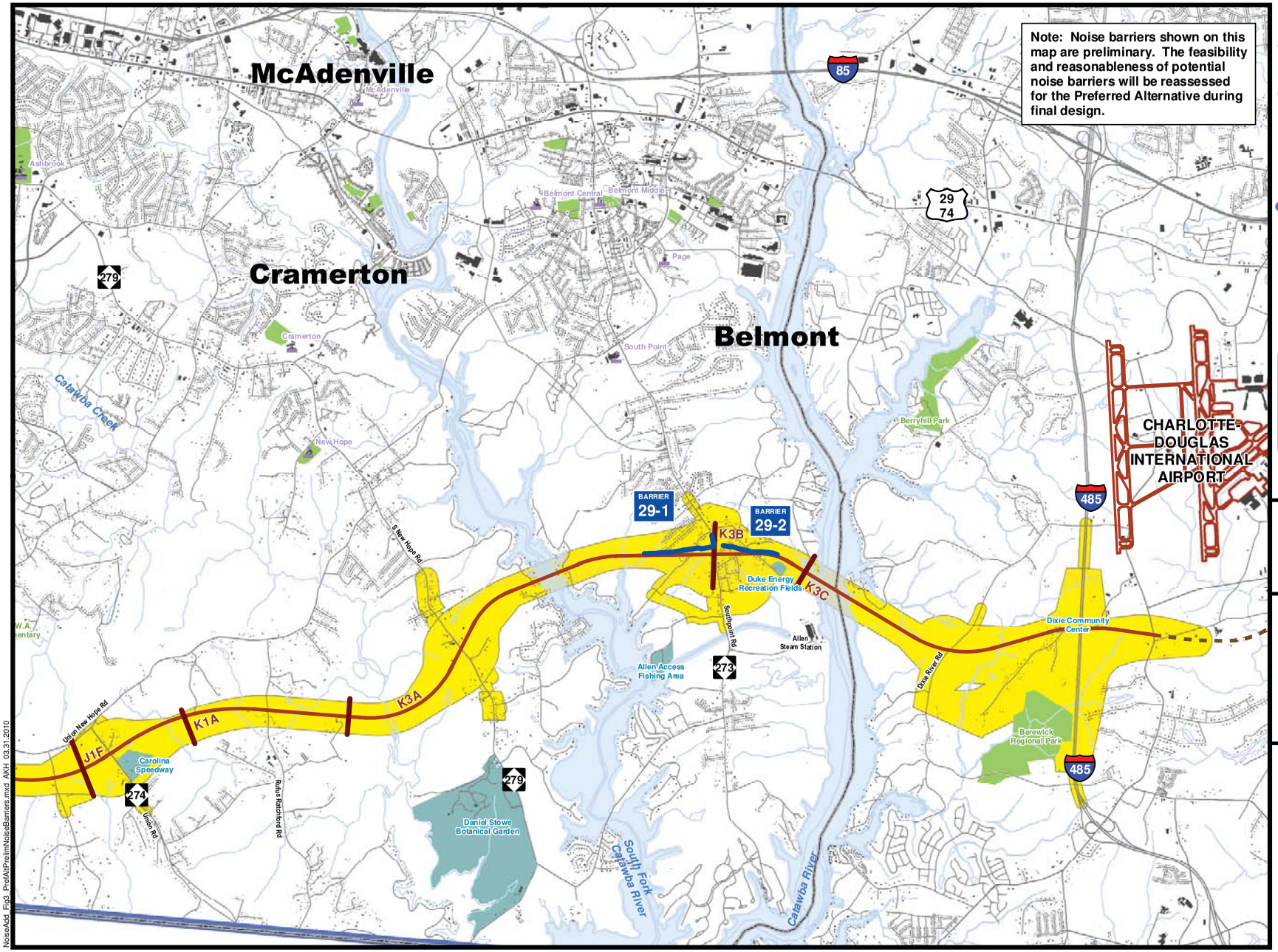
Gaston County and Mecklenburg County

GASTON EAST-WEST CONNECTOR

PREFERRED ALTERNATIVE PRELIMINARY NOISE BARRIERS

Figure 3a

NoiseAdd_Fig3_PrefAllPrelimNoiseBarriers.mxd AKH 03.31.2010



Legend

- Preliminary Noise Barriers
- Preferred Alternative Refined Centerline
- SegmentBreaks
- Preferred Alternative Refined DSA Corridor
- West Blvd Realignment (Construction by Others)
- Schools
- County Line
- State Line
- Buildings
- Streets
- Hydrology
- Parks
- Private Recreation Facilities and Attractions
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map printed March 2010.

N

0 0.375 0.75
Miles

NORTH CAROLINA Turnpike Authority

STIP PROJECT NO. U-3321

Gaston County and Mecklenburg County

GASTON EAST-WEST CONNECTOR

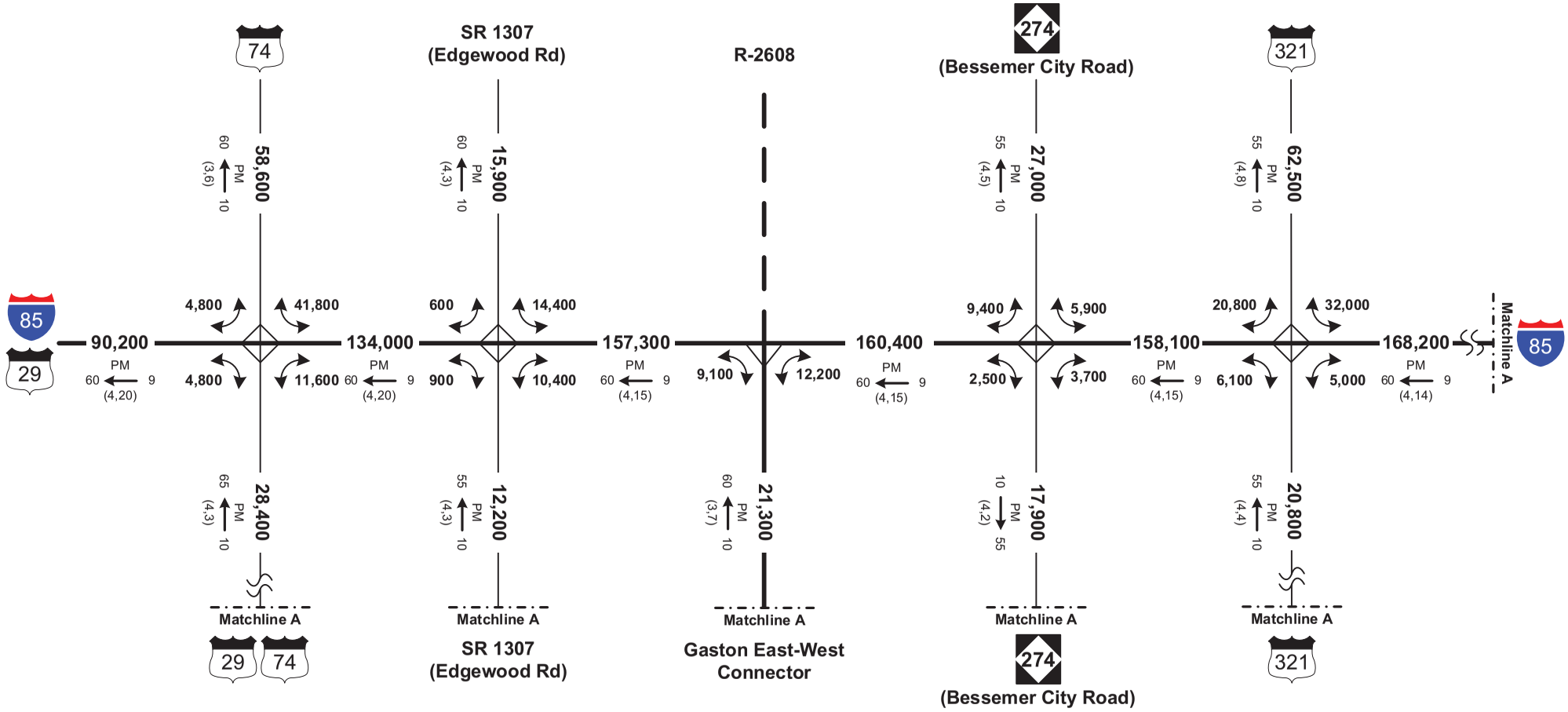
PREFERRED ALTERNATIVE PRELIMINARY NOISE BARRIERS

Figure 3b

NoiseAdd_Fig3_PrefAltPrelimNoiseBarriers.mxd AKH 03.31.2010

APPENDIX A

TRAFFIC PROJECTIONS USED FOR MODELING



LEGEND

- = Breakline
- = Existing Roadway
- = Future Roadway
- ### = VPD - # of Vehicles per Day
  Average Annual Daily Traffic
- DHV = Design Hourly Volume = K30
  K30 = 30th Highest Hourly Volume
- PM = PM Peak Period
- D = Directional Split (%)
- → = Indicates Direction of D
  Reverse Flow for AM Peak
- (d,t) = Duals, TT-ST's (%)
- = Daily Turn Movements

PM
DHV → D
(d,t)

N
NTS

Gaston East-West Connector

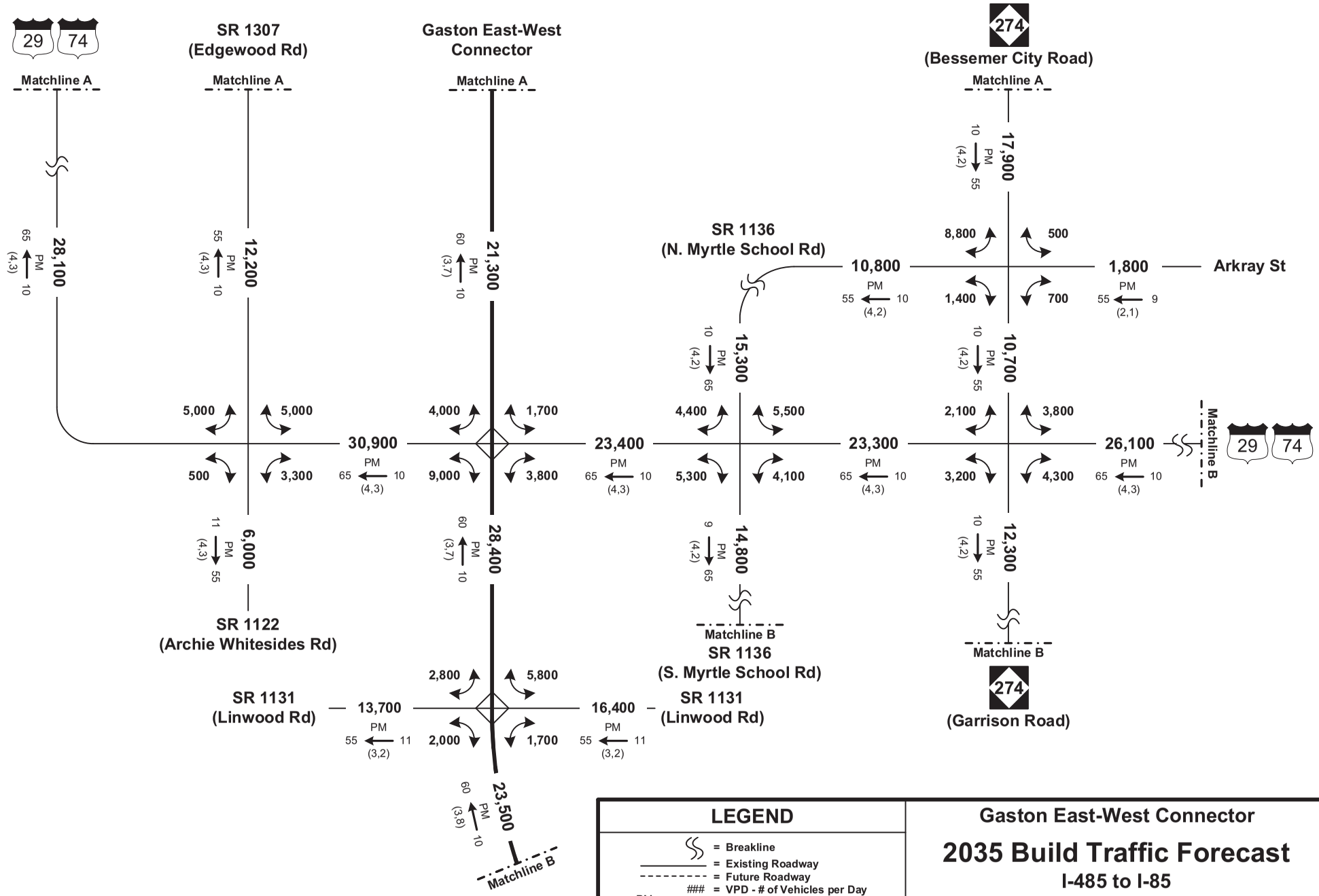
2035 Build Traffic Forecast

I-485 to I-85
without Bud Wilson interchange

STIP: U-3321	**COUNTY:** Gaston/Mecklenburg
DATE: February 2010	**DIVISION:** 12 / 10
PREPARED BY: HNTB North Carolina, P.C. 343 East Six Forks Rd Suite 200 Raleigh, North Carolina 27609	**Figure 1.1**

NORTH CAROLINA Turnpike Authority

HNTB



LEGEND

- = Breakline
- = Existing Roadway
- = Future Roadway
- ### = VPD - # of Vehicles per Day
  Average Annual Daily Traffic
- DHV (PM) → D (d,t) = Design Hourly Volume = K30
  K30 = 30th Highest Hourly Volume
- PM = PM Peak Period
- D = Directional Split (%)
- → = Indicates Direction of D
  Reverse Flow for AM Peak
- (d,t) = Duals, TT-ST's (%)
- = Daily Turn Movements

N
NTS

Gaston East-West Connector

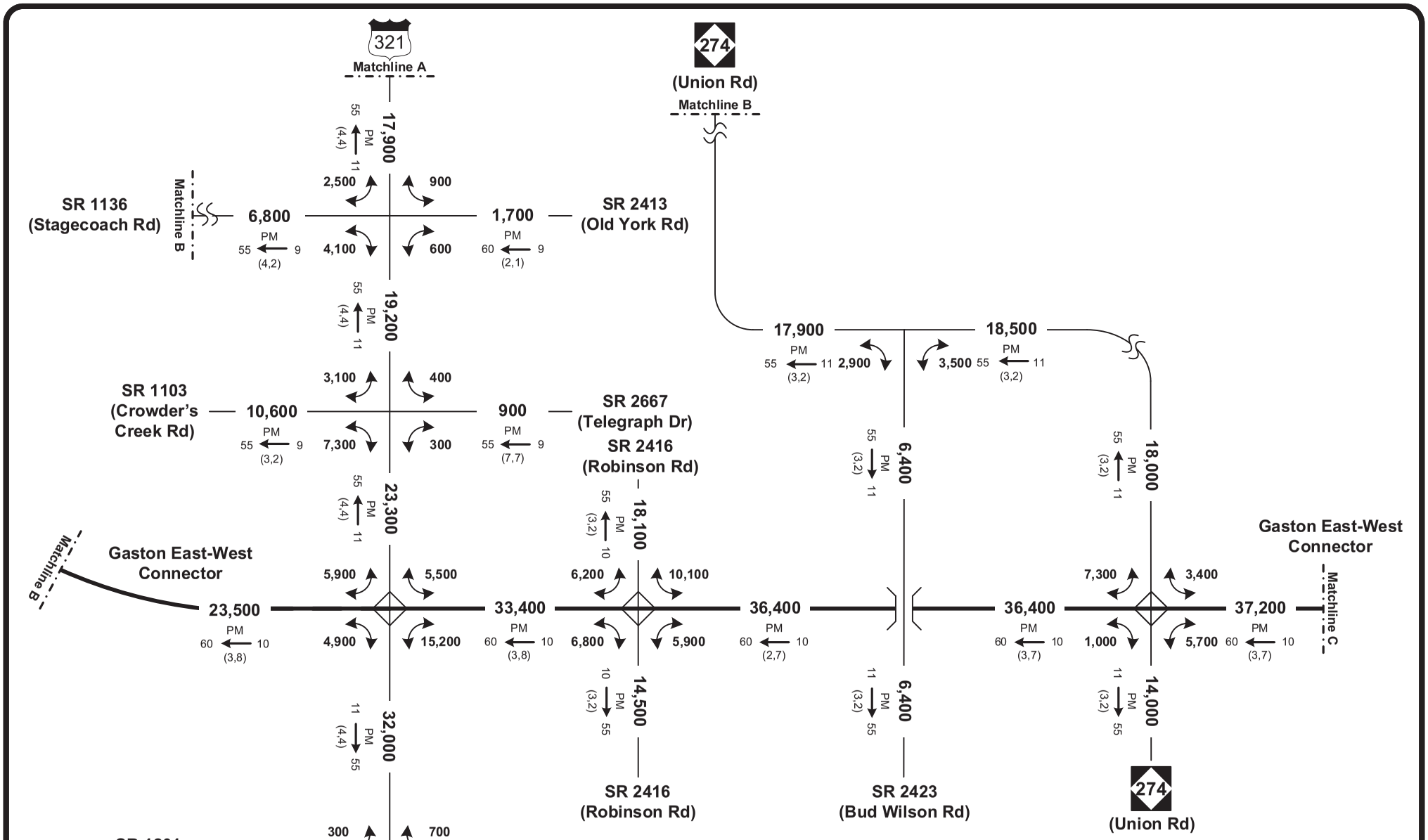
2035 Build Traffic Forecast

I-485 to I-85
without Bud Wilson interchange

STIP: U-3321	**COUNTY:** Gaston/Mecklenburg
DATE: February 2010	**DIVISION:** 12 / 10
PREPARED BY: HNTB North Carolina, P.C. 343 East Six Forks Rd Suite 200 Raleigh, North Carolina 27609	**Figure 1.2**

NORTH CAROLINA Turnpike Authority

HNTB



LEGEND

- = Breakline
- = Existing Roadway
- = Future Roadway
- ### = VPD - # of Vehicles per Day
  Average Annual Daily Traffic
- DHV = Design Hourly Volume = K30
  K30 = 30th Highest Hourly Volume
- PM = PM Peak Period
- D = Directional Split (%)
- → = Indicates Direction of D
  Reverse Flow for AM Peak
- (d,t) = Duals, TT-ST's (%)
- = Daily Turn Movements

PM DHV → D (d,t)

N

NTS

Gaston East-West Connector

2035 Build Traffic Forecast

I-485 to I-85
without Bud Wilson interchange

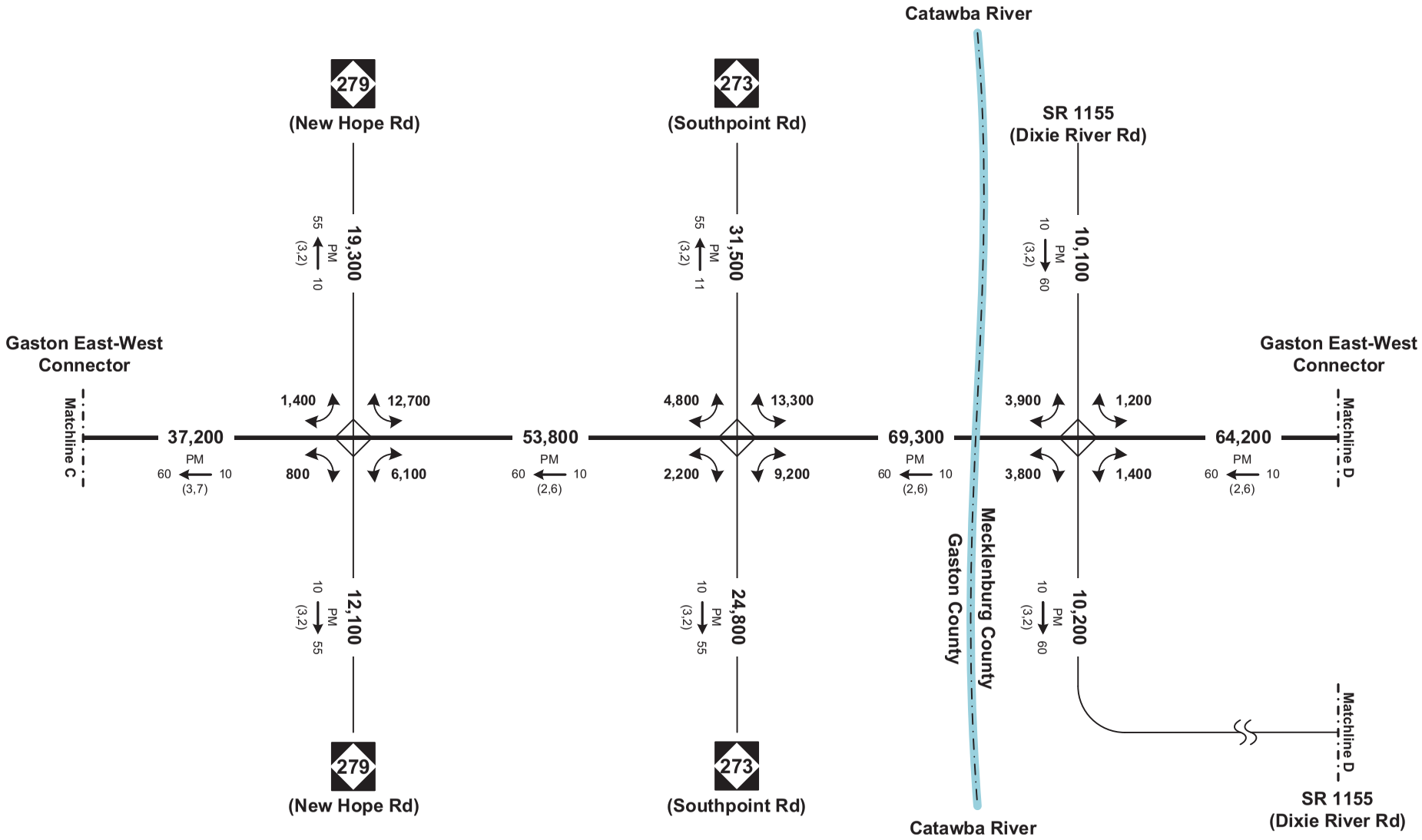
STIP: U-3321	**COUNTY:** Gaston/Mecklenburg
DATE: February 2010	**DIVISION:** 12 / 10

PREPARED BY: HNTB North Carolina, P.C.
343 East Six Forks Rd Suite 200
Raleigh, North Carolina 27609

Figure 1.3

NORTH CAROLINA Turnpike Authority

HNTB



LEGEND

= Breakline
= Existing Roadway
= Future Roadway
= VPD - # of Vehicles per Day
Average Annual Daily Traffic
DHV = Design Hourly Volume = K30
K30 = 30th Highest Hourly Volume
PM = PM Peak Period
D = Directional Split (%)
= Indicates Direction of D
Reverse Flow for AM Peak
(d,t) = Duals, TT-ST's (%)
= Daily Turn Movements

PM
DHV → D
(d,t)

N
NTS

Gaston East-West Connector

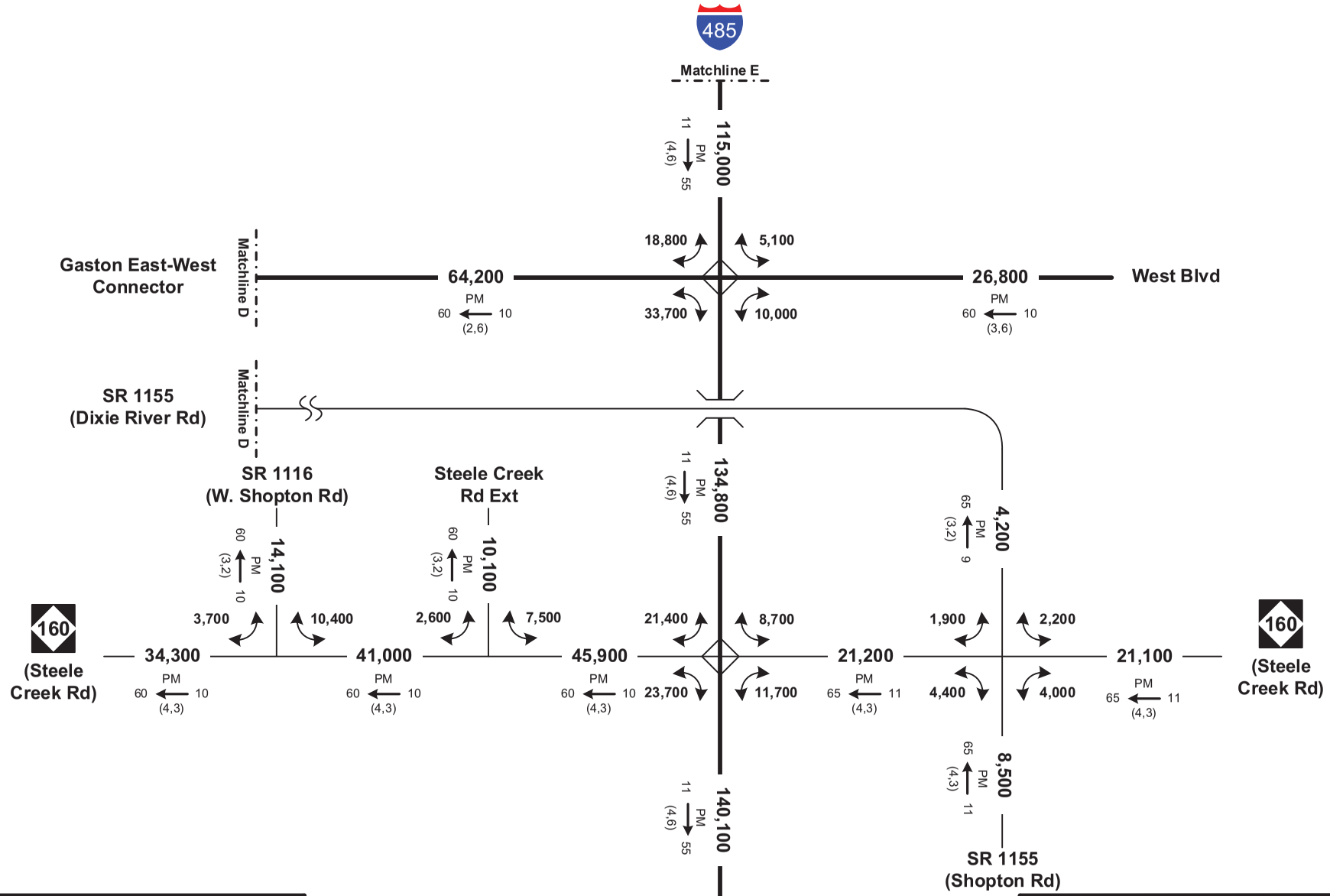
2035 Build Traffic Forecast

I-485 to I-85
without Bud Wilson interchange

STIP: U-3321	**COUNTY:** Gaston/Mecklenburg
DATE: February 2010	**DIVISION:** 12 / 10
PREPARED BY: HNTB North Carolina, P.C. 343 East Six Forks Rd Suite 200 Raleigh, North Carolina 27609	**Figure 1.4**

NORTH CAROLINA Turnpike Authority

HNTB



LEGEND

- = Breakline
- = Existing Roadway
- = Future Roadway
- ### = VPD - # of Vehicles per Day Average Annual Daily Traffic
- DHV = Design Hourly Volume = K30 K30 = 30th Highest Hourly Volume
- PM = PM Peak Period
- D = Directional Split (%)
- → = Indicates Direction of D Reverse Flow for AM Peak
- (d,t) = Duals, TT-ST's (%)
- = Daily Turn Movements

PM DHV → D (d,t)

N

NTS

NORTH CAROLINA Turnpike Authority

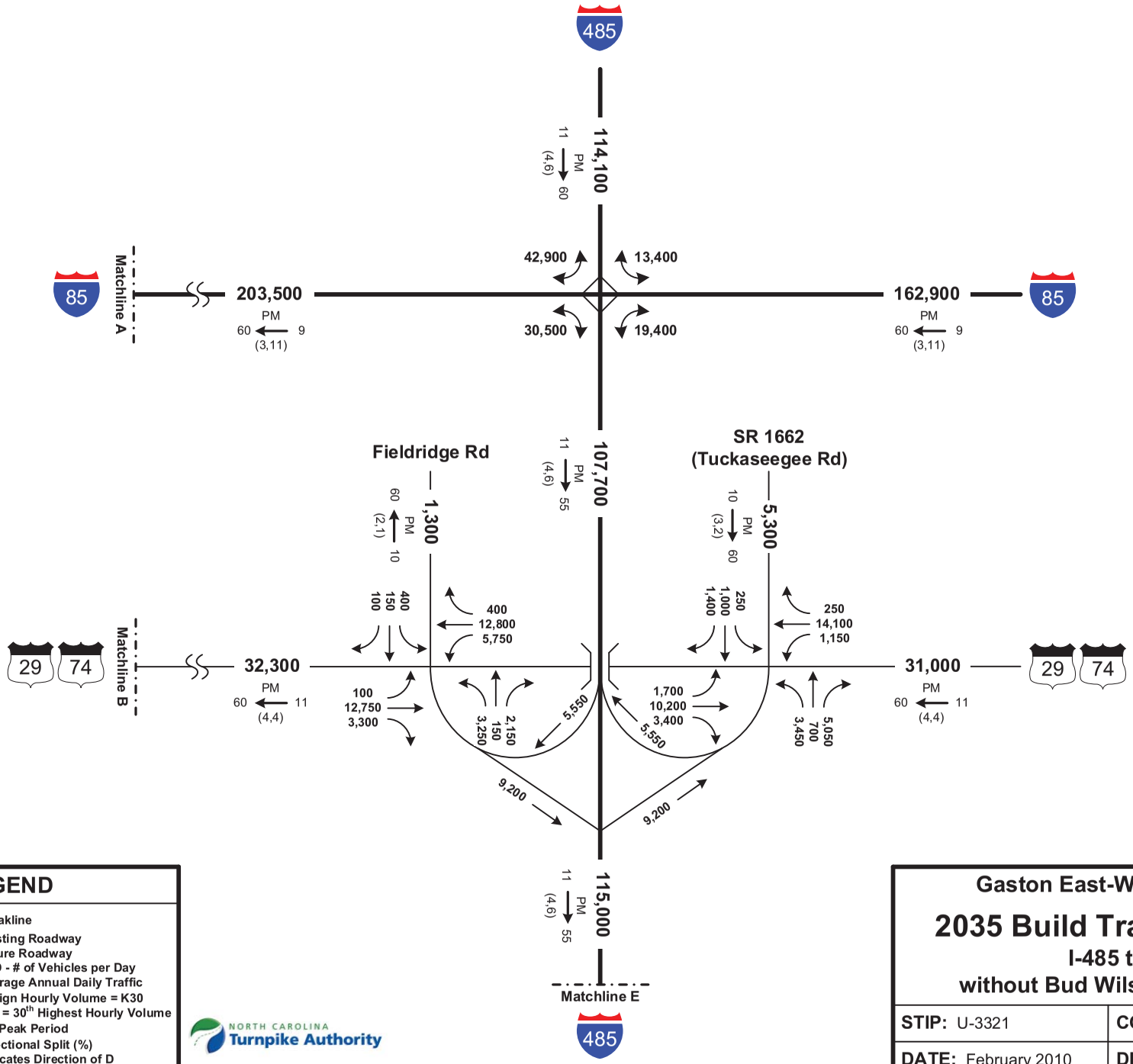
HNTB

Gaston East-West Connector

2035 Build Traffic Forecast

I-485 to I-85
without Bud Wilson interchange

STIP: U-3321	**COUNTY:** Gaston/Mecklenburg
DATE: February 2010	**DIVISION:** 12 / 10
PREPARED BY: HNTB North Carolina, P.C. 343 East Six Forks Rd Suite 200 Raleigh, North Carolina 27609	**Figure 1.5**



LEGEND

- = Breakline
- = Existing Roadway
- = Future Roadway
- ### = VPD - # of Vehicles per Day Average Annual Daily Traffic
- DHV = Design Hourly Volume = K30 K30 = 30th Highest Hourly Volume
- PM = PM Peak Period
- D = Directional Split (%)
- → = Indicates Direction of D Reverse Flow for AM Peak
- (d,t) = Duals, TT-ST's (%)
- = Daily Turn Movements

PM DHV → D (d,t)

N

NTS

NORTH CAROLINA Turnpike Authority

HNTB

Gaston East-West Connector

2035 Build Traffic Forecast

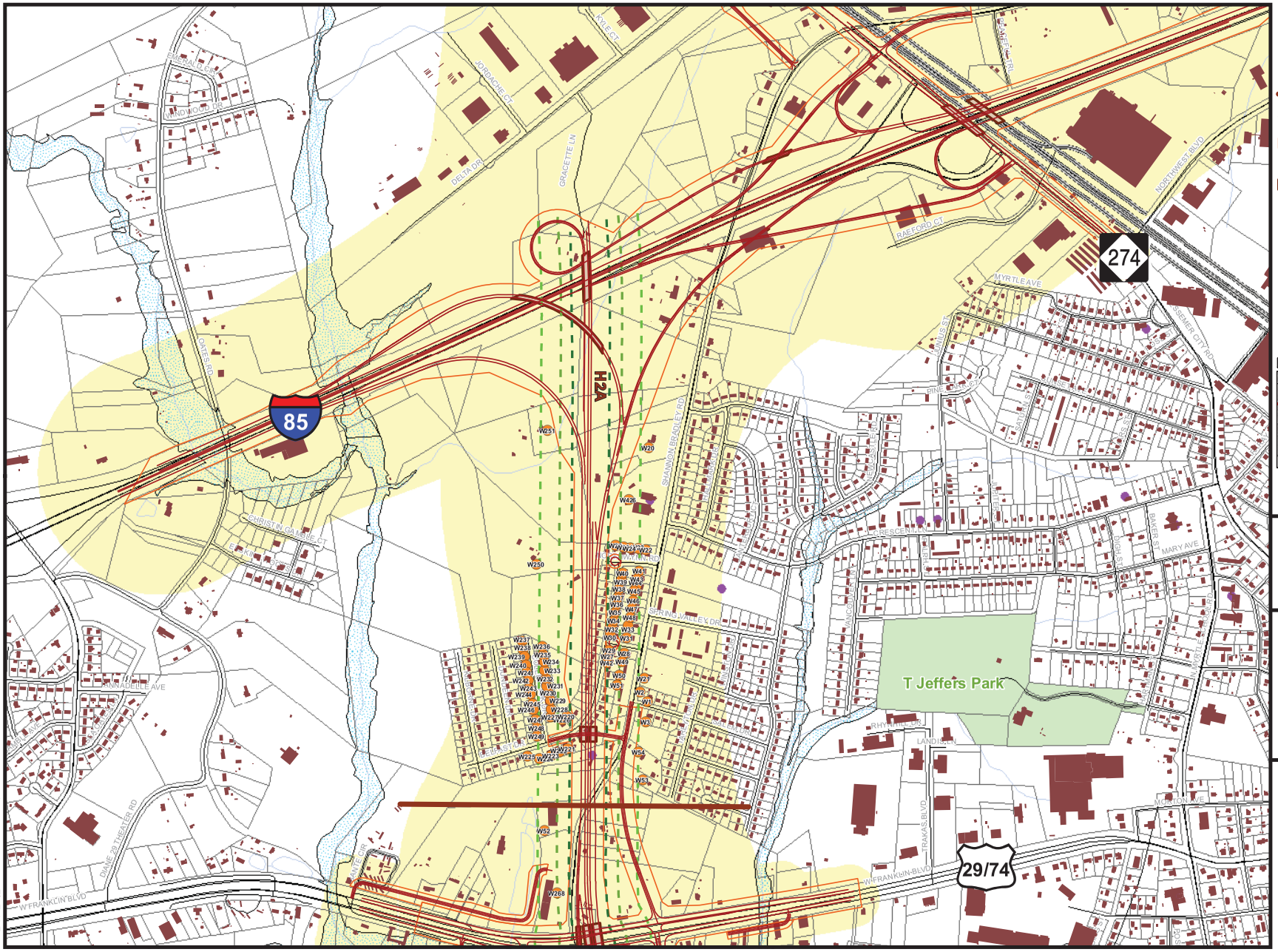
I-485 to I-85

without Bud Wilson interchange

STIP: U-3321	**COUNTY:** Gaston/Mecklenburg
DATE: February 2010	**DIVISION:** 12 / 10
PREPARED BY: HNTB North Carolina, P.C. 343 East Six Forks Rd Suite 200 Raleigh, North Carolina 27609	**Figure 1.6**

APPENDIX B

2035 TRAFFIC NOISE CONTOURS



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

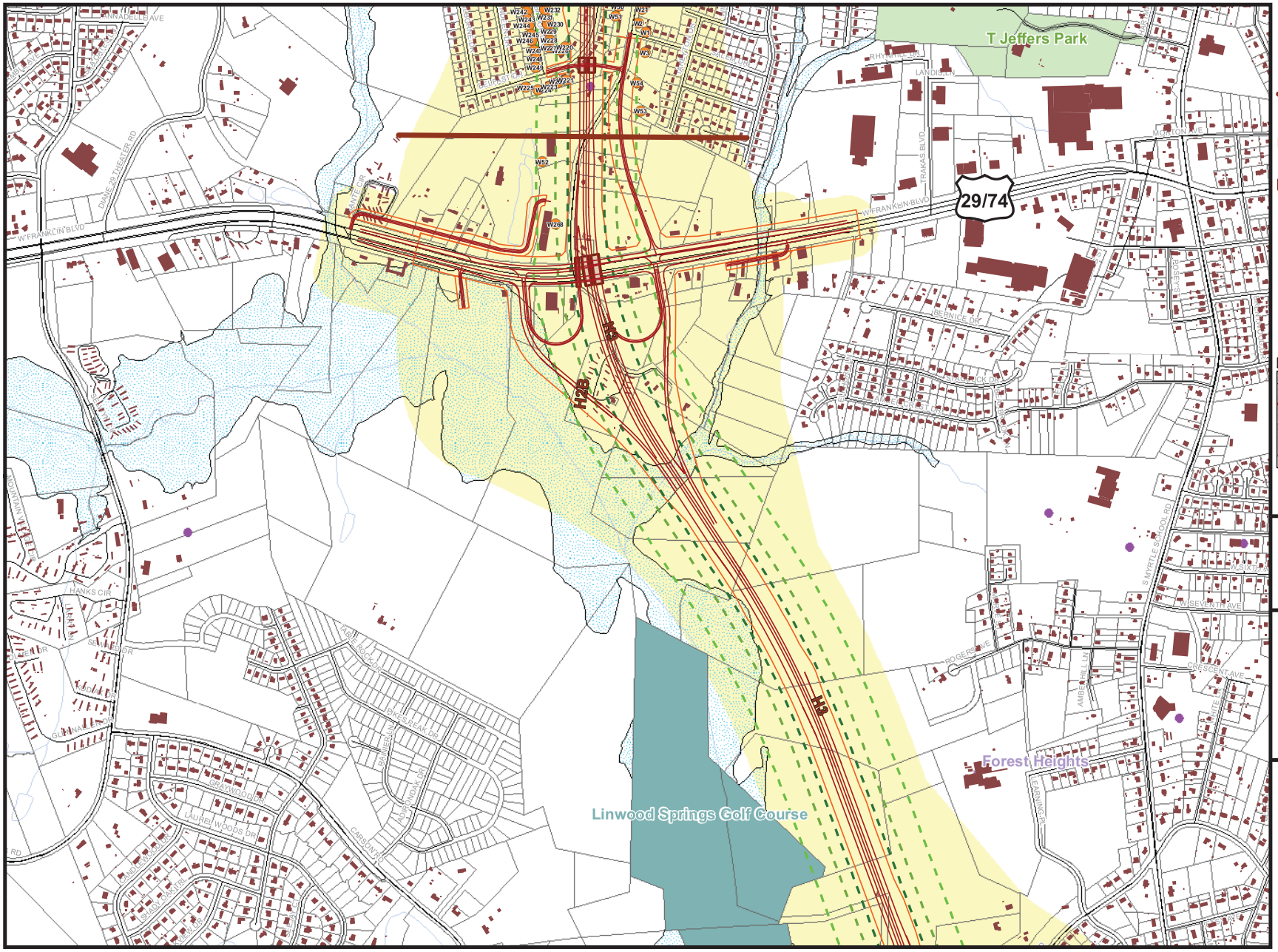
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 1

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

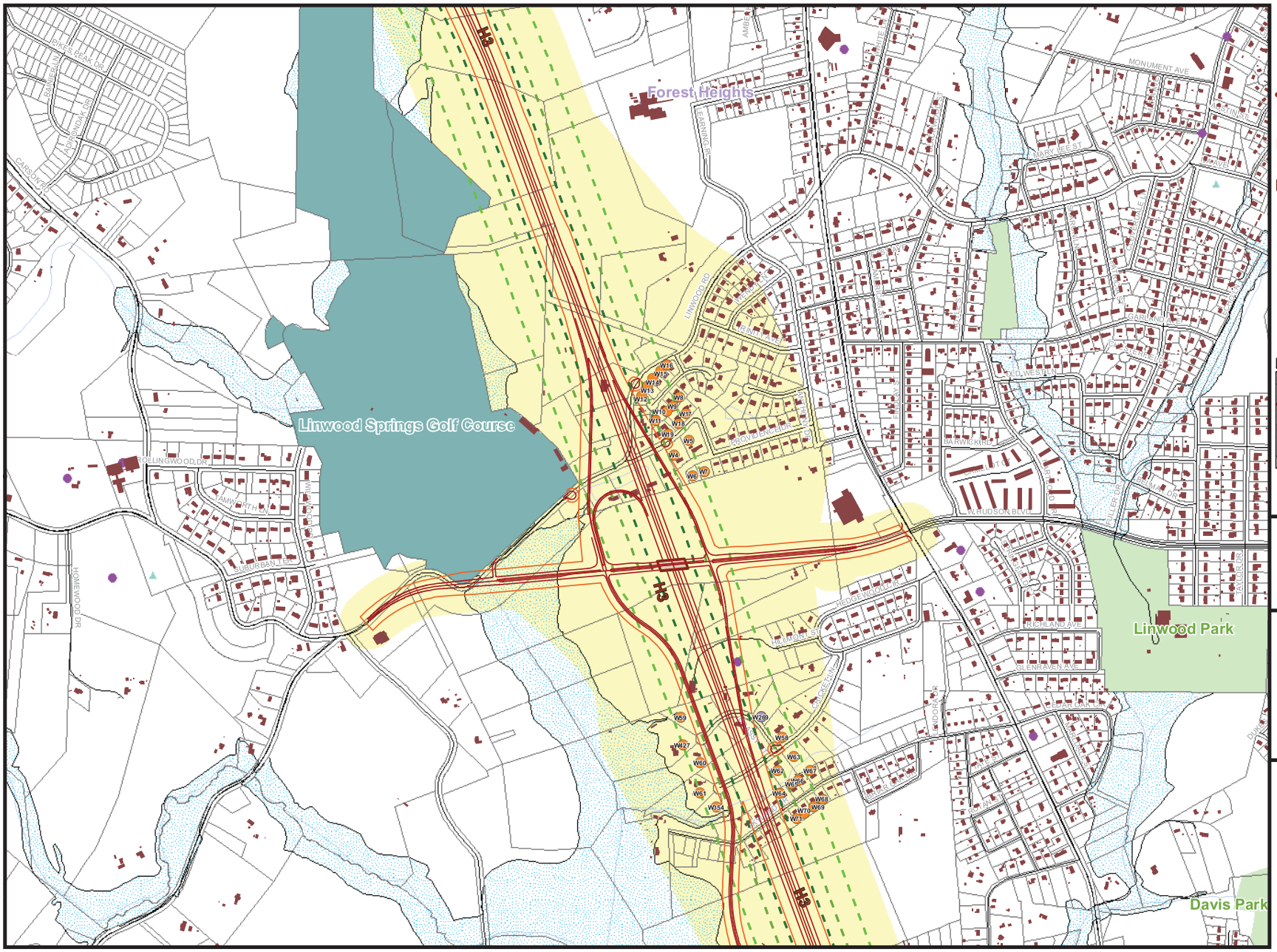
Gaston County and
Mecklenburg County

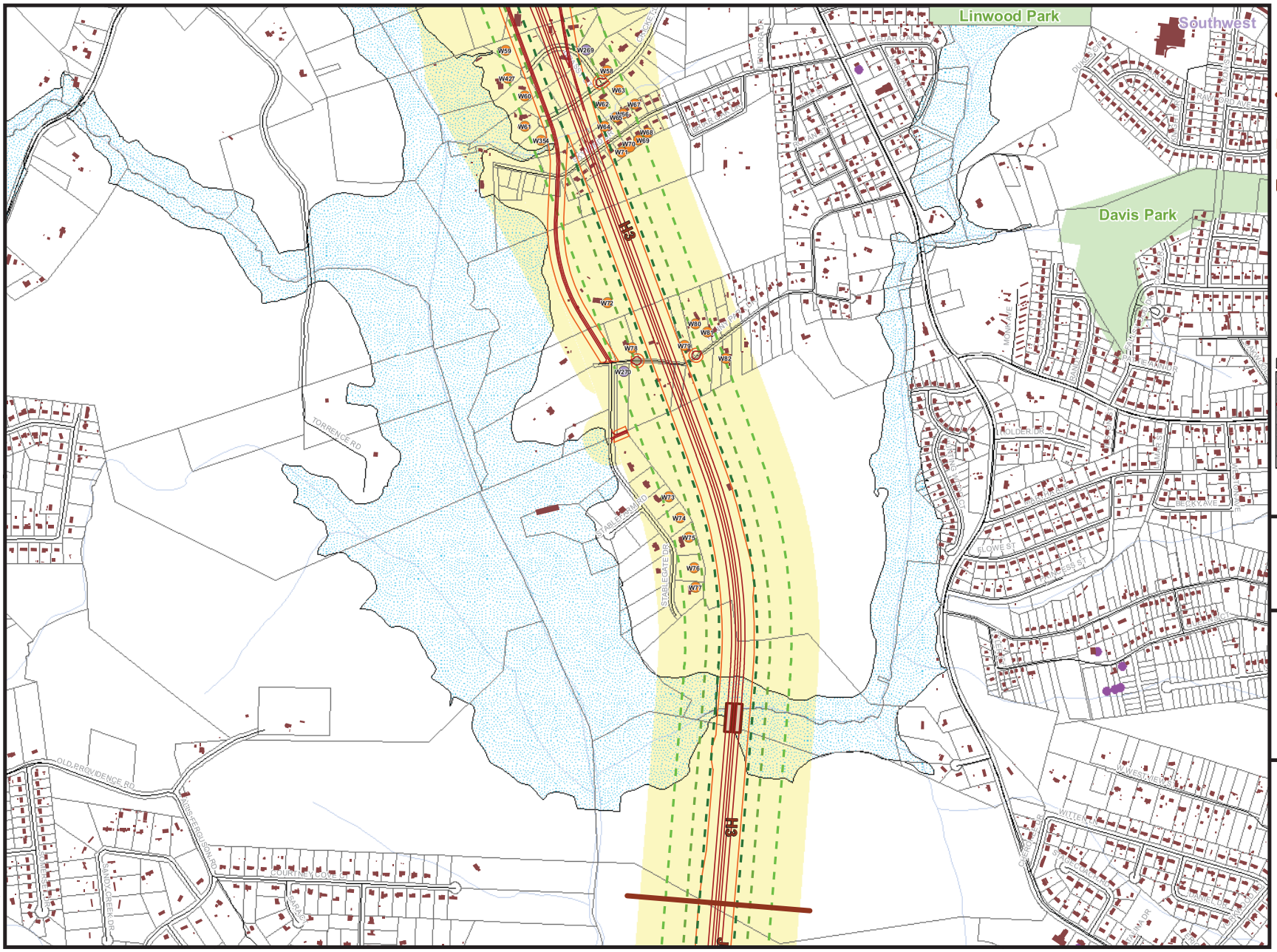
GASTON EAST-WEST CONNECTOR

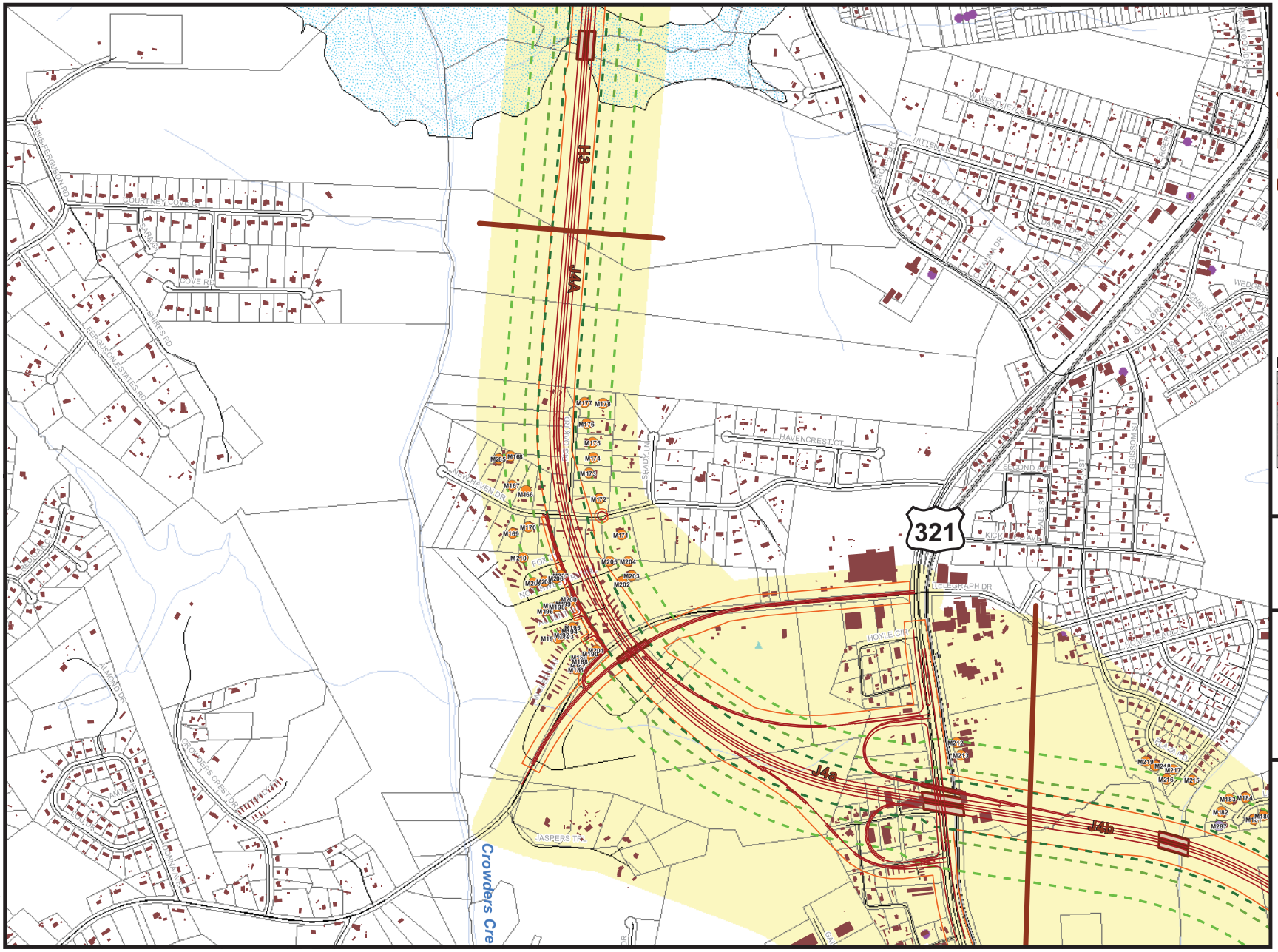
2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 2

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010


Forest Heights
Linwood Springs Golf Course
Linwood Park
Davis Park
H3
LINWOOD RD
MONUMENT AVE
W. HUDSON BLVD
GLENRAVEN AVE
HOMEWOOD DR
SUBURBAN ST
DILLINGWOOD DR
CARBONDALE
ADIRONDACK DR
PIKE PEAK DR
PALISADES DR
AMBER
LERNING RD
MARKET ST
GARWICK RD
MEDOLEN DR
HELMONT ST
HIGHLAND AVE
MAPLE LANE
WOODRUFF
DIXIE
Legend
New Receptor Points
Receptor Points Refined
71dBA Leq
66dBA Leq
60dBA Leq
Segment Break Lines
Preferred Alternative Refined Design
Preferred Alternative Refined Right of Way
Buildings
Preferred Alternative Bridges
Churches
Cemeteries
Schools
Streets
Railroads
Parcels
Parks
Private Recreation Facilities
Hydrology
Preferred Alternative Refined Corridor
K3A Segment Name
Source: Gaston County and Mecklenburg County
Map Printed March 2010
0 400 800
Feet
N
NORTH CAROLINA Turnpike Authority
STIP PROJECT NO. U-3321
Gaston County and Mecklenburg County
GASTON EAST-WEST CONNECTOR
2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS
Figure 3
FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010


Linwood Park
Southwest
Davis Park
H3
H9
TORRENCE RD
OLD PROVIDENCE RD
STABLEGATE DR
MOLDER DR
BECKY AVE
FLOWE ST
WESTVIEW
WITTEN
Legend
New Receptor Points
Receptor Points Refined
71dBA Leq
66dBA Leq
60dBA Leq
Segment Break Lines
Preferred Alternative Refined Design
Preferred Alternative Refined Right of Way
Buildings
Preferred Alternative Bridges
Churches
Cemeteries
Schools
Streets
Railroads
Parcels
Parks
Private Recreation Facilities
Hydrology
Preferred Alternative Refined Corridor
K3A Segment Name
Source: Gaston County and Mecklenburg County
Map Printed March 2010
N
0
400
800
Feet
NORTH CAROLINA Turnpike Authority
STIP PROJECT NO. U-3321
Gaston County and Mecklenburg County
GASTON EAST-WEST CONNECTOR
2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS
Figure 4
FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

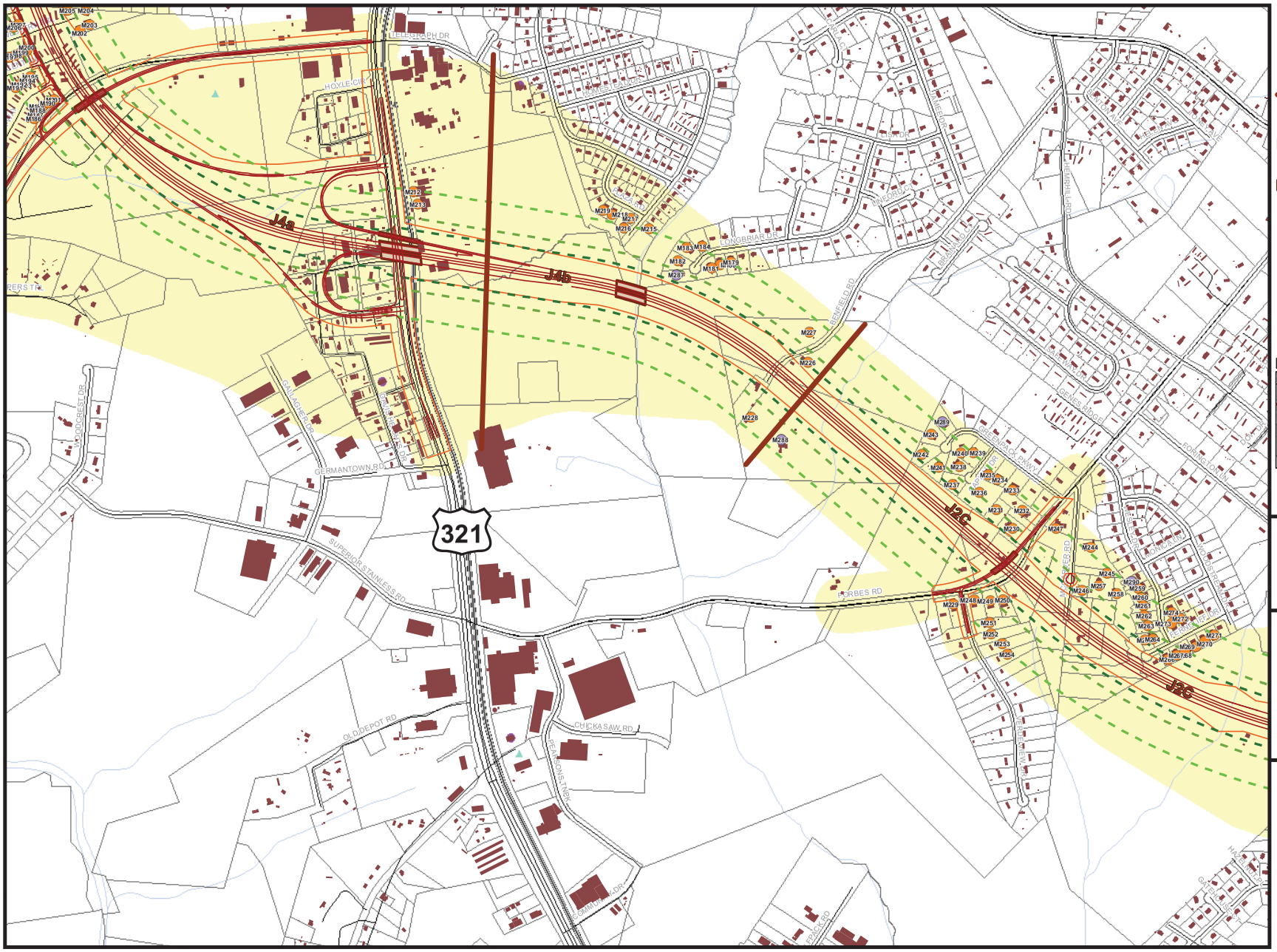
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 5

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

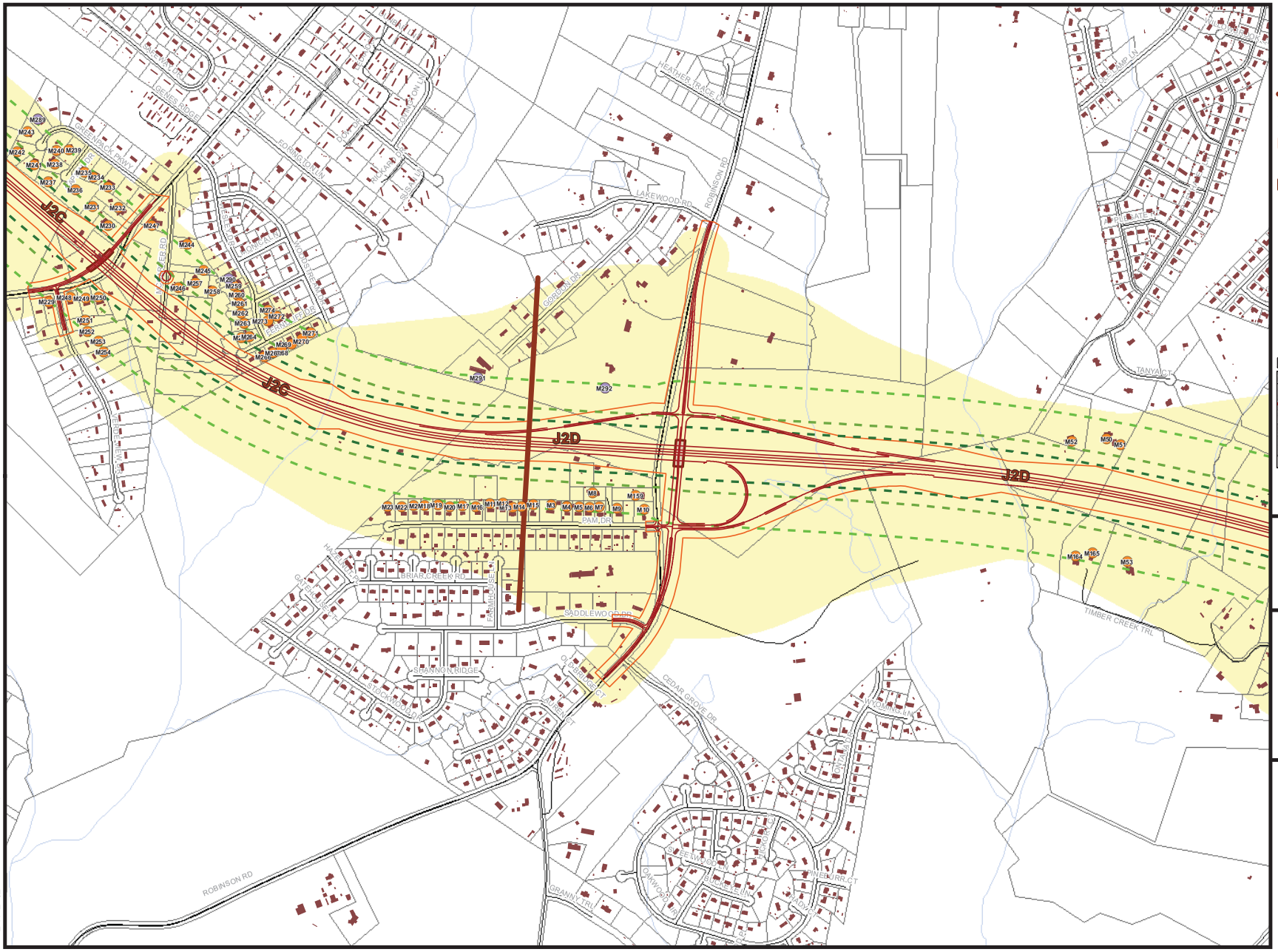
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 6

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

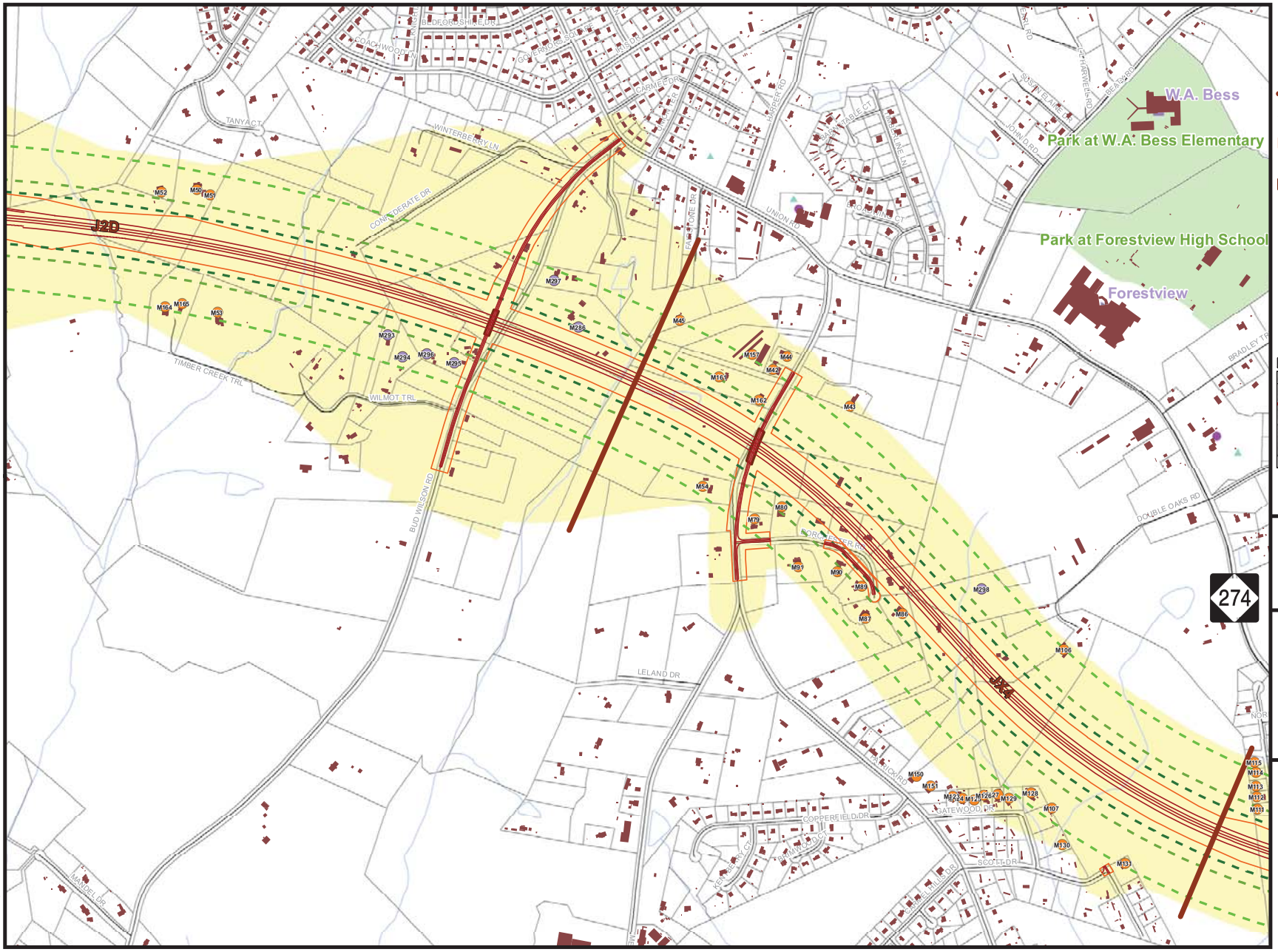
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 7

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
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- Cemeteries
- Schools
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- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

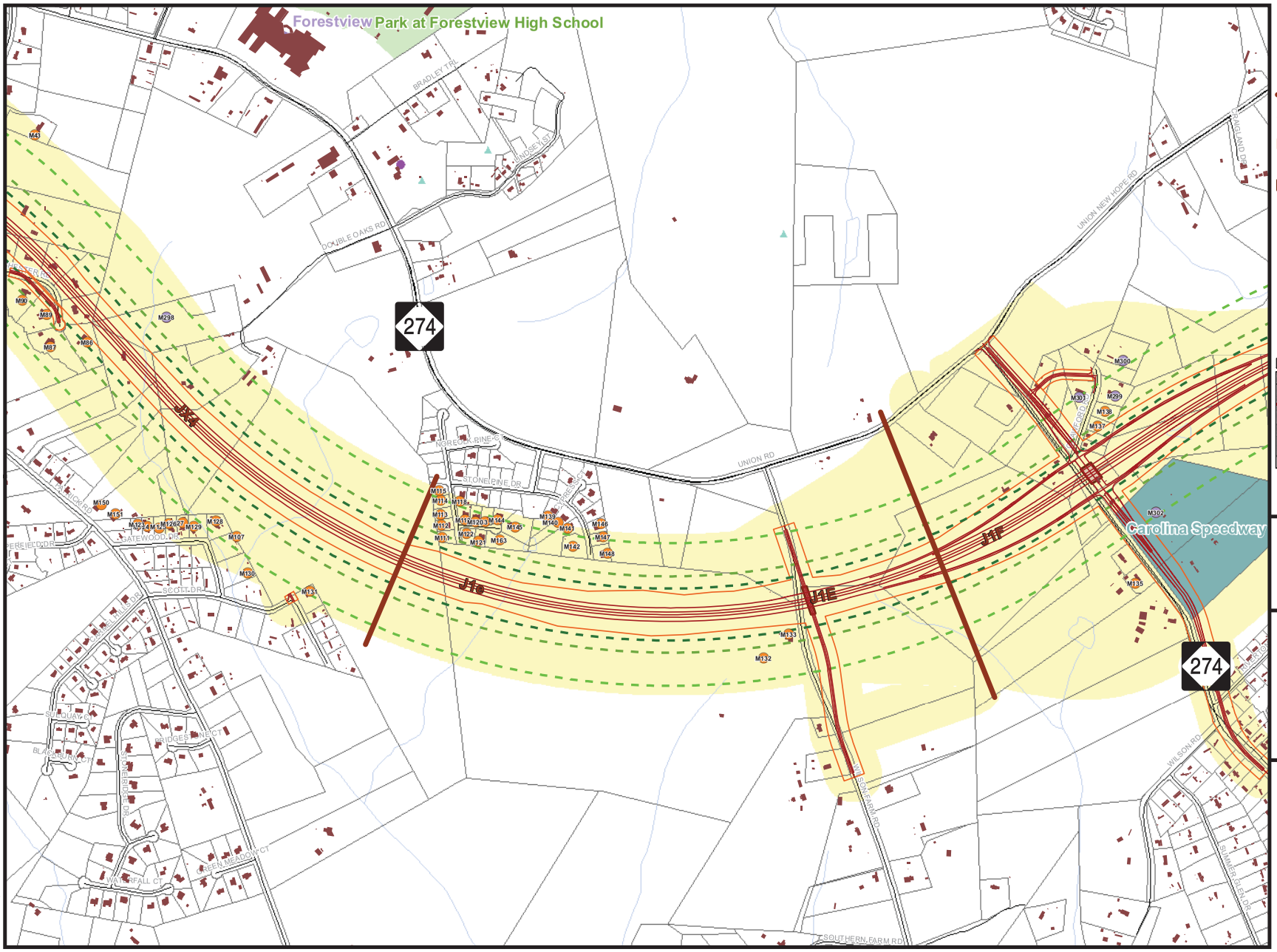
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 8

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
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- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

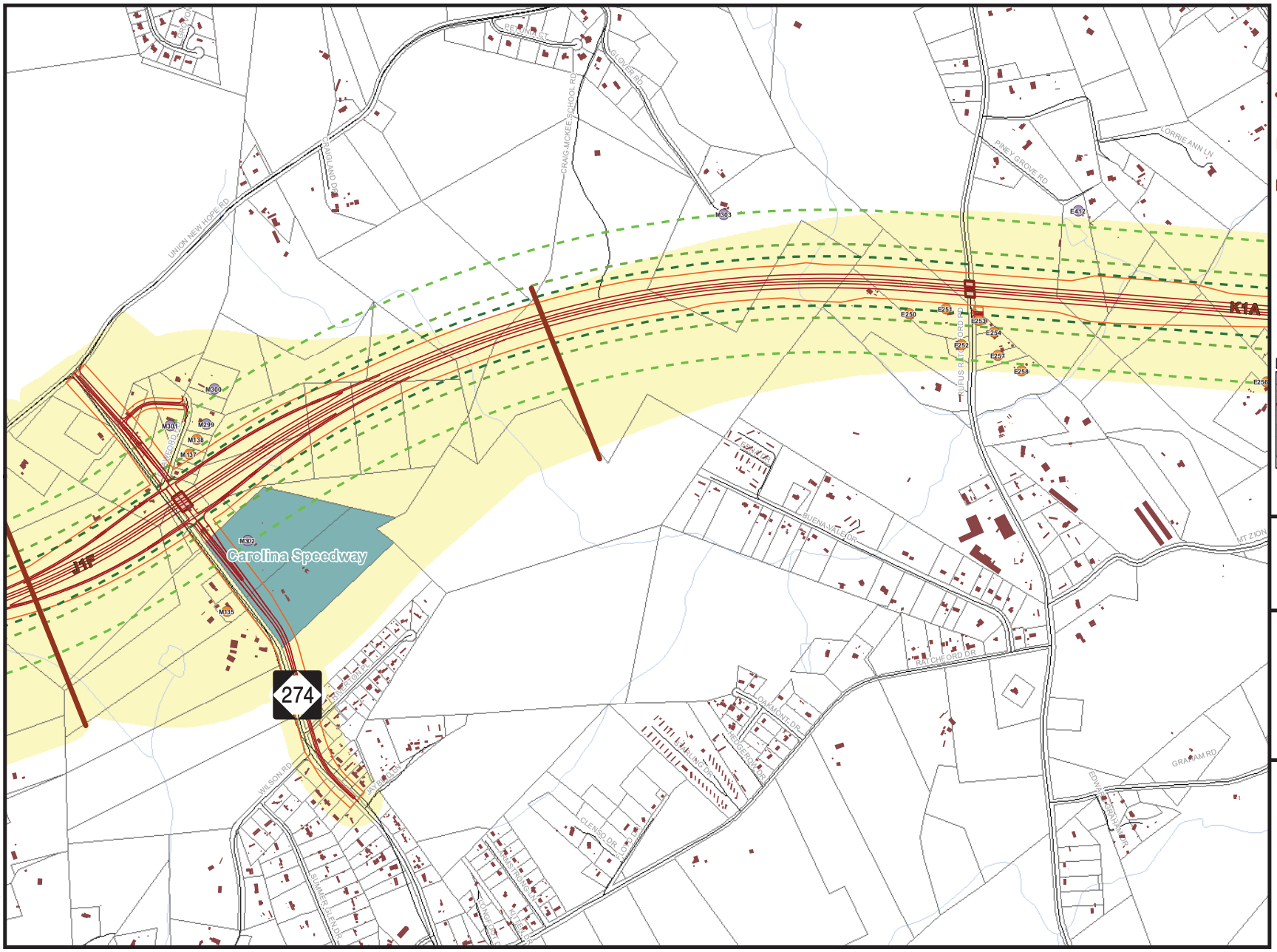
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 9

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
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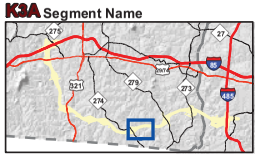
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name



Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

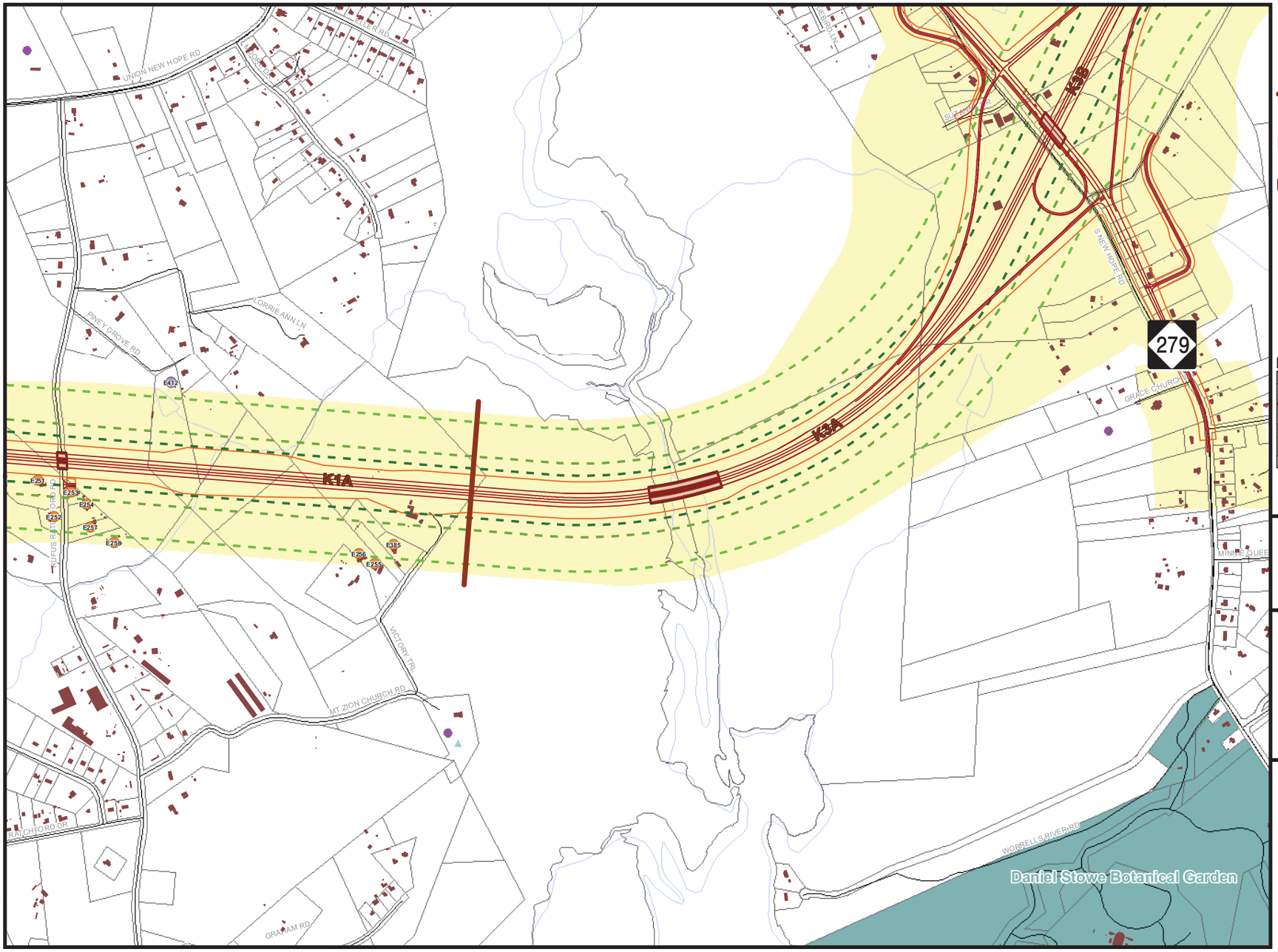
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 10

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

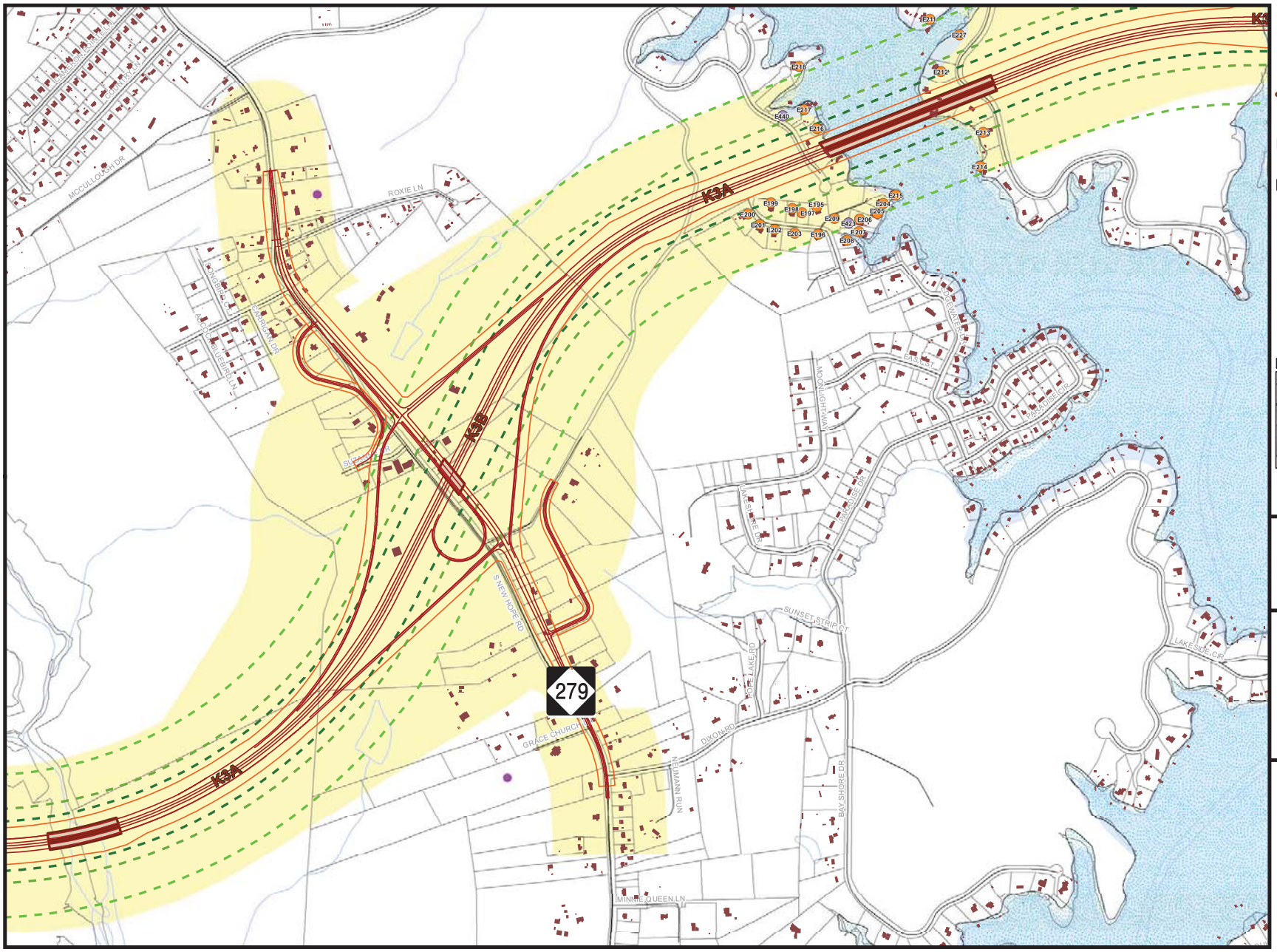
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 11

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

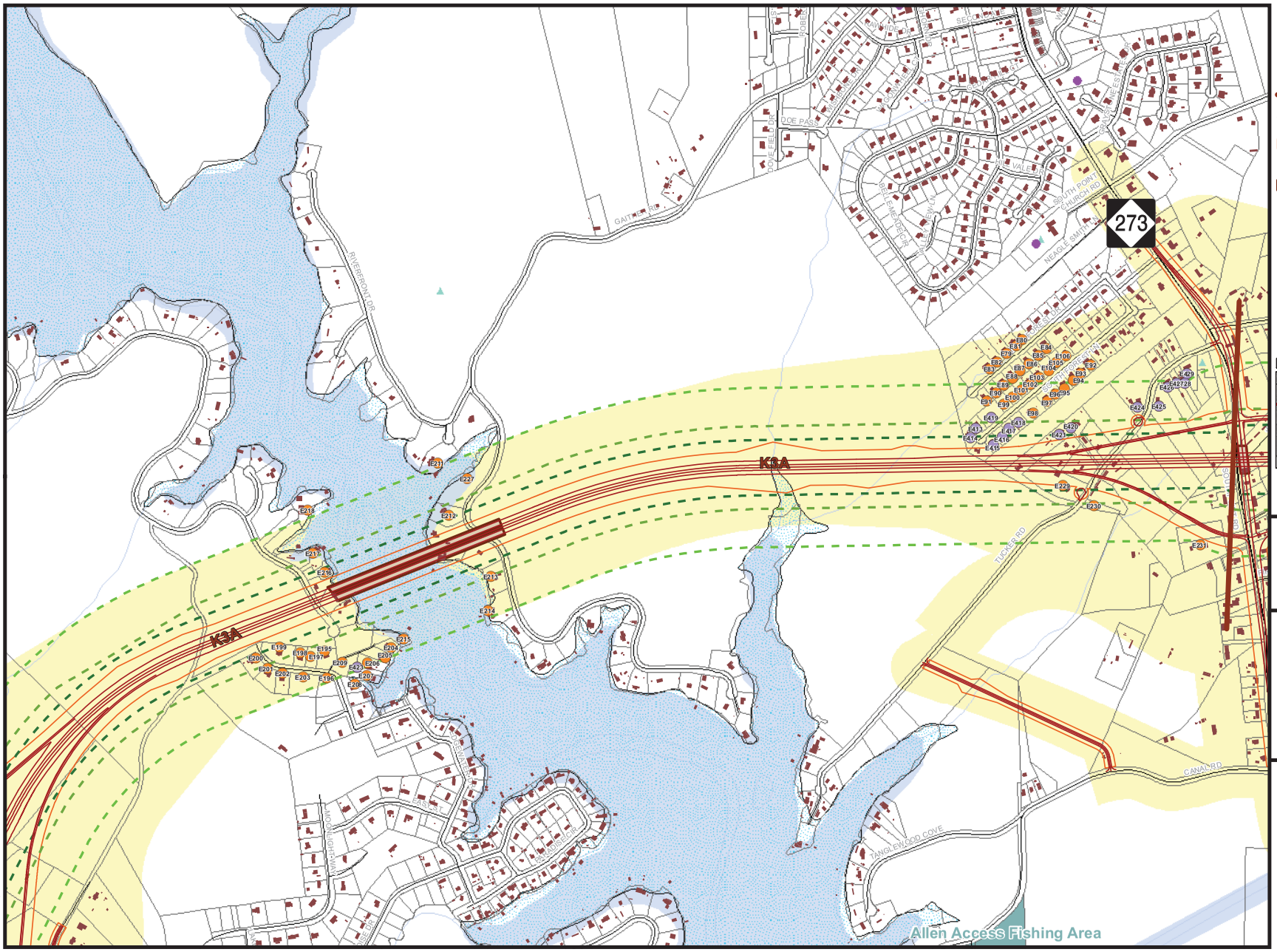
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 12

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

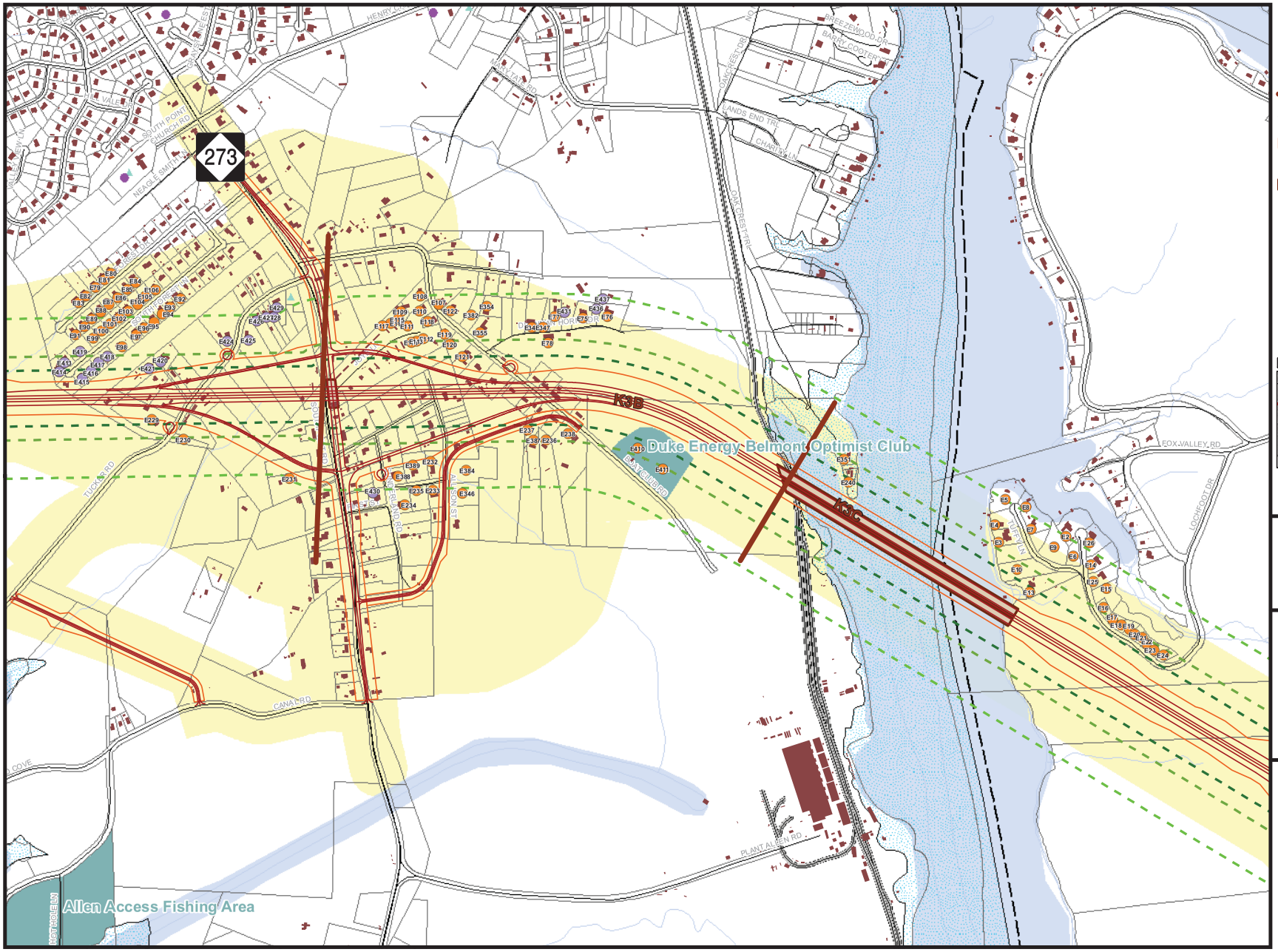
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 13

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

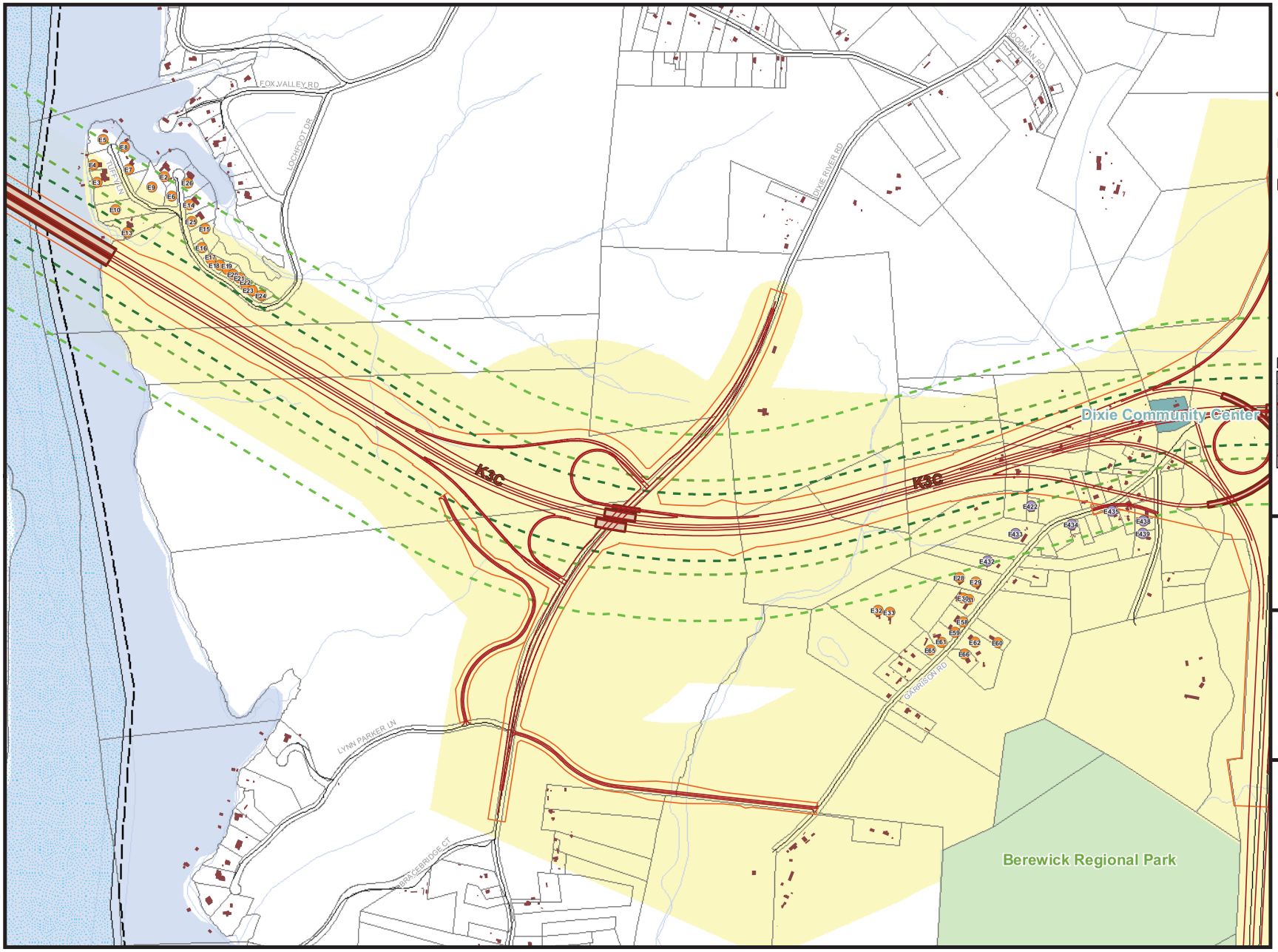
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 14

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

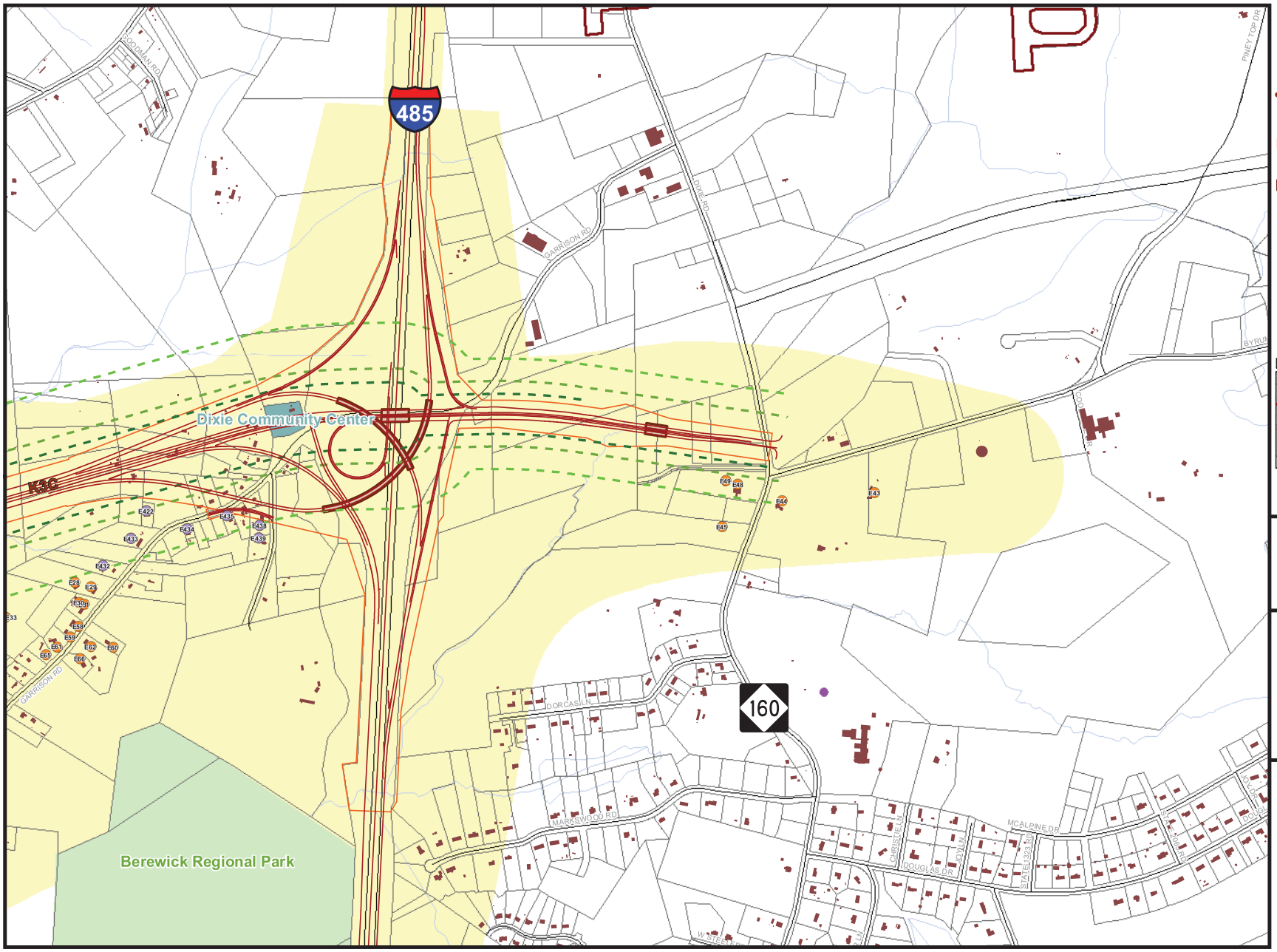
Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 15

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010



Legend

- New Receptor Points
- Receptor Points Refined
- 71dBA Leq
- 66dBA Leq
- 60dBA Leq
- Segment Break Lines
- Preferred Alternative Refined Design
- Preferred Alternative Refined Right of Way
- Buildings
- Preferred Alternative Bridges
- Churches
- Cemeteries
- Schools
- Streets
- Railroads
- Parcels
- Parks
- Private Recreation Facilities
- Hydrology
- Preferred Alternative Refined Corridor
- K3A Segment Name

Source: Gaston County and Mecklenburg County
Map Printed March 2010

N

0 400 800
Feet

NORTH CAROLINA Turnpike Authority

STIP PROJECT
NO. U-3321

Gaston County and
Mecklenburg County

GASTON EAST-WEST CONNECTOR

2035 NOISE CONTOURS AND SENSITIVE RECEPTOR LOCATIONS

Figure 16

FEIS_AppJ_Fig_2035NoiseContours&Receptors.mxd AKH 03.30.2010

APPENDIX C

NOISE CONTOUR SUMMARY SPREADSHEETS

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt I-85 to US 29/74

INPUTS FOR AMBIENT NOISE LEVELS

D-M	N/A AMB # 1	N/A AMB # 2
25	0.0	0.0
50	0.0	0.0
100	0.0	0.0
200	0.0	0.0
400	0.0	0.0
800	0.0	0.0
1600	0.0	0.0
R0	0.0	0.0

BACKGROUND NOISE LEVEL FOR AREA 45.0

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- Alt 4 I-85 to US 29/74	N/A PRD # 2	N/A PRD # 3
72	76.6	0.0	0.0
91	74.6	0.0	0.0
141	71.7	0.0	0.0
241	67.4	0.0	0.0
441	59.9	0.0	0.0
841	54.1	0.0	0.0
1641	45.4	0.0	0.0
R0	37.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	129.9
67	244.5
66	264.5
50	1144.8
DESIRED 55 dBA ^	754.0

Minimum Right-of-way Distance From CL 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
W1	Residence	B	3132 SALEM DR	50	h2a	Project	512.3	-	-	58	8
W2	Residence	B	3138 SALEM DR	51	h2a	"	449.1	-	-	59	8
W3	Residence	B	3125 SALEM DR	50	h2a	"	505.0	-	-	58	8
W20	Residence	B	937 SHANNON BRADLEY RD	48	h2a	"	506.0	-	-	58	10
W21	Residence	B	550 SHANNON BRADLEY RD	51	h2a	"	482.3	-	-	58	7
W22	Residence	B	3200 NORTHWYNN DR	50	h2a	"	492.2	-	-	58	8
W23	Residence	B	3206 NORTHWYNN DR	48	h2a	"	422.0	-	-	60	12
W24	Residence	B	3212 NORTHWYNN DR	48	h2a	"	353.7	-	-	62	14
W25	Residence	B	3218 NORTHWYNN DR	48	h2a	"	294.9	-	-	64	* 16
W26	Residence	B	3224 NORTHWYNN DR	45	h2a	"	228.5	-	-	* 67	* 22
W27	Residence	B	642 BELFAST DR	45	h2a	"	162.3	-	-	* 70	* 25
W28	Residence	B	641 SHANNON BRADLEY RD	48	h2a	"	308.0	-	-	64	* 16
W29	Residence	B	650 BELFAST DR	45	h2a	"	177.0	-	-	* 69	* 24
W30	Residence	B	700 BELFAST DR	45	h2a	"	185.4	-	-	* 69	* 24
W31	Residence	B	701 SHANNON BRADLEY RD	48	h2a	"	329.7	-	-	63	* 15
W32	Residence	B	706 BELFAST DR	48	h2a	"	203.9	-	-	* 68	* 20
W33	Residence	B	639 SHANNON BRADLEY RD	48	h2a	"	342.1	-	-	62	14
W34	Residence	B	714 BELFAST DR	45	h2a	"	216.6	-	-	* 68	* 23
W35	Residence	B	720 BELFAST DR	45	h2a	"	229.3	-	-	* 67	* 22
W36	Residence	B	726 BELFAST DR	45	h2a	"	243.9	-	-	* 67	* 22
W37	Residence	B	732 BELFAST DR	45	h2a	"	251.1	-	-	* 66	* 21
W38	Residence	B	738 BELFAST DR	45	h2a	"	263.7	-	-	* 66	* 21
W39	Residence	B	744 BELFAST DR	45	h2a	"	278.3	-	-	65	* 20
W40	Residence	B	750 BELFAST DR	45	h2a	"	289.2	-	-	64	* 19
W41	Residence	B	749 SHANNON BRADLEY RD	48	h2a	"	435.0	-	-	59	11
W42	Residence	B	634 BELFAST DR	45	h2a	"	160.8	-	-	* 70	* 25
W43	Residence	B	743 SHANNON BRADLEY RD	48	h2a	"	416.6	-	-	60	12
W44	Residence	B	737 SHANNON BRADLEY RD	48	h2a	"	405.7	-	-	60	12
W45	Residence	B	731 SHANNON BRADLEY RD	48	h2a	"	389.0	-	-	61	13
W46	Residence	B	725 SHANNON BRADLEY RD	48	h2a	"	385.9	-	-	61	13
W47	Residence	B	719 SHANNON BRADLEY RD	48	h2a	"	369.4	-	-	61	13
W48	Residence	B	713 SHANNON BRADLEY RD	48	h2a	"	354.8	-	-	62	14
W49	Residence	B	SHANNON BRADLEY RD	48	h2a	"	291.6	-	-	64	* 16
W50	Res-6 apts	B	SHANNON BRADLEY RD	48	h2a	"	269.8	-	-	65	* 17
W51	Res-6 apts	B	SHANNON BRADLEY RD	48	h2a	"	249.6	-	-	* 66	* 18
W52	Business	C	743 SHANNON BRADLEY RD	53	h2a	"	376.5	-	-	61	8
W53	Residence	B	420 SHANNON BRADLEY RD	48	h2a	"	475.3	-	-	59	11
W54	Residence	B	424 SHANNON BRADLEY RD	50	h2a	"	440.5	-	-	59	9
W220	Residence	B	551 BELFAST DR	45	h2a	"	188.2	-	-	* 69	* 24
W221	Residence	B	526 BELFAST DR	45	h2a	"	178.5	-	-	* 69	* 24
W222	Residence	B	518 BELFAST DR	45	h2a	"	250.9	-	-	* 66	* 21
W223	Residence	B	510 BELFAST DR	45	h2a	"	320.4	-	-	63	* 18
W224	Residence	B	BELFAST DR	45	h2a	"	421.3	-	-	60	* 15
W225	Residence	B	BELFAST DR	45	h2a	"	526.5	-	-	58	13
W226	Residence	B	543 BELFAST DR	45	h2a	"	225.9	-	-	* 67	* 22
W227	Residence	B	COLEBROOK DR	45	h2a	"	328.6	-	-	63	* 18

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt I-85 to US 29/74

RECEPTOR INFORMATION			NEAREST EXISTING	AMBIENT NOISE	NEAREST PROPOSED ROADWAY			PREDICTED NOISE LEVELS			NOISE LEVEL
ID#	LAND USE	CATEGORY	ROADWAY	LEVEL	SEGMENT	NAME	CL DIST(ft)	-L-	-Y-	MAXIMUM	INCREASE
W228	Residence	B	612 COLEBROOK DR	45	h2a	"	323.4	-	-	63	* 18
W229	Residence	B	618 COLEBROOK DR	45	h2a	"	329.7	-	-	63	* 18
W230	Residence	B	624 COLEBROOK DR	45	h2a	"	347.3	-	-	62	* 17
W231	Residence	B	630 COLEBROOK DR	45	h2a	"	363.0	-	-	62	* 17
W232	Residence	B	636 COLEBROOK DR	45	h2a	"	371.1	-	-	61	* 16
W233	Residence	B	642 COLEBROOK DR	45	h2a	"	383.1	-	-	61	* 16
W234	Residence	B	648 COLEBROOK DR	45	h2a	"	387.5	-	-	61	* 16
W235	Residence	B	654 COLEBROOK DR	45	h2a	"	397.5	-	-	61	* 16
W236	Residence	B	660 COLEBROOK DR	45	h2a	"	405.6	-	-	60	* 15
W237	Residence	B	673 COLEBROOK DR	45	h2a	"	580.6	-	-	57	12
W238	Residence	B	667 COLEBROOK DR	45	h2a	"	570.5	-	-	57	12
W239	Residence	B	661 COLEBROOK DR	45	h2a	"	558.6	-	-	57	12
W240	Residence	B	655 COLEBROOK DR	45	h2a	"	548.5	-	-	57	12
W241	Residence	B	649 COLEBROOK DR	45	h2a	"	540.4	-	-	57	12
W242	Residence	B	643 COLEBROOK DR	45	h2a	"	524.7	-	-	58	13
W243	Residence	B	637 COLEBROOK DR	45	h2a	"	518.5	-	-	58	13
W244	Residence	B	631 COLEBROOK DR	45	h2a	"	504.7	-	-	58	13
W245	Residence	B	625 COLEBROOK DR	45	h2a	"	485.1	-	-	58	13
W246	Residence	B	619 COLEBROOK DR	45	h2a	"	477.1	-	-	59	14
W247	Residence	B	613 COLEBROOK DR	45	h2a	"	455.5	-	-	59	14
W248	Residence	B	607 COLEBROOK DR	45	h2a	"	447.4	-	-	59	14
W249	Residence	B	601 COLEBROOK DR	45	h2a	"	444.9	-	-	59	14
W250	Residence	B	NORTHWYNN DR	45	h2a	"	464.0	-	-	59	14
W251	Residence	B	SHANNON BRADLEY RD	48	h2a	"	374.7	-	-	61	13
W426	Church	B	909 SHANNON BRADLEY RD	45	h2a	"	336.2	-	-	63	* 18
W268	Business	C	113 SHANNON BRADLEY RD	60	h3	"	266.1	-	-	* 71	* 11

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt US29-74 to Linwood Road

INPUTS FOR AMBIENT NOISE LEVELS

D-M	AMB # 1	N/A AMB # 2	BACKGROUND NOISE LEVEL FOR AREA
25	66.0	0.0	
50	63.0	0.0	45.0
100	60.0	0.0	
200	57.0	0.0	
400	54.0	0.0	
800	0.0	0.0	
1600	0.0	0.0	
R0	12.0	0.0	

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- Alt. 4 US29-74 to Linwood	N/A PRD # 2	N/A PRD # 3
72	77.8	0.0	0.0
91	75.8	0.0	0.0
141	72.9	0.0	0.0
241	68.7	0.0	0.0
441	61.1	0.0	0.0
841	55.4	0.0	0.0
1641	46.6	0.0	0.0
R0	37.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	153.0
67	270.4
66	292.6
50	1259.3
DESIRED	
55	862.5
dBA ^	

Minimum Right-of-way Distance From CL: 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
W4	Residence	B	2715 LAKEWOOD DR	45	h3	Project	341.0	-	-	64	* + 19
W5	Residence	B	2705 LAKEWOOD DR	45	h3	"	504.9	-	-	59	+ 14
W6	Residence	B	LAKEWOOD DR	45	h3	"	428.5	-	-	61	* + 16
W7	Residence	B	PROVIDENCE DR	45	h3	"	533.1	-	-	59	+ 14
W8	Residence	B	2639 CASTLE HILL RD	45	h3	"	557.6	-	-	58	+ 13
W9	Residence	B	2647 CASTLE HILL RD	45	h3	"	472.5	-	-	60	* + 15
W10	Residence	B	2655 CASTLE HILL RD	45	h3	"	410.2	-	-	61	* + 16
W11	Residence	B	2663 CASTLE HILL RD	45	h3	"	291.2	-	-	* 66	* + 21
W12	Residence	B	CASTLE HILL RD	45	h3	"	247.2	-	-	* 68	* + 23
W13	Residence	B	2654 CASTLE HILL RD	45	h3	"	330.0	-	-	64	* + 19
W14	Residence	B	2646 CASTLE HILL RD	45	h3	"	397.3	-	-	62	* + 17
W15	Residence	B	2638 CASTLE HILL RD	45	h3	"	485.5	-	-	60	* + 15
W16	Residence	B	2632 CASTLE HILL RD	45	h3	"	552.3	-	-	59	+ 14
W17	Residence	B	2610 LAKEWOOD DR	45	h3	"	559.7	-	-	58	+ 13
W18	Residence	B	LAKEWOOD DR	45	h3	"	472.6	-	-	60	* + 15
W19	Residence	B	2634 LAKEWOOD DR	45	h3	"	355.0	-	-	63	* + 18

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt Linwood Road to US321

INPUTS FOR AMBIENT NOISE LEVELS

D-M	AMB # 1	N/A AMB # 2	BACKGROUND NOISE LEVEL FOR AREA
25	0.0	0.0	
50	0.0	0.0	45.0
100	0.0	0.0	
200	0.0	0.0	
400	0.0	0.0	
800	0.0	0.0	
1600	0.0	0.0	
R0	12.0	0.0	

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- Linwood to US321	N/A PRD # 2	N/A PRD # 3
72	77.1	0.0	0.0
91	75.1	0.0	0.0
141	72.2	0.0	0.0
241	68.0	0.0	0.0
441	60.5	0.0	0.0
841	54.7	0.0	0.0
1641	45.9	0.0	0.0
R0	37.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	140.3
67	256.3
66	277.5
50	1194.0
DESIRED 55 dBA ^	807.1

Minimum Right-of-way Distance From CL: 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE CATEG	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
M166	Residence	B	520 NEW HAVEN DR	45	j4	Project	308.6	-	-	64	* + 19
M167	Residence	B	526 NEW HAVEN DR	45	j4	"	419.9	-	-	60	* + 15
M168	Residence	B	536 NEW HAVEN DR	45	j4	"	408.0	-	-	61	* + 16
M169	Residence	B	519 NEW HAVEN DR	45	j4	"	497.0	-	-	59	+ 14
M170	Residence	B	513 NEW HAVEN DR	45	j4	"	347.4	-	-	63	* + 18
M171	Residence	B	409 NEW HAVEN DR	45	j4	"	406.8	-	-	61	* + 16
M172	Residence	B	4228 BIG OAK RD	45	j4	"	305.5	-	-	64	* + 19
M173	Residence	B	4220 BIG OAK RD	45	j4	"	255.2	-	-	* 67	* + 22
M174	Residence	B	4216 BIG OAK RD	45	j4	"	309.8	-	-	64	* + 19
M175	Residence	B	4212 BIG OAK RD	45	j4	"	315.4	-	-	64	* + 19
M176	Residence	B	4208 BIG OAK RD	45	j4	"	264.1	-	-	* 66	* + 21
M177	Residence	B	4200 BIG OAK RD	45	j4	"	239.2	-	-	* 67	* + 22
M178	Residence	B	4200 BIG OAK RD	45	j4	"	401.6	-	-	61	* + 16
M186	Residence	B	Crowders Ck Rd - Orion Oaks	52	j4	"	485.9	-	-	59	+ 7
M187	Residence	B	Crowders Ck Rd - Orion Oaks	52	j4	"	450.6	-	-	60	+ 8
M188	Residence	B	Crowders Ck Rd - Orion Oaks	52	j4	"	415.3	-	-	61	+ 9
M189	Residence	B	Crowders Ck Rd - Orion Oaks	52	j4	"	362.3	-	-	62	+ 10
M190	Residence	B	Crowders Ck Rd - Orion Oaks	52	j4	"	307.2	-	-	64	+ 12
M191	Residence	B	Crowders Ck Rd - Orion Oaks	47	j4	"	478.2	-	-	59	+ 12
M192	Residence	B	Crowders Ck Rd - Orion Oaks	47	j4	"	429.4	-	-	60	+ 13
M193	Residence	B	Crowders Ck Rd - Orion Oaks	47	j4	"	391.0	-	-	61	+ 14
M194	Residence	B	Crowders Ck Rd - Orion Oaks	47	j4	"	353.9	-	-	63	* + 16
M195	Residence	B	Crowders Ck Rd - Orion Oaks	47	j4	"	315.8	-	-	64	* + 17
M196	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	459.2	-	-	60	* + 15
M197	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	402.8	-	-	61	* + 16
M198	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	351.1	-	-	63	* + 18
M199	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	291.4	-	-	65	* + 20
M200	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	238.2	-	-	* 67	* + 22
M201	Residence	B	Crowders Ck Rd - Orion Oaks	52	j4	"	246.3	-	-	* 67	* + 15
M202	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	252.1	-	-	* 67	* + 22
M203	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	352.1	-	-	63	* + 18
M204	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	377.5	-	-	62	* + 17
M205	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	228.9	-	-	* 68	* + 23
M206	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	260.6	-	-	* 66	* + 21
M207	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	211.1	-	-	* 68	* + 23
M208	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	363.7	-	-	62	* + 17
M209	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	456.1	-	-	60	* + 15
M210	Residence	B	Crowders Ck Rd - Orion Oaks	45	j4	"	466.2	-	-	59	+ 14
M285	Residence	B	544 NEW HAVEN DR	45	j4	"	513.9	-	-	59	+ 14
W58	Residence	B	2334 CRICKET LN	45	h3	"	369.5	-	-	62	* + 17
W59	Residence	B	140 GRASSY CT	45	h3	"	399.0	-	-	61	* + 16
W60	Residence	B	145 GRASSY CT	45	h3	"	376.8	-	-	62	* + 17
W61	Residence	B	2424 CRICKET LN	45	h3	"	468.3	-	-	59	+ 14
W62	Residence	B	2401 CRICKET LN	45	h3	"	237.0	-	-	* 67	* + 22
W63	Residence	B	2349 CRICKET LN	45	h3	"	412.0	-	-	61	* + 16
W64	Residence	B	2714 SKYLAND DR	45	h3	"	181.7	-	-	* 69	* + 24
W65	Residence	B	2710 SKYLAND DR	45	h3	"	308.5	-	-	64	* + 19
W66	Residence	B	2706 SKYLAND DR	45	h3	"	371.1	-	-	62	* + 17
W67	Residence	B	3702 SKYLAND DR	45	h3	"	498.7	-	-	59	+ 14
W68	Residence	B	2701 SKYLAND DR	45	h3	"	514.5	-	-	59	+ 14
W69	Residence	B	2705 SKYLAND DR	45	h3	"	421.5	-	-	60	* + 15
W70	Residence	B	2709 SKYLAND DR	45	h3	"	323.2	-	-	64	* + 19
W71	Residence	B	2713 SKYLAND DR	45	h3	"	245.3	-	-	* 67	* + 22
W72	Residence	B	2501 BRIAR OAK DR	45	h3	"	324.0	-	-	64	* + 19
W73	Residence	B	3020 STABLEGATE DR	45	h3	"	407.6	-	-	61	* + 16

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt Linwood Road to US321

RECEPTOR INFORMATION			NEAREST EXISTING	AMBIENT NOISE	NEAREST PROPOSED ROADWAY			PREDICTED NOISE LEVELS			NOISE LEVEL
ID#	LAND USE CATEG	CATEGORY	ROADWAY	LEVEL	SEGMENT	NAME	CL DIST(ft)	-L-	-Y-	MAXIMUM	INCREASE
W74	Residence	B	3030 STABLEGATE DR	45	h3	"	368.8	-	-	62	* + 17
W75	Residence	B	3040 STABLEGATE DR	45	h3	"	330.6	-	-	63	* + 18
W76	Residence	B	3050 STABLEGATE DR	45	h3	"	341.0	-	-	63	* + 18
W77	Residence	B	3060 STABLEGATE DR	45	h3	"	348.9	-	-	63	* + 18
W78	Residence	B	2815 PENNY PARK DR	45	h3	"	262.6	-	-	* 66	* + 21
W79	Residence	B	2805 PENNY PARK DR	45	h3	"	177.1	-	-	* 70	* + 25
W80	Residence	B	2765 PENNY PARK DR	45	h3	"	331.3	-	-	63	* + 18
W81	Residence	B	2765 PENNY PARK DR	45	h3	"	404.5	-	-	61	* + 16
W82	Residence	B	2760 PENNY PARK DR	45	h3	"	473.5	-	-	59	+ 14
W354	Residence	B	2433 CRICKET LN	45	h3	"	376.0	-	-	62	* + 17
W427	Residence	B	148 GRASSY CT	45	h3	"	465.2	-	-	59	+ 14
W269	Residence	B	108 GRASSY CT	45	h3	"	262.0	-	-	* 66	* + 21
W270	Residence	B	2818 PENNY PARK DR.	45	h3	"	401.0	-	-	61	* + 16

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt US-321 to Robinson Rd

INPUTS FOR AMBIENT NOISE LEVELS

D-M	AMB # 1	N/A AMB # 2	BACKGROUND NOISE LEVEL FOR AREA
25	0.0	0.0	
50	0.0	0.0	45.0
100	0.0	0.0	
200	0.0	0.0	
400	0.0	0.0	
800	0.0	0.0	
1600	0.0	0.0	
R0	12.0	0.0	

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- US321 to Robinson	N/A PRD # 2	N/A PRD # 3
72	78.6	0.0	0.0
91	76.6	0.0	0.0
141	73.7	0.0	0.0
241	69.5	0.0	0.0
441	62.0	0.0	0.0
841	56.2	0.0	0.0
1641	47.5	0.0	0.0
R0	37.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	169.3
67	288.8
66	313.1
50	1345.8
DESIRED 55 dBA ^	917.0

Minimum Right-of-way Distance From CL: 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
M3	Residence	B	412 PAM DR	45	j2c	Project	520.1	-	-	60	* + 15
M4	Residence	B	416 PAM DR	45	j2c	"	524.2	-	-	60	* + 15
M5	Residence	B	410 PAM DR	45	j2c	"	521.7	-	-	60	* + 15
M6	Residence	B	502 PAM DR	45	j2c	"	520.6	-	-	60	* + 15
M7	Residence	B	506 PAM DR	45	j2c	"	511.7	-	-	60	* + 15
M8	Residence	B	4640 CAMILLE ST	45	j2c	"	390.9	-	-	63	* + 18
M9	Residence	B	512 PAM DR	48	j2c	"	514.9	-	-	60	+ 12
M10	Residence	B	1104 ROBINSON RD	45	j2c	"	509.2	-	-	60	* + 15
M11	Residence	B	308 PAM DR	48	j2c	"	539.2	-	-	60	+ 12
M12	Residence	B	312 PAM DR	51	j2c	"	528.2	-	-	60	+ 9
M13	Residence	B	316 PAM DR	51	j2c	"	559.6	-	-	59	+ 8
M14	Residence	B	320 PAM DR	51	j2c	"	546.7	-	-	59	+ 8
M15	Residence	B	402 PAM DR	51	j2c	"	524.9	-	-	60	+ 9
M16	Residence	B	212 PAM DR	51	j2c	"	575.8	-	-	59	+ 8
M17	Residence	B	206 PAM DR	45	j2c	"	577.5	-	-	59	+ 14
M19	Residence	B	200 PAM DR	47	j2c	"	594.0	-	-	59	+ 12
M20	Residence	B	204 PAM DR	48	j2c	"	596.9	-	-	59	+ 11
M159	Residence	B	1098 ROBINSON RD	45	j2c	"	393.3	-	-	63	* + 18
M229	Residence	B	2642 FORBES RD	45	j2c	"	557.3	-	-	59	+ 14
M230	Residence	B	2703 FORBES RD	45	j2c	"	279.6	-	-	* 67	* + 22
M231	Residence	B	FORBES RD	45	j2c	"	315.3	-	-	65	* + 20
M232	Residence	B	2707 FORBES RD	45	j2c	"	454.9	-	-	61	* + 16
M233	Residence	B	1509 GREENPACK PKY	45	j2c	"	534.3	-	-	60	* + 15
M234	Residence	B	1513 GREENPACK PKWY	45	j2c	"	514.6	-	-	60	* + 15
M235	Residence	B	1603 CAPITAL DR	45	j2c	"	497.2	-	-	60	* + 15
M236	Residence	B	1607 CAPITAL DR	45	j2c	"	332.2	-	-	65	* + 20
M237	Residence	B	1610 CAPITAL DR	45	j2c	"	231.6	-	-	* 69	* + 24
M238	Residence	B	1608 CAPITAL DR	45	j2c	"	387.2	-	-	63	* + 18
M239	Residence	B	1521 GREENPACK PKWY	45	j2c	"	558.6	-	-	59	+ 14
M240	Residence	B	1537 GREENPACK PKWY	45	j2c	"	486.8	-	-	61	* + 16
M241	Residence	B	1543 GREENPACK PKWY	45	j2c	"	265.6	-	-	* 68	* + 23
M242	Residence	B	1544 GREENPACK PKWY	45	j2c	"	256.4	-	-	* 68	* + 23
M243	Residence	B	1540 GREENPACK PKWY	45	j2c	"	443.7	-	-	61	* + 16
M244	Residence	B	123 MCCARVER RD	45	j2c	"	600.6	-	-	59	+ 14
M245	Residence	B	MCCARVER RD	45	j2c	"	517.4	-	-	60	* + 15
M246	Residence	B	135 MCCARVER RD	45	j2c	"	263.6	-	-	* 68	* + 23
M247	Residence	B	2718 FORBES RD	45	j2c	"	528.1	-	-	60	* + 15
M248	Residence	B	2646 FORBES RD	45	j2c	"	410.1	-	-	62	* + 17
M249	Residence	B	2652 FORBES RD	45	j2c	"	324.8	-	-	65	* + 20
M250	Residence	B	2658 FORBES RD	45	j2c	"	247.6	-	-	* 68	* + 23
M251	Residence	B	4811 VERDE VIEW DR	48	j2c	"	474.4	-	-	61	+ 13
M252	Residence	B	4815 VERDE VIEW DR	60	j2c	"	539.8	-	-	60	+ 0
M253	Residence	B	4819 VERDE VIEW DR	58	j2c	"	539.5	-	-	60	+ 2
M254	Residence	B	4823 VERDE VIEW DR	55	j2c	"	584.1	-	-	59	+ 4
M257	Residence	B	131 MCCARVER RD	60	j2c	"	389.2	-	-	63	+ 3
M258	Residence	B	MCARVER RD	62	j2c	"	424.2	-	-	62	+ 0
M259	Residence	B	409 WESLEY DR	55	j2c	"	572.7	-	-	59	+ 4
M260	Residence	B	413 WESLEY DR	60	j2c	"	518.7	-	-	60	+ 0
M261	Residence-Undev	B	WESLEY DR	55	j2c	"	474.3	-	-	61 Undev	+ 6
M262	Residence	B	505 WESLEY DR	55	j2c	"	404.9	-	-	62	+ 7
M263	Residence	B	509 WESLEY DR	55	j2c	"	345.0	-	-	64	+ 9
M264	Residence	B	513 WESLEY DR	58	j2c	"	267.6	-	-	* 67	+ 9
M265	Residence-Undev	B	FERNCLIFF DR	58	j2c	"	226.1	-	-	* 69 Undev	* + 11
M266	Residence	B	109 FERNCLIFF DR	55	j2c	"	178.2	-	-	* 71	* + 16
M267	Residence	B	113 FERNCLIFF DR	48	j2c	"	245.6	-	-	* 69	* + 21

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt US-321 to Robinson Rd

RECEPTOR INFORMATION			NEAREST EXISTING	AMBIENT NOISE	NEAREST PROPOSED ROADWAY			PREDICTED NOISE LEVELS			NOISE LEVEL
ID#	LAND USE	CATEGORY	ROADWAY	LEVEL	SEGMENT	NAME	CL DIST(ft)	-L-	-Y-	MAXIMUM	INCREASE
M268	Residence	B	201 FERNCLIFF DR	60	j2c	"	307.2	-	-	* 66	+ 6
M269	Residence	B	205 FERNCLIFF DR	51	j2c	"	387.0	-	-	63	+ 12
M270	Residence	B	209 FERNCLIFF DR	51	j2c	"	464.3	-	-	61	+ 10
M271	Residence	B	213 FERNCLIFF DR	51	j2c	"	547.9	-	-	59	+ 8
M272	Residence	B	204 FERNCLIFF DR	52	j2c	"	543.2	-	-	60	+ 8
M273	Residence	B	200 FERNCLIFF DR	45	j2c	"	467.8	-	-	61	* + 16
M274	Residence	B	201 WRENTREE LN	45	j2c	"	550.2	-	-	59	+ 14
M179B	Residence	B	4617 LONGBRIAR DR	45	j4	"	568.4	-	-	59	+ 14
M180B	Residence	B	4621 LONGBRIAR DR	45	j4	"	503.9	-	-	60	* + 15
M181B	Residence	B	4625 LONGBRIAR DR	45	j4	"	443.5	-	-	61	* + 16
M182B	Residence	B	4632 LONGBRIAR DR	45	j4	"	390.6	-	-	63	* + 18
M183B	Residence	B	4628 LONGBRIAR DR	45	j4	"	524.2	-	-	60	* + 15
M184B	Residence	B	4624 LONGBRIAR DR	45	j4	"	586.3	-	-	59	+ 14
M212B	Bus-Bruces Iron	C	4539 YORK RD	45	j4	"	540.0	-	-	60	* + 15
M213B	Bus-Bruces Iron	C	4539 YORK RD	45	j4	"	438.8	-	-	61	* + 16
M215	Residence	B	4901 APRIL DRIVE	45	j2a	"	576.0	-	-	59	+ 14
M216B	Residence	B	4904 APRIL DR	47	j4	"	525.2	-	-	60	+ 13
M217B	Residence	B	4902 APRIL DR	47	j4	"	620.5	-	-	58	+ 11
M218	Residence	B	4713 PLAZA RD	45	j2a	"	620.7	-	-	58	+ 13
M219B	Residence	B	4711 PLAZA RD	45	j4	"	641.6	-	-	58	+ 13
M226B	Residence-Undev	B	BENFIELD RD.	45	j4	"	226.8	-	-	* 69 Undev	* + 24
M227B	Residence-Undev	B	BENFIELD RD.	45	j4	"	435.0	-	-	62 Undev	* + 17
M228B	Residence	B	4665 BENFIELD RD	45	j4	"	462.8	-	-	61	* + 16
M18A	Residence	B	132 PAM DR	45	j2c	"	614.8	-	-	58	+ 13
M21A	Residence	B	128 PAM DR	45	j2c	"	630.4	-	-	58	+ 13
M22A	Residence	B	124 PAM DR	45	j2c	"	661.7	-	-	58	+ 13
M23A	Residence	B	120 PAM DR	45	j2c	"	680.9	-	-	58	+ 13
M287	Residence	B	LONGRIAR DR.	45	j3	"	268.0	-	-	* 67	* + 22
M288	Residence	B	4665 BENFIELD RD.	45	j4a	"	440.0	-	-	61	* + 16
M289	Residence	B	1536 GREENPACK PKWY	45	j2c	"	589.0	-	-	59	+ 14
M290	Residence	B	405 WESLEY DR.	45	j2c	"	593.0	-	-	59	+ 14
M291	Bus-Garrison Stables	C	4177 GORDON DR.	45	j2c	"	543.0	-	-	60	* + 15
M292	Residence	B	1030 ROBINSON RD.	45	j2c	"	519.0	-	-	60	* + 15

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt Robinson Rd to NC274

INPUTS FOR AMBIENT NOISE LEVELS

D-M	N/A AMB # 1	N/A AMB # 2	BACKGROUND NOISE LEVEL FOR AREA
25	0.0	0.0	
50	0.0	0.0	45.0
100	0.0	0.0	
200	0.0	0.0	
400	0.0	0.0	
800	0.0	0.0	
1600	0.0	0.0	
R0	0.0	0.0	

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- Robinson to NC274	N/A PRD # 2	N/A PRD # 3
72	80.0	0.0	0.0
91	77.8	0.0	0.0
141	74.7	0.0	0.0
241	70.5	0.0	0.0
441	62.4	0.0	0.0
841	57.0	0.0	0.0
1641	48.3	0.0	0.0
R0	37.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	192.9
67	306.6
66	330.6
50	1431.7
DESIRED 55 dBA ^	974.7

Minimum Right-of-way Distance From CL: 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
M42	Residence	B	140 PATRICK RD	52	jx4	Project	640.5	-	-	59	+ 7
M44	Residence	B	136 PATRICK RD	52	jx4	"	800.4	-	-	57	+ 5
M45	Residence	B	5310 UNION RD	45	jx4	"	632.9	-	-	59	+ 14
M50	Residence	B	4640 GREENHAVEN LN	45	j2d	"	460.3	-	-	61	* + 16
M51	Residence	B	4640 GREENHAVEN LN	45	j2d	"	434.8	-	-	62	* + 17
M52	Residence	B	4644 GREENHAVEN LN	45	j2d	"	388.8	-	-	63	* + 18
M53	Residence	B	120 TIMBER CREEK TRCE	45	j2d	"	553.0	-	-	60	* + 15
M54	Residence	B	230 PATRICK RD	45	jx4	"	544.6	-	-	60	* + 15
M79	Residence	B	1257 DORCHESTER RD	51	jx4	"	519.5	-	-	60	+ 9
M80	Residence	B	1259 DORCHESTER RD	48	jx4	"	286.7	-	-	* 67	* + 19
M86	Residence	B	1290 DORCHESTER RD	45	jx4	"	200.1	-	-	* 71	* + 26
M87	Residence	B	1288 DORCHESTER RD	45	jx4	"	467.3	-	-	61	* + 16
M89	Residence	B	1280 DORCHESTER RD	45	jx4	"	302.5	-	-	* 67	* + 22
M90	Residence	B	1272 DORCHESTER RD	45	jx4	"	374.1	-	-	64	* + 19
M91	Residence	B	1260 DORCHESTER RD	48	jx4	"	583.9	-	-	59	+ 11
M107	Res-Undev	B	3432 GATEWOOD DR	45	jx4	"	527.3	-	-	60 Undev	* + 15
M128	Residence	B	3428 GATEWOOD DR	45	jx4	"	526.9	-	-	60	* + 15
M131	Residence	B	3340 SCOTT DR	45	jx4	"	595.6	-	-	59	+ 14
M157	Business	C	136 PATRICK RD	47	jx4	"	658.7	-	-	58	+ 11
M161	Residence	B	152 PATRICK RD	46	jx4	"	347.0	-	-	65	* + 19
M162	Residence	B	152 PATRICK RD	52	jx4	"	351.0	-	-	65	* + 13
M164A	Residence	B	130 TIMBER CREEK TRL	45	j2d	"	590.1	-	-	59	+ 14
M165	Residence	B	130 TIMBER CREEK TRL	45	j2d	"	536.2	-	-	60	* + 15
M112A	Residence	B	1842 WHITE CEDAR DR	46	jx4	"	409.2	-	-	63	* + 17
M113A	Residence	B	1840 WHITE CEDAR DR	46	jx4	"	496.5	-	-	61	* + 15
M114A	Residence	B	1836 WHITE CEDAR DR	46	jx4	"	608.5	-	-	59	+ 13
M115A	Residence	B	1832 WHITE CEDAR DR	46	jx4	"	684.2	-	-	58	+ 12
M118A	Residence	B	1602 STONE PINE DR	46	jx4	"	660.3	-	-	58	+ 12
M119A	Residence	B	2001 BUCKTHORNE CT	46	jx4	"	524.9	-	-	60	+ 14
M120A	Residence	B	2005 BUCKTHORNE CT	46	jx4	"	536.7	-	-	60	+ 14
M121A	Residence	B	2006 BUCKTHORNE CT	46	jx4	"	384.5	-	-	64	* + 18
M122A	Residence	B	2002 BUCKTHORNE CT	46	jx4	"	414.4	-	-	63	* + 17
M132A	Residence	B	162 WILSON FARM RD	46	jx4	"	431.1	-	-	62	* + 16
M133A	Residence	B	162 WILSON FARM RD	46	jx4	"	257.2	-	-	* 69	* + 23
M139A	Residence	B	1636 STONE PINE DR	46	jx4	"	748.7	-	-	57	+ 11
M140A	Residence	B	1640 STONE PINE DR	46	jx4	"	712.0	-	-	58	+ 12
M141A	Residence	B	1646 STONE PINE DR	46	jx4	"	676.5	-	-	58	+ 12
M142A	Residence	B	1654 STONE PINE DR	46	jx4	"	528.7	-	-	60	+ 14
M143A	Residence	B	2009 BUCKTHORNE CT	46	jx4	"	562.2	-	-	60	+ 14
M144A	Residence	B	2013 BUCKTHORNE CT	46	jx4	"	610.1	-	-	59	+ 13
M145A	Residence	B	2016 BUCKTHORNE CT	46	jx4	"	591.8	-	-	59	+ 13
M146A	Residence	B	1649 STONE PINE DR	46	jx4	"	757.1	-	-	57	+ 11
M147A	Residence	B	1653 STONE PINE DR	46	jx4	"	643.5	-	-	59	+ 13
M148A	Residence	B	1657 STONE PINE DR	46	jx4	"	505.8	-	-	61	* + 15
M163A	Residence	B	2014 BUCKTHORNE CT	46	jx4	"	446.6	-	-	62	* + 16
M111A	Residence	B	1848 WHITE CEDAR DR	46	jx4	"	314.1	-	-	* 66	* + 20
M106A	Residence	B	182 DOUBLE OAK RD	45	jx4	"	612.3	-	-	59	+ 14
M286	Residence	B	4728 BUD WILSON RD	45	j4a	"	235.0	-	-	* 70	* + 25
M293	Residence	B	530 WILMOT TRL	45	j2d	"	381.0	-	-	64	* + 19
M294	Residence	B	522 WILMOT TRL	45	j2d	"	527.0	-	-	60	* + 15
M295	Residence	B	4919 BUD WILSON RD	45	j2d	"	430.0	-	-	62	* + 17
M296	Residence	B	4919 BUD WILSON RD	45	j2d	"	432.0	-	-	62	* + 17
M297	Residence	B	4628 BUD WILSON RD	45	j2d	"	535.0	-	-	60	* + 15
M298	Residence	B	168 DOUBLE OAKS RD.	45	jx4	"	455.0	-	-	62	* + 17

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt NC274 to NC279

INPUTS FOR AMBIENT NOISE LEVELS

D-M	N/A AMB # 1	N/A AMB # 2	BACKGROUND NOISE LEVEL FOR AREA
25	0.0	0.0	
50	0.0	0.0	45.0
100	0.0	0.0	
200	0.0	0.0	
400	0.0	0.0	
800	0.0	0.0	
1600	0.0	0.0	
R0	0.0	0.0	

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- Alt 77 NC274 to NC279	N/A PRD # 2	N/A PRD # 3
72	79.0	0.0	0.0
91	77.0	0.0	0.0
141	74.1	0.0	0.0
241	69.8	0.0	0.0
441	62.3	0.0	0.0
841	56.6	0.0	0.0
1641	47.8	0.0	0.0
R0	37.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	177.1
67	295.8
66	320.8
50	1380.0
DESIRED 55 dBA ^	944.1

Minimum Right-of-way Distance From CL: 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
E250	Residence	B	2202 RUFUS RATCHFORD RD	45	k1a	Project	255.9	-	-	* 68	* + 23
E251	Residence	B	2202 RUFUS RATCHFORD RD	48	k1a	"	186.8	-	-	* 71	* + 23
E252	Residence	B	2214 RUFUS RATCHFORD RD	51	k1a	"	490.0	-	-	61	+ 10
E253	Residence	B	2207 RUFUS RATCHFORD RD	51	k1a	"	265.7	-	-	* 68	* + 17
E254	Residence	B	2213 RATCHFORD RD	48	k1a	"	359.0	-	-	64	* + 16
E255	Residence	B	5039 VICTORY TRL	45	k1a	"	678.2	-	-	58	+ 13
E256	Residence	B	5039 VICTORY TRL	45	k1a	"	600.7	-	-	59	+ 14
E257	Residence	B	2223 RUFUS RATCHFORD RD	48	k1a	"	555.0	-	-	60	+ 12
E258	Residence	B	2233 RUFUS RATCHFORD RD	45	k1a	"	675.0	-	-	58	+ 13
E385	Residence	B	5047 VICTORY TR	45	k1a	"	498.5	-	-	61	* + 16
M137	Res-Undev	B	CRAWFORD DR	52	j1ef	"	313.2	-	-	* 66 Undev	* + 14
M138	Res-Undev	B	CRAWFORD DR	50	j1ef	"	384.3	-	-	63 Undev	+ 13
E412	Residence	B	549 PINEY GROVE RD.	45	k1a	"	751.6	-	-	57	+ 12
M299	Residence	B	210 CRAWFORD DR	45	j1f	"	453.0	-	-	61	* + 16
M300	Residence	B	220 CRAWFORD DR	45	j1f	"	668.0	-	-	58	+ 13
M301	Residence	B	207 CRAWFORD DR	45	j1f	"	606.0	-	-	59	+ 14
M302	Bus-Speedway	C	6355 UNION RD.	45	j1f	"	592.0	-	-	59	+ 14
M303	Residence	B	193 GLOVER RD.	45	j1f	"	617.0	-	-	59	+ 14

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt NC279 to NC273

INPUTS FOR AMBIENT NOISE LEVELS

D-M	AMB # 1	N/A AMB # 2	BACKGROUND NOISE LEVEL FOR AREA
25	0.0	0.0	
50	0.0	0.0	45.0
100	0.0	0.0	
200	0.0	0.0	
400	0.0	0.0	
800	0.0	0.0	
1600	0.0	0.0	
R0	0.0	0.0	

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- C279 to NC2	N/A PRD # 2	N/A PRD # 3
72	80.4	0.0	0.0
91	78.4	0.0	0.0
141	75.5	0.0	0.0
241	71.3	0.0	0.0
441	63.7	0.0	0.0
841	58.0	0.0	0.0
1641	49.1	0.0	0.0
R0	37.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	214.8
67	332.6
66	360.8
50	1525.5
DESIRED 55 dBA ^	1046.7

Minimum Right-of-way Distance From CL: 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
E79	Residence	B	622 BROOK FOREST DR	45	kx1k3b	Project	653.3	-	-	60	* + 15
E80	Residence	B	614 BROOK FOREST DR	45	kx1k3b	"	801.5	-	-	58	+ 13
E81	Residence	B	618 BROOK FOREST DR	45	kx1k3b	"	736.8	-	-	59	+ 14
E82	Residence	B	702 BROOK FOREST DR	45	kx1k3b	"	560.3	-	-	61	* + 16
E83	Residence	B	706 BROOK FOREST DR	45	kx1k3b	"	485.8	-	-	62	* + 17
E84	Residence	B	611 BROOK FOREST DR	45	kx1k3b	"	772.1	-	-	58	+ 13
E85	Residence	B	615 BROOK FOREST DR	45	kx1k3b	"	699.9	-	-	59	+ 14
E86	Residence	B	619 BROOK FOREST DR	45	kx1k3b	"	608.8	-	-	60	* + 15
E87	Residence	B	623 BROOK FOREST DR	45	kx1k3b	"	534.7	-	-	61	* + 16
E88	Residence	B	703 BROOK FOREST DR	45	kx1k3b	"	454.7	-	-	63	* + 18
E89	Residence	B	707 BROOK FOREST DR	45	kx1k3b	"	377.2	-	-	65	* + 20
E90	Residence	B	711 BROOK FOREST DR	45	kx1k3b	"	297.4	-	-	* 68	* + 23
E91	Residence	B	715 BROOK FOREST DR	45	kx1k3b	"	210.1	-	-	* 72	* + 27
E92	Residence	B	521 S FOREST LN	45	kx1k3b	"	701.5	-	-	59	+ 14
E93	Residence	B	601 SOUTH FOREST LN	45	kx1k3b	"	616.1	-	-	60	* + 15
E94	Residence	B	605 SOUTH FOREST LN	45	kx1k3b	"	543.9	-	-	61	* + 16
E95	Residence	B	609 SOUTH FOREST LN	45	kx1k3b	"	460.4	-	-	63	* + 18
E96	Residence	B	613 SOUTH FOREST LN	45	kx1k3b	"	397.5	-	-	64	* + 19
E97	Residence	B	617 SOUTH FOREST LN	45	kx1k3b	"	324.2	-	-	* 67	* + 22
E98	Residence	B	621 SOUTH FOREST LN	45	kx1k3b	"	198.0	-	-	* 72	* + 27
E99	Residence	B	SOUTH FOREST LN	45	kx1k3b	"	217.2	-	-	* 71	* + 26
E100	Residence	B	SOUTH FOREST LN	45	kx1k3b	"	296.4	-	-	* 68	* + 23
E101	Residence	B	SOUTH FOREST LN	45	kx1k3b	"	374.5	-	-	65	* + 20
E102	Residence	B	616 SOUTH FOREST LN	45	kx1k3b	"	438.0	-	-	63	* + 18
E103	Residence	B	612 SOUTH FOREST LN	45	kx1k3b	"	514.0	-	-	62	* + 17
E104	Residence	B	608 SOUTH FOREST LN	45	kx1k3b	"	588.0	-	-	61	* + 16
E105	Residence	B	604 SOUTH FOREST LN	45	kx1k3b	"	668.9	-	-	59	+ 14
E106	Residence	B	600 SOUTH FOREST LN	45	kx1k3b	"	743.0	-	-	59	+ 14
E413	Residence	B	716 FOREST LN.	45	k3ab	"	307.7	-	-	* 67	* + 22
E414	Residence	B	720 FOREST LN.	45	k3ab	"	229.2	-	-	* 71	* + 26
E415	Residence	B	717 FOREST LN.	45	k3ab	"	163.4	-	-	* 74	* + 29
E416	Residence	B	713 FOREST LN.	45	k3ab	"	231.0	-	-	* 71	* + 26
E417	Residence	B	709 FOREST LN.	45	k3ab	"	302.9	-	-	* 68	* + 23
E418	Residence	B	705 FOREST LN.	45	k3ab	"	355.8	-	-	* 66	* + 21
E419	Residence	B	712 FOREST LN.	45	k3ab	"	401.4	-	-	64	* + 19
E420	Residence	B	4076 TUCKER RD.	45	k3ab	"	300.0	-	-	* 68	* + 23
E421	Residence	B	4066 TUCKER RD.	45	k3ab	"	243.6	-	-	* 70	* + 25
E423	Residence	B	838 EDGEWATER DR.	45	k3ab	"	665.0	-	-	59	+ 14
E424	Residence	B	4040 TUCKER RD.	45	k3ab	"	473.0	-	-	62	* + 17
E425	Residence	B	4039 TUCKER RD.	45	k3ab	"	473.0	-	-	62	* + 17
E426	Residence	B	4029 TUCKER RD.	45	k3ab	"	636.0	-	-	60	* + 15
E427	Residence	B	4021 TUCKER RD.	45	k3ab	"	669.0	-	-	59	+ 14
E428	Residence	B	4019 TUCKER RD.	45	k3ab	"	669.0	-	-	59	+ 14
E429	Residence	B	4017 TUCKER RD.	45	k3ab	"	754.0	-	-	58	+ 13
E195	Residence	B	900 EDGEWATER DR	45	k3a	"	433.0	-	-	63	* + 18
E196	Residence	B	825 EDGEWATER DR	45	k3a	"	660.0	-	-	60	* + 15
E197	Residence	B	906 EDGEWATER DR	45	k3a	"	432.0	-	-	63	* + 18
E198	Residence	B	912 EDGEWATER DR	45	k3a	"	370.0	-	-	65	* + 20
E199	Residence	B	924 EDGEWATER DR	45	k3a	"	255.0	-	-	* 70	* + 25
E200	Residence	B	931 EDGEWATER DR	45	k3a	"	269.0	-	-	* 69	* + 24
E201	Residence	B	925 EDGEWATER DR	45	k3a	"	394.0	-	-	64	* + 19
E202	Residence	B	919 EDGEWATER DR	45	k3a	"	482.0	-	-	62	* + 17
E203	Res-Undev	B	907 EDGEWATER DR	45	k3a	"	577.0	-	-	61 Undev	* + 16
E204	Residence	B	856 EDGEWATER DR	45	k3a	"	622.0	-	-	60	* + 15
E205	Residence	B	850 EDGEWATER DR	45	k3a	"	684.0	-	-	59	+ 14

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt NC279 to NC273

RECEPTOR INFORMATION			NEAREST EXISTING	AMBIENT NOISE	NEAREST PROPOSED ROADWAY			PREDICTED NOISE LEVELS			NOISE LEVEL
ID#	LAND USE	CATEGORY	ROADWAY	LEVEL	SEGMENT	NAME	CL DIST(ft)	-L-	-Y-	MAXIMUM	INCREASE
E206	Residence	B	EDGEWATER DR	45	k3a	"	671.0	-	-	59	+ 14
E207	Residence	B	832 EDGEWATER DR	45	k3a	"	769.0	-	-	58	+ 13
E208	Residence	B	826 EDGEWATER DR	45	k3a	"	802.0	-	-	58	+ 13
E209	Residence	B	844 EDGEWATER DR	45	k3a	"	582.0	-	-	61	* + 16
E215	Residence	B	862 EDGEWATER DR	45	k3a	"	594.0	-	-	60	* + 15
E216	Residence	B	535 LAKE WYLIE RD	45	k3a	"	203.0	-	-	* 72	* + 27
E217	Residence	B	529 LAKE WYLIE RD	45	k3a	"	396.0	-	-	64	* + 19
E218	Residence	B	521 LAKE WYLIE RD	45	k3a	"	764.0	-	-	58	+ 13
E211	Residence	B	201 RIVERFRONT DR	45	k3a	"	720.0	-	-	59	+ 14
E212	Residence	B	1400 GAITHER RD	45	k3a	"	263.0	-	-	* 69	* + 24
E213	Residence	B	1500 GAITHER RD	45	k3a	"	365.0	-	-	65	* + 20
E214	Residence	B	1510 GAITHER RD	45	k3a	"	633.0	-	-	60	* + 15
E227	Res-Undev	B	GAITHER RD	45	k3a	"	499.0	-	-	62 Undev	* + 17
E229	Residence	B	4080 TUCKER RD	45	kx1k3b	"	374.0	-	-	65	* + 20
E230	Residence	B	4087 TUCKER RD	45	kx1k3b	"	506.0	-	-	62	* + 17
E231	Residence	B	2024 SOUTH POINT RD	45	kx1k3b	"	754.3	-	-	58	+ 13
E440	Residence	B	527 LAKE WYLIE RD	45	kx1k3b	"	410.0	-	-	64	* + 19

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt NC273 to Dixie River Rd.

INPUTS FOR AMBIENT NOISE LEVELS

D-M	AMB # 1	N/A AMB # 2	BACKGROUND NOISE LEVEL FOR AREA
25	0.0	0.0	
50	0.0	0.0	45.0
100	0.0	0.0	
200	0.0	0.0	
400	0.0	0.0	
800	0.0	0.0	
1600	0.0	0.0	
R0	0.0	0.0	

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- NC273 to I-485	N/A PRD # 2	N/A PRD # 3
72	81.5	0.0	0.0
91	80.1	0.0	0.0
141	76.8	0.0	0.0
241	73.0	0.0	0.0
441	65.8	0.0	0.0
841	60.0	0.0	0.0
1641	51.2	0.0	0.0
R0	43.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	263.1
67	398.7
66	434.5
50	0.0
DESIRED 55 dBA ^	1227.5

Minimum Right-of-way Distance From CL: 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
E2	Residence	B	4627 LOCHFOOT DR	45	k3c	Project	839.9	-	-	60	* + 15
E3	Residence	B	4111 TUFFY LN	45	k3c	"	495.5	-	-	64	* + 19
E4	Res-Undev	B	TUFFY LN	45	k3c	"	608.1	-	-	62 Undev	* + 17
E5	Residence	B	4122 TUFFY LN	48	k3c	"	842.4	-	-	59	+ 11
E6	Res-Undev	B	4002 TUFFY LN	45	k3c	"	727.2	-	-	61 Undev	* + 16
E7	Residence	B	4116 TUFFY LN	45	k3c	"	735.7	-	-	61	* + 16
E8	Residence	B	4116 TUFFY LN	45	k3c	"	883.6	-	-	59	+ 14
E9	Res-Undev	B	4020 TUFFY LN	45	k3c	"	706.1	-	-	61 Undev	* + 16
E10	Res-Undev	B	4017 TUFFY LN	45	k3c	"	374.9	-	-	* 67 Undev	* + 22
E13	Residence	B	4003 TUFFY LN	45	k3c	"	257.8	-	-	* 72	* + 27
E14	Residence	B	4600 LOCHFOOT DR	45	k3c	"	740.7	-	-	61	* + 16
E15	Res-Undev	B	LOCHFOOT DR	45	k3c	"	634.1	-	-	62 Undev	* + 17
E16	Res-Undev	B	LOCHFOOT DR	45	k3c	"	476.6	-	-	65 Undev	* + 20
E17	Res-Undev	B	LOCHFOOT DR	45	k3c	"	430.7	-	-	* 66 Undev	* + 21
E18	Res-Undev	B	LOCHFOOT DR	45	k3c	"	428.2	-	-	* 66 Undev	* + 21
E19	Res-Undev	B	LOCHFOOT DR	45	k3c	"	430.7	-	-	* 66 Undev	* + 21
E20	Res-Undev	B	LOCHFOOT DR	45	k3c	"	419.5	-	-	* 66 Undev	* + 21
E21	Res-Undev	B	LOCHFOOT DR	45	k3c	"	424.5	-	-	* 66 Undev	* + 21
E22	Res-Undev	B	LOCHFOOT DR	45	k3c	"	400.9	-	-	* 66 Undev	* + 21
E23	Res-Undev	B	LOCHFOOT DR	45	k3c	"	387.2	-	-	* 67 Undev	* + 22
E24	Res-Undev	B	LOCHFOOT DR	45	k3c	"	390.9	-	-	* 67 Undev	* + 22
E25	Residence	B	4550 LOCHFOOT DR	45	k3c	"	624.8	-	-	62	* + 17
E26	Residence	B	4616 LOCHFOOT DR	45	k3c	"	897.2	-	-	59	+ 14
E430	Residence	B	1005 FIRST ST.	45	k3ab	"	866.0	-	-	59	+ 14
E431	Residence	B	5037 DRENNAN HORNE RD.	45	k3ab	"	682.0	-	-	61	* + 16
E436	Residence	B	DRENNAN HORNE RD.	45	k3c	"	726.0	-	-	61	* + 16
E437	Residence	B	DRENNAN HORNE RD.	45	k3c	"	820.0	-	-	60	* + 15
E75	Residence	B	5031 DRENNAN HORNE DR	50	k3c	"	637.5	-	-	62	+ 12
E76	Residence	B	5043 DRENNAN HORNE DR	45	k3c	"	674.2	-	-	61	* + 16
E77	Residence	B	5027 DRENNAN HORNE DR	45	k3c	"	640.5	-	-	62	* + 17
E78	Business	C	5028 DRENNAN HORNE DR	45	k3c	"	411.1	-	-	66	* + 21
E107	Residence	B	3423 BOAT CLUB RD	45	k3c	"	761.2	-	-	60	* + 15
E108	Residence	B	3414 BOAT CLUB RD	45	k3c	"	835.7	-	-	60	* + 15
E109	Residence	B	3418 BOAT CLUB RD	45	k3c	"	702.7	-	-	61	* + 16
E110	Residence	B	SOUTH POINT RD/JOYE MHP	45	k3c	"	705.3	-	-	61	* + 16
E111	Residence	B	SOUTH POINT RD/JOYE MHP	45	k3c	"	576.6	-	-	63	* + 18
E112	Residence	B	SOUTH POINT RD/JOYE MHP	45	k3c	"	465.1	-	-	65	* + 20
E113	Residence	B	SOUTH POINT RD/JOYE MHP	45	k3c	"	444.8	-	-	65	* + 20
E114	Residence	B	SOUTH POINT RD/JOYE MHP	45	k3c	"	434.9	-	-	65	* + 20
E115	Residence	B	SOUTH POINT RD/JOYE MHP	45	k3c	"	636.6	-	-	62	* + 17
E116	Residence	B	SOUTH POINT RD/JOYE MHP	45	k3c	"	603.0	-	-	62	* + 17
E117	Residence	B	SOUTH POINT RD/JOYE MHP	45	k3c	"	582.9	-	-	63	* + 18
E118	Residence	B	JOYE LN	45	k3c	"	613.7	-	-	62	* + 17
E119	Residence	B	3432 BOAT CLUB RD	45	k3c	"	499.4	-	-	64	* + 19
E120	Residence	B	3436 BOAT CLUB RD	45	k3c	"	410.7	-	-	* 66	* + 21
E121	Residence	B	3442 BOAT CLUB RD	45	k3c	"	302.4	-	-	* 70	* + 25
E122	Residence	B	3419 BOAT CLUB RD	45	k3c	"	703.6	-	-	61	* + 16
E232	Residence	B	3112 ALLISON ST	45	k3c	"	606.4	-	-	62	* + 17
E233	Residence	B	3116 ALLISON ST	45	k3c	"	854.5	-	-	59	+ 14
E234	Residence	B	2039 SOUTH POINT RD	45	k3c	"	978.3	-	-	58	+ 13
E235	Residence	B	5011 DOROTHY RUTH LN	45	k3c	"	854.8	-	-	59	+ 14
E236	Residence	B	PLANT ALLEN RD	45	k3c	"	435.9	-	-	65	* + 20
E237	Residence	B	3476 BOAT CLUB RD	45	k3c	"	346.1	-	-	* 68	* + 23

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt NC273 to Dixie River Rd.

RECEPTOR INFORMATION			NEAREST EXISTING	AMBIENT NOISE	NEAREST PROPOSED ROADWAY			PREDICTED NOISE LEVELS				NOISE LEVEL
ID#	LAND USE	CATEGORY	ROADWAY	LEVEL	SEGMENT	NAME	CL DIST(ft)	-L-	-Y-	MAXIMUM		INCREASE
E238	Residence	B	3488 BOAT CLUB RD	45	k3c	"	375.1	-	-	* 67		* + 22
E240	Residence	B	1255 OAK CREST TRL	45	k3c	"	268.0	-	-	* 71		* + 26
E346	Residence	B	3115 ALLISON ST	45	k3c	"	885.3	-	-	59		+ 14
E347	Residence	B	DRENNAN HORNE DR	45	k3c	"	547.1	-	-	63		* + 18
E348	Residence	B	5021 DRENNAN HORNE DR	45	k3c	"	548.1	-	-	63		* + 18
E351	Residence	B	1251 OAK CREST TRL	45	k3c	"	420.1	-	-	* 66		* + 21
E354	Residence	B	DRENNAN HORNE DR	45	k3c	"	735.6	-	-	61		* + 16
E355	Residence	B	3441 BOAT CLUB RD	45	k3c	"	510.2	-	-	64		* + 19
E382	Res-Undev	B	DRENNAN HORNE DR	45	k3c	"	663.4	-	-	62	Undev	* + 17
E384	Residence	B	3111 ALLISON ST	45	k3c	"	688.8	-	-	61		* + 16
E387	Residence	B	3478 BOAT CLUB RD	45	k3c	"	437.5	-	-	65		* + 20
E388	Residence	B	115 SUNDERLAND RD	45	k3c	"	729.6	-	-	61		* + 16
E389	Residence	B	5010 DOROTHY RUTH LN	45	k3c	"	635.9	-	-	62		* + 17
E410	Active Recreatior	B	Private Baseball Field (Duke Power)	45	k3b	"	380.1	-	-	* 67		* + 22
E411	Active Recreatior	B	Private Rec Field (Duke Power)	45	k3b	"	458.1	-	-	65		* + 20

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt Dixie River Rd. to I-485

INPUTS FOR AMBIENT NOISE LEVELS

D-M	AMB # 1	N/A AMB # 2	BACKGROUND NOISE LEVEL FOR AREA
25	0.0	0.0	
50	0.0	0.0	45.0
100	0.0	0.0	
200	0.0	0.0	
400	0.0	0.0	
800	0.0	0.0	
1600	0.0	0.0	
R0	0.0	0.0	

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- Dixie Rd to I-485	N/A PRD # 2	N/A PRD # 3
72	81.2	0.0	0.0
91	79.7	0.0	0.0
141	76.5	0.0	0.0
241	72.7	0.0	0.0
441	65.5	0.0	0.0
841	59.7	0.0	0.0
1641	50.9	0.0	0.0
R0	43.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	256.9
67	388.6
66	423.4
50	0.0
DESIRED 55 dBA ^	1200.0

Minimum Right-of-way Distance From CL: 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
E60	Residence	B	10301 GARRISON RD	50	k1d	"	1490.9	-	-	52	+ 2
E61	Residence	B	GARRISON RD	50	k1d	"	1353.1	-	-	53	+ 3
E62	Residence	B	10305 GARRISON RD	50	k1d	"	1431.8	-	-	52	+ 2
E65	Residence	B	10406 GARRISON RD	50	k1d	"	1391.4	-	-	53	+ 3
E66	Residence	B	10315 GARRISON RD	50	k1d	"	1505.4	-	-	52	+ 2
E32	Residence	B	10408 GARRISON RD	50	k1d	"	932.7	-	-	58	+ 8
E33	Residence	B	10408 GARRISON RD	50	k1d	"	979.3	-	-	57	+ 7
E28	Residence	B	10220 GARRISON RD	50	k1d	"	854.0	-	-	59	+ 9
E29	Residence	B	10220 GARRISON RD	50	k1d	"	929.4	-	-	58	+ 8
E30	Residence	B	10300 GARRISON RD	50	k1d	"	1034.9	-	-	56	+ 6
E31	Residence	B	10300 GARRISON RD	50	k1d	"	1060.7	-	-	56	+ 6
E58	Residence	B	10308 GARRISON RD	50	k1d	"	1231.6	-	-	54	+ 4
E59	Residence	B	10308 GARRISON RD	50	k1d	"	1301.5	-	-	53	+ 3
E422	Residence	B	10104 GARRISON RD	50	k3c	"	425.8	-	-	65	* + 15
E432	Residence	B	10216 GARRISON RD	50	k3c	"	785.0	-	-	60	+ 10
E433	Residence	B	10134 GARRISON RD	50	k3c	"	621.0	-	-	62	+ 12
E434	Residence	B	10029 GARRISON RD	50	k3c	"	673.0	-	-	61	+ 11
E435	Residence	B	100001 GARRISON RD	50	k3c	"	657.0	-	-	61	+ 11
E438	Residence	B	9924 HORTON RD.	50	k3c	"	819.0	-	-	59	+ 9
E439	Residence	B	10012 HORTON RD.	50	k3c	"	925.0	-	-	58	+ 8

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

TABLE N4
TRAFFIC NOISE EXPOSURES
Pref Alt East of I-485

INPUTS FOR AMBIENT NOISE LEVELS

D-M	AMB # 1	N/A AMB # 2	BACKGROUND NOISE LEVEL FOR AREA
25	0.0	0.0	
50	0.0	0.0	45.0
100	0.0	0.0	
200	0.0	0.0	
400	0.0	0.0	
800	0.0	0.0	
1600	0.0	0.0	
R0	0.0	0.0	

Direction of CL Shift R or L	Distance of CL Shift in Feet
R	0.0

INPUTS FOR FUTURE NOISE LEVELS

D-M	-L- East of I-485	N/A PRD # 2	N/A PRD # 3
72	77.5	0.0	0.0
91	75.5	0.0	0.0
141	72.5	0.0	0.0
241	68.3	0.0	0.0
441	60.7	0.0	0.0
841	55.0	0.0	0.0
1641	46.2	0.0	0.0
R0	37.0	0.0	0.0

NOISE CONTOURS	DISTANCE TO CL
72	145.6
67	262.1
66	283.5
50	1221.5
DESIRED 55 dBA ^	837.0

Minimum Right-of-way Distance From CL: 140.0

---------- R/W ----------

RECEPTOR INFORMATION ID#	LAND USE	CATEGORY	NEAREST EXISTING ROADWAY	AMBIENT NOISE LEVEL	NEAREST PROPOSED ROADWAY SEGMENT	NAME	CL DIST(ft)	PREDICTED NOISE LEVELS -L-	-Y-	MAXIMUM	NOISE LEVEL INCREASE
E43	No longer there	C	BYRUM DR	50	k1d	Project	935.4	-	-	53	+ 3
E44	No longer there	C	6821 STEELE CREEK RD	50	k1d	"	460.1	-	-	60	+ 10
E45	No longer there	B	6829 STEELE CREEK RD	50	k1d	"	746.3	-	-	55	+ 5
E48	No longer there	C	STEELE CREEK RD	50	k1d	"	363.8	-	-	62	+ 12
E49	No longer there	C	STEELE CREEK RD	50	k1d	"	345.9	-	-	63	+ 13

Note: A review of the GIS tax parcel data available at www.charmeck.org showed that the properties where these receptors are located are now vacant.

-L- Denotes proposed roadways's noise level contribution and -Y- denotes contributions from other roadways.
"*" Denotes a noise impact per 23 CFR Part 772 and/or the NCDOT Traffic Noise Abatement Policy.

APPENDIX D

BARRIER EVALUATION AREA RESULTS

Table D-1
Barrier Evaluation Area 29
(Preferred Alternative)

RECEPTOR INFORMATION			Project		Ambient	Nearest Proposed Roadway		Predicted Noise	Noise Level	Barrier Height/ Noise Level	Insertion
ID #	Land Use	Category	Segment	Nearest Existing Roadway	Noise Level[a]	Name	Distance (ft)	Level	Increase[b]	with Barrier	Loss
										BEA 29-1	
										16/20 ft Barrier	
E79	Residence	B	KX1K3B	622 BROOK FOREST DR	45	WB Gaston East-West Connector	958	58	13	52	-6
E80	Residence	B	KX1K3B	614 BROOK FOREST DR	45	WB Gaston East-West Connector	1076	57	12	51	-6
E81	Residence	B	KX1K3B	618 BROOK FOREST DR	45	WB Gaston East-West Connector	1023	56	11	51	-5
E84	Residence	B	KX1K3B	611 BROOK FOREST DR	45	WB Gaston East-West Connector	995	56	11	51	-5
E85	Residence	B	KX1K3B	615 BROOK FOREST DR	45	WB Gaston East-West Connector	938	57	12	52	-5
E86	Residence	B	KX1K3B	619 BROOK FOREST DR	45	WB Gaston East-West Connector	865	58	13	52	-6
E87	Residence	B	KX1K3B	623 BROOK FOREST DR	45	WB Gaston East-West Connector	807	58	13	52	-6
E88	Residence	B	KX1K3B	703 BROOK FOREST DR	45	WB Gaston East-West Connector	742	59	14	53	-6
E89	Residence	B	KX1K3B	707 BROOK FOREST DR	45	WB Gaston East-West Connector	682	60	▲ 15	53	-7
E90	Residence	B	KX1K3B	711 BROOK FOREST DR	45	WB Gaston East-West Connector	616	59	14	54	-5
E91	Residence	B	KX1K3B	715 BROOK FOREST DR	45	WB Gaston East-West Connector	548	58	13	53	-5
E82	Residence	B	KX1K3B	702 BROOK FOREST DR	45	WB Gaston East-West Connector	885	58	13	51	-7
E83	Residence	B	KX1K3B	706 BROOK FOREST DR	45	WB Gaston East-West Connector	825	58	13	51	-7
E415	Residence	B	K3AB	FOREST LN.	45	EB Gaston East-West Connector	163	* 74	▲ 29	60	-14
E414	Residence	B	K3AB	FOREST LN.	45	EB Gaston East-West Connector	229	* 69	▲ 24	59	-10
E416	Residence	B	K3AB	FOREST LN.	45	EB Gaston East-West Connector	231	65	▲ 20	58	-7
E413	Residence	B	K3AB	FOREST LN.	45	EB Gaston East-West Connector	308	* 66	▲ 21	58	-8
E417	Residence	B	K3AB	FOREST LN.	45	EB Gaston East-West Connector	303	63	▲ 18	57	-6
E418	Residence	B	K3AB	FOREST LN.	45	EB Gaston East-West Connector	356	60	▲ 15	55	-5
E419	Residence	B	K3AB	FOREST LN.	45	EB Gaston East-West Connector	401	62	▲ 17	56	-6
E420	Residence	B	K3AB	TUCKER RD.	45	EB Gaston East-West Connector	300	62	▲ 17	56	-6
E421	Residence	B	K3AB	TUCKER RD.	45	EB Gaston East-West Connector	244	* 66	▲ 21	58	-8
E100	UndevResidence	B	KX1K3B	SOUTH FOREST LN	45	WB Gaston East-West Connector	578	57	12	52	-5
E99	UndevResidence	B	KX1K3B	SOUTH FOREST LN	45	WB Gaston East-West Connector	516	55	10	53	-2
E101	Residence	B	KX1K3B	SOUTH FOREST LN	45	WB Gaston East-West Connector	639	59	14	53	-6
E102	Residence	B	KX1K3B	616 SOUTH FOREST LN	45	WB Gaston East-West Connector	686	58	13	53	-5
E98	Residence	B	KX1K3B	621 SOUTH FOREST LN	45	WB Gaston East-West Connector	435	56	11	53	-3
E97	Residence	B	KX1K3B	617 SOUTH FOREST LN	45	WB Gaston East-West Connector	537	55	10	52	-3
E96	Residence	B	KX1K3B	613 SOUTH FOREST LN	45	WB Gaston East-West Connector	597	54	9	51	-3
E104	Residence	B	KX1K3B	608 SOUTH FOREST LN	45	WB Gaston East-West Connector	663	57	12	52	-5
E103	Residence	B	KX1K3B	612 SOUTH FOREST LN	45	WB Gaston East-West Connector	746	57	12	53	-4
E106	Residence	B	KX1K3B	600 SOUTH FOREST LN	45	WB Gaston East-West Connector	928	55	10	51	-4
E105	Residence	B	KX1K3B	604 SOUTH FOREST LN	45	WB Gaston East-West Connector	871	56	11	51	-5
E92	Residence	B	KX1K3B	521 S FOREST LN	45	WB Gaston East-West Connector	845	54	9	51	-3
E93	Residence	B	KX1K3B	601 SOUTH FOREST LN	45	WB Gaston East-West Connector	774	54	9	52	-2
E94	Residence	B	KX1K3B	605 SOUTH FOREST LN	45	WB Gaston East-West Connector	714	55	10	52	-3
E95	Residence	B	KX1K3B	609 SOUTH FOREST LN	45	WB Gaston East-West Connector	644	54	9	51	-3
E424	Residence	B	K3AB	TUCKER RD.	45	EB Gaston East-West Connector	473	63	▲ 18	57	-6
E425	Residence	B	K3AB	TUCKER RD.	45	EB Gaston East-West Connector	473	62	▲ 17	56	-6
E426	Residence	B	K3AB	TUCKER RD.	45	EB Gaston East-West Connector	636	61	▲ 16	56	-5
E427	Residence	B	K3AB	TUCKER RD.	45	EB Gaston East-West Connector	669	62	▲ 17	57	-5
E428	Residence	B	K3AB	TUCKER RD.	45	EB Gaston East-West Connector	669	63	▲ 18	58	-5
E429	Residence	B	K3AB	TUCKER RD.	45	EB Gaston East-West Connector	754	64	▲ 19	60	-4
										BEA29-2	
										20/18 ft Barrier	
E117	Residence	B	K3C	SOUTH POINT RD	45	WB Gaston East-West Connector	583	64	▲ 19	58	-6

Table D-1
Barrier Evaluation Area 29
(Preferred Alternative)

RECEPTOR INFORMATION			Project		Ambient	Nearest Proposed Roadway		Predicted Noise	Noise Level	Barrier Height/	Insertion
ID #	Land Use	Category	Segment	Nearest Existing Roadway	Noise Level[a]	Name	Distance (ft)	Level	Increase[b]	Noise Level with Barrier	Loss
E114	Residence	B	K3C	SOUTH POINT RD	45	WB Gaston East-West Connector	435	* 66	▲ 21	56	-10
E116	Residence	B	K3C	SOUTH POINT RD	45	WB Gaston East-West Connector	603	65	▲ 20	59	-6
E113	Residence	B	K3C	SOUTH POINT RD	45	WB Gaston East-West Connector	445	* 66	▲ 21	57	-9
E112	Residence	B	K3C	SOUTH POINT RD	45	WB Gaston East-West Connector	465	* 66	▲ 21	57	-9
E111	Residence	B	K3C	SOUTH POINT RD	45	WB Gaston East-West Connector	577	65	▲ 20	58	-7
E115	Residence	B	K3C	SOUTH POINT RD	45	WB Gaston East-West Connector	637	64	▲ 19	59	-5
E109	Residence	B	K3C	3418 BOAT CLUB RD	45	WB Gaston East-West Connector	703	63	▲ 18	59	-4
E108	Residence	B	K3C	BOAT CLUB RD	45	WB Gaston East-West Connector	836	61	▲ 16	57	-4
E110	Residence	B	K3C	SOUTH POINT RD	45	WB Gaston East-West Connector	703	63	▲ 18	58	-5
E118	Residence	B	K3C	JOYE LN	45	WB Gaston East-West Connector	614	64	▲ 19	58	-6
E107	Residence	B	K3C	3423 BOAT CLUB RD	45	WB Gaston East-West Connector	761	61	▲ 16	56	-5
E122	Residence	B	K3C	3419 BOAT CLUB RD	45	WB Gaston East-West Connector	704	62	▲ 17	57	-5
E119	Residence	B	K3C	BOAT CLUB RD	45	WB Gaston East-West Connector	499	* 67	▲ 22	59	-8
E120	Residence	B	K3C	3436 BOAT CLUB RD	45	WB Gaston East-West Connector	410	* 68	▲ 23	59	-9
E121	Residence	B	K3C	3442 BOAT CLUB RD	45	WB Gaston East-West Connector	302	* 71	▲ 26	60	-11
E382	UndevResidence	B	K3C	DRENNAN HORNE DR	45	WB Gaston East-West Connector	663	62	▲ 17	55	-7
E354	Residence	B	K3C	DRENNAN HORNE DR	45	WB Gaston East-West Connector	736	59	14	53	-6
E355	Residence	B	K3C	3441 BOAT CLUB RD	45	WB Gaston East-West Connector	510	65	▲ 20	57	-8
E348	Residence	B	K3C	DRENNAN HORNE DR	45	WB Gaston East-West Connector	548	63	▲ 18	54	-9
E347	Residence	B	K3C	DRENNAN HORNE DR	45	WB Gaston East-West Connector	547	63	▲ 18	55	-8
E77	Residence	B	K3C	5027 DRENNAN HORNE DR	45	WB Gaston East-West Connector	641	61	▲ 16	54	-7
E78	Business	C	K3C	5028 DRENNAN HORNE DR	45	WB Gaston East-West Connector	411	67	▲ 22	56	-11
E75	Residence	B	K3C	5031 DRENNAN HORNE DR	50	WB Gaston East-West Connector	638	61	11	55	-6
E76	Residence	B	K3C	5043 DRENNAN HORNE DR	45	WB Gaston East-West Connector	674	62	▲ 17	58	-4
E436	Residence	B	K3C	DRENNAN HORNE RD.	45	EB Gaston East-West Connector	726	61	▲ 16	57	-4
E437	Residence	B	K3C	DRENNAN HORNE RD.	45	EB Gaston East-West Connector	820	60	▲ 15	56	-4
										Barrier 29-3 (Not Reasonable)	
										14/18/14 ft Barrier	
E236	Residence	B	K3C	PLANT ALLEN RD	45	EB Gaston East-West Connector	436	61	▲ 16	56	-5
E237	Residence	B	K3C	3476 BOAT CLUB RD	45	EB Gaston East-West Connector	346	63	▲ 18	57	-6
E238	Residence	B	K3C	3488 BOAT CLUB RD	45	EB Gaston East-West Connector	376	65	▲ 20	59	-6
E387	Residence	B	K3C	3478 BOAT CLUB RD	45	EB Gaston East-West Connector	437	61	▲ 16	56	-5
E410	Recreation - baseball fld - see Note c (Assumed to equal 2 resid)	B	K3C	BOAT CLUB RD	45	EB Gaston East-West Connector	380	* 69	▲ 24	60	-9
E411	Recreation - general rec field - see Note c (Assumed to equal 2 resid)	B	K3C	BOAT CLUB RD	45	EB Gaston East-West Connector	458	65	▲ 20	60	-5
E430	Residence	B	K3C	FIRST ST.	45	EB Gaston East-West Connector	866	62	▲ 17		
E389	Residence	B	K3C	5010 DOROTHY RUTH LN	45	WB Gaston East-West Connector	636	55	10		
E232	Residence	B	K3C	3112 ALLISON ST	45	EB Gaston East-West Connector	606	53	8		
E233	Residence	B	K3C	3116 ALLISON ST	45	EB Gaston East-West Connector	855	56	11		
E234	Residence	B	K3C	2039 SOUTH POINT RD	45	EB Gaston East-West Connector	978	59	14		
E235	Residence	B	K3C	5011 DOROTHY RUTH LN	45	EB Gaston East-West Connector	855	58	13		

Table D-1
Barrier Evaluation Area 29
(Preferred Alternative)

RECEPTOR INFORMATION			Project		Ambient	Nearest Proposed Roadway		Predicted Noise	Noise Level	Barrier Height/ Noise Level	Insertion
ID #	Land Use	Category	Segment	Nearest Existing Roadway	Noise Level[a]	Name	Distance (ft)	Level	Increase[b]	with Barrier	Loss
E346	Residence	B	K3C	3115 ALLISON ST	45	EB Gaston East-West Connector	885	54	9		
E384	Residence	B	K3C	3115 ALLISON ST	45	EB Gaston East-West Connector	689	54	9		
E388	Residence	B	K3C	115 SUNDERLAND RD	45	EB Gaston East-West Connector	730	58	13		
E431	Residence	B	K3AB	DRENNAN HORNE RD.	45	EB Gaston East-West Connector	682	59	14		

UndevResidence - Lot in a subdivision that has not been built upon as of March 200

[a] Ambient noise levels for study area receptors were estimated using measured noise levels conducted in similar settings with similar land uses.

Ambient noise levels were increased where necessary to a minimum value of 45 dBA, which is considered by NCDOT to be the lowest background level.

[b] Calculated by taking the difference between the ambient noise level and the rounded adjusted (predicted) noise level for conservatism.

[c] Special use area - Duke Energy Recreational Fields. Equivalent # of residences calculated based on NCDOT Traffic Noise Abatement Policy:

Equivalent # Residences = # Occupants/(# people / residence) * usage

Using the equations: Eq. # Resid = (50/3) * (2/24) = 1.4 (so assume 2 eq resid per field)

Occupants - Assumed 50 people at each field for a game

people/residence = 3 (per Traffic Noise Abatement Policy)

Usage = # of hours used per day/ 24 hours per day Assumed 2 hrs per 24 hrs (this probably overstates the use, as the fields likely are not used every day)

[d] Distances to the nearest proposed roadway are measured from the alignment's center line.

[e] Business is an industrial use with no apparent frequent outdoor use area.

* Denotes a noise impact per 23 CFR Part 772 (66 dBA or greater for residential receptors, and 71 dBA or greater for commercial receptors). Future noise levels were rounded to the nearest whole decibel prior to evaluating per 66/71 dBA criterion, for conservatism.

▲ Denotes a substantial noise increase (defined as follows) as defined in NCDOT's 2004 Traffic Noise Abatement Policy

Existing Leq(h)	Increase
50 or less dBA	15 or more dBA
51 dBA	14 or more dBA
52 dBA	13 or more dBA
53 dBA	12 or more dBA
54 dBA	11 or more dBA
55 or more dBA	10 or more dBA

Table D-2
BEA29: Barrier Reasonableness Summary

Barrier ID	Number of Impacted Receptors Benefited	Base Allowance for Barrier	Average Decibel Increase	Barrier Cost Adjustment for Avg dB Increase	Allowable Cost for Impacted Receptors	[1] Other Benefited Receptors	Allowable Cost for Other Benefited Receptors	Total Allowable Cost	Allowable Cost per Receptor	Proposed Barrier Dimensions: Height (feet)	Linear (feet)	Approximate Stations	Area of Barrier Square Feet	Barrier Cost	Cost per Benefited Receptor	Reasonable? Yes/No
BEA 29-1	15	$ 525,000	19	$ 142,500	$ 667,500	16	$ 560,000	$ 1,227,500	$ 39,597	14	2,001	WB Entrance Ramp Sta 19 to Bypass WB Sta 242	28,014			
										16	447	NC273 SB Sta 56 to WB Entrance Ramp Sta 19	7,152			
Note: No undeveloped lots are involved in the cost effectiveness calculations.										18	303	Sta 19 to Sta 22	5,454			
										20	672	Sta 22 to Sta 29	13,440			
										18	139	Sta 29 to NC 273 Sta 52.5	2,502			
										16	100	Sta 52.5 to 54	1,600			
										14	98	Sta 54 to Sta 55	1,372			
										TOTAL	3,760	TOTAL	59,534	$893,010	$28,807	Yes
BEA29-2	20	$ 700,000	19	$ 190,000	$ 890,000	2	$ 70,000	$ 960,000	$ 43,636	20	306	WB Exit Ramp Sta 24 to Sta 21	6,120			
Note: No undeveloped lots are involved in the cost effectiveness calculations.										18	2,154	WB Exit Ramp Sta 21 to Bypass WB Sta301	38,772			
										TOTAL	2,460	TOTAL	44,892	$673,380	$30,608	Yes
BEA29-3	8	$ 280,000	19	$ 76,000	$ 356,000	0	$ -	$ 356,000	$ 44,500	14	995	EB Entrance Ramp Sta 26 to Sta 16	13,930			
										12	1,138	EB Entrance Ramp Sta 16 to Bypass EB Sta 306	13,656			
										14	297	Bypass EB Sta 306 to Sta 308	4,158			
										TOTAL	2,430	TOTAL	31,744	$476,160	$59,520	No

1. Other Benefited Receptors - receptors not impacted by future noise, but still receive at least 5 dBA of attenuation from the barrier

Notes: Assumptions based on the NCDOT Noise Abatement Policy:

$ 35,000 = Cost effectiveness threshold ($/benefited receptor)
$ 500 = Adjustment per average decibel increase for impacted receptors that are benefited.
$ 15 = Assumed barrier cost ($/sq ft)

Table D-3
Barrier Evaluation Area 33
(Preferred Alternative)

RECEPTOR INFORMATION			Project	Nearest Existing	Ambient	Nearest Proposed Roadway		Predicted Noise	Noise Level	Barrier Height/	Insertion
ID #	Land Use	Category	Segment	Roadway	Noise Level[a]	Name	Distance (ft)	Level	Increase[b]	Noise Level with Barrier	Loss
										No Barrier Needed	
E28	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	854	62	12		
E29	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	919	61	11		
E30	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	1035	60	10		
E31	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	1061	60	10		
E32	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	933	60	10		
E33	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	979	59	9		
E58	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	1232	58	8		
E59	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	1302	57	7		
E60	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	1491	55	5		
E61	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	1353	56	6		
E62	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	1432	55	5		
E65	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	1391	55	5		
E66	Residence	B	k1d	GARRISON RD	50	EB Gaston East-West Connector	1505	54	4		
E422	Residence	B	k3c	GARRISON RD	50	EB Gaston East-West Connector	426	* 68	▲ 18		
E432	Residence	B	k3c	GARRISON RD	50	EB Gaston East-West Connector	785	61	11		
E433	Residence	B	k3c	GARRISON RD	50	EB Gaston East-West Connector	621	62	12		
E434	Residence	B	k3c	GARRISON RD	50	EB Gaston East-West Connector	673	61	11		
E435	Residence	B	k3c	GARRISON RD	50	EB Gaston East-West Connector	657	63	13		
E438	Residence	B	k3c	HORTON RD	50	EB Gaston East-West Connector	819	62	12		
E439	Residence	B	k3c	HORTON RD	50	EB Gaston East-West Connector	925	61	11		

[a] Ambient noise levels for study area receptors were estimated using measured noise levels conducted in similar settings with similar land uses.

Ambient noise levels were increased where necessary to a minimum value of 45 dBA, which is considered by NCDOT to be the lowest background level.

[b] Calculated by taking the difference between the ambient noise level and the rounded adjusted (predicted) noise level for conservatism.

[c] Distances to the nearest proposed roadway are measured from the alignment's center line.

* Denotes a noise impact per 23 CFR Part 772 (66 dBA or greater for residential receptors, and 71 dBA or greater for commercial receptors). Future noise levels were rounded to the nearest whole decibel prior to evaluating per 66/71 dBA criterion, for conservatism.

▲ Denotes a substantial noise increase (defined as follows) as defined in NCDOT's 2004 Traffic Noise Abatement Policy:

Existing Leq(h)	Increase
50 or less dBA	15 or more dBA
51 dBA	14 or more dBA
52 dBA	13 or more dBA
53 dBA	12 or more dBA
54 dBA	11 or more dBA
55 or more dBA	10 or more dBA

APPENDIX E

TNM INPUT AND OUTPUT FILES

(on CD only)