

Highway Traffic Noise Impact Study Screening Analysis

Prepared for the

US 30 Section A10 Corridor Improvements Project

North Versailles and North Huntingdon Townships
Allegheny and Westmoreland Counties, Pennsylvania

Prepared for:



pennsylvania

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TABLE OF CONTENTS

1. Executive Summary	pg. 1
2. Introduction.....	pg. 1
3. Project Type Determination Methodology.....	pg. 2
4. Traffic Noise Modeling Methodology	pg. 4
5. Traffic Noise Modeling Findings	pg. 7
6. Noise Impact Analysis Conclusion.....	pg. 11
7. Information for Local Public Officials.....	pg. 13
Appendix A	Project Location Map
Appendix B.....	Noise Impact Study Map
Appendix C.....	Noise Contour Map for Undeveloped Land
Appendix D.....	Traffic Volume Data
Appendix E.....	Noise Model Results
Appendix F.....	Scoping Correspondence
Appendix G.....	List of Preparers
Appendix H	ERU Supporting Calculations

1. Executive Summary

The purpose of this noise screening analysis is to determine the existing and future projected noise impacts associated with the roadway full-depth construction, widening, and intersection improvements along US 30 Section A10. This study is to determine if there are noise impacts and whether noise abatement for affected areas in the form of noise barriers or other mitigation measures would be warranted, feasible and reasonable, based on the criteria of the Federal Highway Administration (FHWA) and the Pennsylvania Department of Transportation (PennDOT). Refer to Appendix A & B for project area maps.

PennDOT Engineering District 12-0 is proposing roadway widening and pavement improvements along US 30, Section A10 located in North Versailles Township, Allegheny and North Huntingdon Township, Westmoreland County. The length of the project is approximately 2.6 miles spanning between the SR 48 (west) and 10th Street (east) intersections. Built in 1937, the US 30 corridor contains many features in need of upgrades to meet current design criteria such as: obsolete and unsafe drainage structures, concrete and bituminous base pavement beyond its normal service life, and roadway and shoulder widths.

Existing and projected future noise levels were compared using procedures outlined in PennDOT's Publication No. 24, *Project Level Highway Traffic Noise Handbook* (May 2019) and the FHWA's publication *Highway Traffic Noise Analysis and Abatement: Policy and Guidance Manual* (December 2011). FHWA's Traffic Noise Model (TNM), Version 2.5 was used to project future noise levels for the 2015 Existing and 2045 Build and No Build conditions. Noise levels were modeled in A-weighted decibels (dB(A)).

Fifteen Noise Study Areas (NSAs) were delineated, which included forty-three (43) modeled noise receptor units (NRUs).

The results of the highway traffic noise screening indicated that ten modeled receptors (representing 33.80 impacted units) within eight noise study areas warranted noise abatement consideration due to the noise levels approaching¹ or exceeding the Noise Abatement Criteria of 67 dB(A). Due to project site constraints (driveways / local traffic access), the placement of noise abatement measures will not be feasible, and noise barriers will not be proposed. The noise modeling results can be found in Appendix E. Mitigation is not recommended for the project and therefore no further study is required.

2. Introduction

The US 30 Section A10 project area is located in North Versailles and North Huntingdon Townships in Allegheny and Westmoreland Counties, Pennsylvania. This portion of SR

1. Sound levels approaching 67 dB(A) equates to 1 dB(A) less

0030 travels through a commercialized suburban and residential corridor over rolling terrain. The existing pavement consists of four 10 ft - 12ft thru lanes and with 0 ft -10 ft shoulders. At Carpenter Lane, one 11 ft – 12 ft center left turn lane is added to the pavement section. There are no bicycle or pedestrian facilities located within the project limits. The project involves the full-depth reconstruction of approximately 2.6 miles of the existing roadway. The project limits extend from roughly 1,000-feet east of the Leger Road/Carpenter Lane intersection in Westmoreland County to roughly 1,300-feet west of the SR 0048 intersection in Allegheny County. The roadway will be slightly widened throughout the project area to add curb gutter and median areas. The median addition will eliminate left turn traffic movements along segments of US 30 which are currently unrestricted through this portion of the corridor. Several intersection improvements are proposed for the project to allow for controlled left turn movements in the corridor. “Jug handle” type intersections are proposed approximately every 0.7 miles through the length of this corridor to allow traffic access to opposite sides of the roadway and provide turn-around opportunities. Improvements to the existing roadway drainage network will also be implemented to adequately move water away from the roadway. A Project Location Map is located in Appendix A.

3. Project Type Determination Methodology

The project type determination was conducted in accordance with the methodology described in the *Pennsylvania Department of Transportation Project Level Highway Traffic Noise Handbook (May 2019) (Publication No. 24)*. The criteria for defining the specific project types as presented in *Publication No. 24* are as follows:

Type 1 Project

A Type I Project is any project that meets one of the following criteria.

1. The construction of a highway on a new location.
2. The physical alteration of an existing highway where there is either:
 - i. Substantial Horizontal Alteration. A project that halves the distance between the traffic noise source and the closest receptor between the existing condition and the future build condition.
 - ii. Substantial Vertical Alteration. A project that removes shielding therefore exposing the line-of-sight between the receptor and the traffic noise source. This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor.
3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a HOV lane, High-Occupancy Toll (HOT) lane, bus lane, or truck climbing lane.
4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane.

5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange.
6. Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane.
7. The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.
8. If a project is determined to be a Type 1 project, then the entire project area as defined in the environmental document is a Type 1 project.

Type 1 projects require either a screening or detailed noise analysis.

Type 2 Project

A Type 2 Project is a transportation improvement project which installs noise abatement on an existing highway. For a Type 2 project to be eligible for Federal-aid funding, the highway agency must develop and implement a Type 2 program in accordance with 23 CFR 772. Note: PennDOT does not currently participate in a state-funded Type 2 program. Type 2 projects require a detailed noise analysis.

Type 3 Project

A Type 3 Project is a Federal or Federal-aid highway project that does not meet the classifications of a Type 1 or Type 2 project. These projects can include, but are not limited to the rehabilitation of an existing highway (non-capacity improvements), on-line bridge replacements/rehabilitations, non-through lane intersection improvements (Turn lanes), etc. Type 3 projects do not require a noise analysis.

Based on the nature of work proposed for the intersection improvements of US 0030/Ardara Road, US 30/Old Jacks Run Road, and US 30/Leger Road the project will be classified as Type 1 per criteria 2(i). This determination was made based on the criteria for the Substantial Horizontal Alteration of an existing highway. The addition of Jug Handle features at the aforementioned intersections are necessary to control left hand turn movements. The distance from the closest receptors to the traffic noise source at these locations will be halved by the addition of the jug handle lanes. Coordination with PennDOT Environmental Policy and Development Section (EPDS) is required for scoping a Type 1 project per *Publication No. 24*. EPDS advised that a *screening* analysis would be appropriate for the project based on the proposed work and locations of sensitive noise receptors throughout the project area. Route 30 has a posted speed limit of 40 MPH, is not a divided highway, and maintains direct driveway, parking lot and local roadway access throughout the full length of the project limits. In addition, the majority of the identified noise-sensitive (Activity Category B and C) land uses are set back from the roadway and often located behind commercial structures which front the Route 30 corridor. Many of these (Activity Category E) commercial structures are anticipated to

provide acoustical shielding which would result in reduced noise levels at the more removed noise-sensitive (Activity Category B and C) locations. All of these factors combine to yield a corridor where noise impacts are not anticipated and/or situations where abatement is clearly not feasible.

Due to this determination, noise modeling was performed using TNM 2.5 and on-site monitoring was not required. A copy of this email correspondence from February 10, 2020 is included in Appendix F.

4. Traffic Noise Modeling Methodology

The existing and projected future noise levels were compared using procedures outlined in *Publication No. 24*, which is based on *FHWA CFR 772* and relies on FHWA guidance, *Noise Analysis and Abatement Guidance*. These guidelines and procedures require a noise impact analysis to evaluate the transportation corridor in order to identify sensitive noise receptors; establish existing and future noise levels using modeling; determine if receptor locations will be adversely impacted; and evaluate noise mitigation measures, if and where appropriate.

On-Site noise monitoring is not required/applicable for a screening analysis. As a result of having no on-site noise monitoring, the model uses worst case scenario information that tends to over predict anticipated future noise levels.

Noise modeling was conducted using the latest preferred traffic noise prediction model, FHWA's *Traffic Noise Model (TNM)*, Version 2.5. Accurate mapping of the project site and suitable plans of the proposed alternative were the basis for the model. The project mapping, roadway plans and other pertinent data utilized to conduct the noise impact analysis included but was not limited to the following data:

- design plans
- traffic projections
- existing land uses
- design speed limits for affected roadways in the area
- traffic volume
- locations and names of local roads
- outlines of existing buildings and structures, property lines, and tax assessor's plot information

Projected traffic volumes were provided by Whitman Requardt & Associates (WRA) using a linear growth method and peak hour traffic volumes from traffic count information provided by PennDOT District 12-0 for the project. Since the proposed project is a safety improvement project and not adding additional capacity to the roadways, it was assumed that traffic for the No Build was the same as the Build condition. The traffic data used in the analysis is provided in Appendix D of this report.

According to FHWA Title 23 Code of Federal Regulations, Part 772 (23 CFR 772), a project is defined as having a noise impact and noise abatement measures must be considered if either of the following conditions occurs:

- Predicted highway traffic noise levels (for the design year) approach or exceed the Noise Abatement Criteria (NAC) in Table 1. “Approach” has been defined by PennDOT as 1 dB(A) below the NAC for Land Use Activity Categories A, B, C, D, and E. These land use activities are defined in the table below.
- Predicted highway traffic noise levels *substantially exceed* the existing highway traffic noise levels. Since the FHWA guidance on noise abatement does not specifically define “substantial noise increase,” PennDOT has developed substantial noise increase criteria for all noise sensitive receptors (Land Use Activity Categories A, B, C, D, and E) where the future noise level will increase 10 dB(A) or more above existing noise levels.

Table 1
Hourly Weighted Sound Levels dB(A) for Various Land Use Activity Categories

Activity Category	Leq(h) ¹	Description of Activity Category
A (exterior)	57	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ² (exterior)	67	Residential
C ² (exterior)	67	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D (interior)	52	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E ² (exterior)	72	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A, B, or C.
F	--	Agriculture, airports, bus yards, emergency services, industrial logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	Undeveloped lands that are not permitted.
<ol style="list-style-type: none"> 1 Impact thresholds should not be used as design standards for noise abatement purposes. 2 Includes undeveloped lands permitted for this activity category. <p>*PennDOT has chosen to use Leq(h) [not L10(h)] on all of its transportation improvement projects.</p>		

Source: PennDOT Publication No. 24 (5-19).

Noise receptor locations where predicted noise levels approached or exceeded the NAC, or where noise levels would substantially increase according to the PennDOT abatement

criteria were considered impacted. All sensitive noise receptors within the study boundary were categorized as Activity Category B or C. Although there were Category E land uses within the corridor, they were not considered as being noise sensitive or having impacts due to the lack of outdoor gathering area.

Criteria for Detailed Highway Traffic Noise Abatement Measures

It is PennDOT's policy to implement noise abatement measures on Type I projects when they are determined to be warranted, feasible, and reasonable. Noise abatement determination is a three-phased approach. Noise abatement design is driven from the results of the noise analysis (i.e., establishment of warrants). All warranted receptors must progress to the "feasible" phase. All feasible noise barriers, regardless of the number of receptor units protected, must then progress to the "reasonable" phase. Following the completion of all three phases, a determination can be made related to the feasibility and reasonableness of noise abatement options.

Warranted Criteria

If noise impacts do not occur at a receptor, then consideration of abatement is not required for that receptor. Alternatively, if noise impacts, as defined on Page 1 do occur at a receptor, then warranted criteria has been met.

Feasibility Criteria

Once a noise abatement measure has been deemed warranted, a feasibility determination must be made next. To determine feasibility for a highway traffic noise barrier, the following seven acoustical and engineering parameters need to be considered. For a proposed noise barrier to be considered "feasible," there needs to be a "yes" answer to all of the questions.

- Can a noise reduction of at least 5 dB(A) be achieved at the majority of the impacted receptor units (i.e., 50% or greater)?
- Can the noise barrier be designed and physically constructed at the proposed location?
- Can the noise barrier be constructed without causing a safety problem?
- Can the noise barrier be constructed without restricting access to vehicular or pedestrian travel?
- Can the noise barrier be constructed in a manner that allows for access for required maintenance and inspection operations?
- Can the noise barrier be constructed in a manner that allows utilities to adequately function?
- Can the noise barrier be constructed in a manner that allows drainage features to adequately function?

Reasonableness Criteria

Once all feasible criteria have been met, a reasonableness evaluation is the final phase to determine implementation of traffic noise abatement measures. Additional considerations that are part of the reasonableness evaluation include cost-effectiveness, benefited receptor viewpoints (those who would see a 5dB(A) reduction or more in sound levels from a proposed noise wall), and noise reduction design goals.

Due to the driveway and local road access, mitigation would not be feasible for the project, and a reasonableness analysis would not be required. All potential impacts have been documented. All results are further discussed Section 6 (Conclusion).

Equivalent Residential Units

Equivalent Residential Units (ERU) are used to represent receptors and the degree of use which occurs at a specific site. These sites include but are not limited to apartments, schools, motels, and places of worship. The ERU value is a function of the “person-hours per year” of use of the site, expressed as a ratio to the “person-hours per year” of use by an average single-family dwelling in Pennsylvania. While the ERU value for a single-family residence is always one, ERU values for other sites will vary based on a variety of factors. Appendix E of Pub 24 includes tables which provide examples of how such ERU values may be calculated for various types of activities.

5. Traffic Noise Modeling Findings

A total of 15 NSAs were evaluated, consisting of 43 representative NRUs within the noise impact study boundary. The locations of these NRUs can be seen on the Noise Impact Study Map included in Appendix B. All receptors were assessed to determine the existing noise conditions based on the existing configuration of US 30 and major intersecting roadways within the project study area. The proposed roadway project, including widening, horizontal adjustments, vertical adjustments, and intersection improvements were reviewed at each representative NRU to determine if the proposed improvements would affect the noise environment of the receptor. A future No-Build condition was modeled as well for comparison to the proposed roadway project. If it is determined that any NRU meets the criteria for noise abatement, then noise abatement must be considered for inclusion with the project. All land use categories are B or C within the NSAs and therefore all criteria sounds levels are 67dB. The tabulated results of the traffic noise model can be found in Appendix E. The following is a summary of the NSAs’ modeling results:

NSA 1 – Three NRUs (1-3) were modeled within NSA 1. This area, north of US 30 consists of single-family residences and apartments. There is neither a 10dB sound level increase, nor an individual sound level of 66 dB or greater, at all

NRUs for the future build and no-build conditions. Existing levels ranged from 49-59 dB, and the future build / no-build models resulted in a +1 to +2 dB increase. Abatement measures were therefore not warranted for NSA 1.

NSA 2 – Two NRUs (4-5) were modeled within NSA 2. This area, south of US 30 consists of single-family residences. There is neither a 10dB sound level increase, nor an individual sound level of 66 dB or greater, at all NRUs for the future build and no-build conditions. Existing levels ranged from 55-56 dB, and the future build / no-build models resulted in a +2 dB to +3 dB increase. Abatement measures were therefore not warranted for NSA 2.

NSA 3 – Four NRUs (6-9) were modeled within NSA 3. This area, south of US 30 consists of single-family residences. There was not a 10dB sound level increase for all NRUs for the future build and no-build conditions. There were though, existing and future build / no-build sound levels that exceeded the criteria sound level for NRUs 7 & 8 (impacted receptors). NRUs 7 & 8 represent 5 and 4 houses/receptors, respectively. Existing NSA3 levels ranged from 53-71 dB, and the future build / no-build models resulted in a +1 to +3 dB increase. The future build levels for NRUs 7 & 8 were modeled to be 72db(A) and 71 dB(A), respectively. Abatement measures were therefore warranted for NSA 3.

NSA 4 – One NRU (10) was modeled within NSA 4. This area, north of US 30 consists of a place of worship. There was not a 10dB sound level increase for the future build and no-build conditions. There was though, existing, and future build / no-build sound levels that exceeded the criteria sound level for NRU 10 (impacted receptor). NRU 10 represents a cemetery (2.50 ERU) associated with the existing church in NSA 4. Existing NSA 4 levels were 70 dB, and the future build / no-build models resulted in a +1 dB increase. The future build NRU 10 level was modeled to be 71 db(A). Abatement measures were therefore warranted for NSA 4.

ERUs were evaluated for the cemetery located in NSA 4. By using a linear frontage calculation and associating the total area with a single representative location, the ERU was calculated to have a value of 2.50. Refer to Appendix H for supporting calculations.

NSA 5 – Two NRUs (11-12) were modeled within NSA 5. This area, south of US 30 consists of single-family residences. There was not a 10dB sound level increase for the future build and no-build conditions. There was though, existing, and future build / no-build sound levels that exceeded the criteria sound level for NRU 11 (impacted receptor). NRU 11 represents 3 houses/receptors. Existing NSA 5 levels ranged from 63-70 dB, and the future build / no-build models resulted in a 0 to +2 dB increase. The future build NRU 11 level was modeled to be 71 db(A). Abatement measures were therefore warranted for NSA 5.

NSA 6 – Three NRUs (13-15) were modeled within NSA 6. This area, south of US 30 consists of single-family residences. There was not a 10dB sound level increase for the future build and no-build conditions. There was though, existing, and future build / no-build sound levels that exceeded the criteria sound level for NRU 15 (impacted receptor). NRU 15 represents 1 house/receptor. Existing NSA 6 levels ranged from 56-66 dB, and the future build / no-build models resulted in a 0 to +2 dB increase. The future build NRU 15 level was modeled to be 67 db(A). Abatement measures were therefore warranted for NSA 6.

NSA 7 – Three NRUs (16-18) were modeled within NSA 7. This area, north of US 30 consists of single-family residences and a school. There is neither a 10dB sound level increase, nor an individual sound level of 66 dB or greater, at all NRUs for the future build and no-build conditions. Existing levels ranged from 57-61 dB, and the future build / no-build models resulted in a 0 to +1 dB increase. Abatement measures were therefore not warranted for NSA 7.

NSA 8 – Seven NRUs (19-25) were modeled within NSA 8. This area, west of US 30 consists primarily of single-family residences. There was not a 10dB sound level increase for the future build and no-build conditions. There was though, future build / no-build sound levels that exceeded the criteria sound level for one impacted receptor (NRU 25). NRU 25 represents 1 house/receptor. Existing NSA 8 levels ranged from 53-65 dB, and the future build / no-build models resulted in a 0 to +4 dB increase. The future build level was modeled to be 67 db(A) at NRU 25. Abatement measures were therefore warranted for NSA 8.

NSA 9 – Two NRUs (26-27) were modeled within NSA 9. This area, east of US 30 consists of single-family residences and a cemetery. There was not a 10dB sound level increase for the future build and no-build conditions. There was future build / no-build sound levels that exceeded the criteria sound level for NRU 26 (impacted receptor). NRU 26 represents a cemetery (10.30 ERU) associated with the existing church in NSA 9. Existing NSA 9 levels ranged from 60-66, and the future build / no-build models resulted in a +1 to +2 dB increase. The future build NRU 26 level was modeled to be 67 db(A). Abatement measures were therefore warranted for NSA 9.

ERUs were evaluated for the cemetery located in NSA 9. By using a linear frontage calculation and associating the total area with a single representative location, the ERU was calculated to have a value of 10.30. Refer to Appendix H for supporting calculations.

NSA 10 – One NRU (28) was modeled within NSA 10. This area, west of US 30 consists of three high density apartment buildings consisting of approximately 15 residential units. There is neither a 10dB sound level increase, nor an

individual sound level of 66 dB or greater, at all NRUs for the future build and no-build conditions. Existing levels were 57 dB, and the future build / no-build models resulted in a +1 to +2 dB increase. Abatement measures were therefore not warranted for NSA 10.

NSA 11 – One NRU (29) was modeled within NSA 11. This area, east of US 30 consists of a single-family residence. There was not a 10dB sound level increase for the future build and no-build conditions. There was though, existing and future build / no-build sound levels that exceeded the criteria sound level for NRU 29 (impacted receptor). NRU 29 represents 1 house/receptor. Existing levels were 67 dB, and the future build / no-build models resulted in a +1 dB increase. The future build level was modeled to be 68 db(A). Abatement measures were therefore warranted for NSA 11.

NSA 12 – Three NRUs (30-32) were modeled within NSA 12. This area, west of US 30 consists of single-family residences and a school. There is neither a 10dB sound level increase, nor an individual sound level of 66 dB or greater, at all NRUs for the future build and no-build conditions. Existing levels ranged from 51-60 dB, and the future build / no-build models resulted in a +2 dB increase. Abatement measures were therefore not warranted for NSA 12.

NSA 13 – Three NRUs (33-35) were modeled within NSA 13. This area, east of US 30 consists of single-family residences and a place of worship. There is neither a 10dB sound level increase, nor an individual sound level of 66 dB or greater, at all NRUs for the future build and no-build conditions. Existing levels ranged from 50-59 dB, and the future build / no-build models resulted in a +2 dB increase. Abatement measures were therefore not warranted for NSA 13.

NSA 14 – Four NRUs (36-39) were modeled within NSA 14. This area, north of US 30 consists of single-family residences. There was not a 10dB sound level increase for the future build and no-build conditions. There was though, existing and future build / no-build sound levels that exceeded the criteria sound level for NRUs 36 & 37 (impacted receptors). NRUs 36 & 37 represent 4 and 2 houses/receptors, respectively. Existing levels ranged from 52-71 dB, and the future build / no-build models resulted in a +1 to +2 dB increase. The future build levels were modeled to be 66 & 72 db(A) for NRUs 36 & 37 respectively. Abatement measures were therefore warranted for NSA 14.

NSA 15 – Four NRUs (40-43) were modeled within NSA 15. This area, south of US 30 consists primarily of single-family residences. There is neither a 10dB sound level increase, nor an individual sound level of 66 dB or greater, at all NRUs for the future build and no-build conditions. Existing levels ranged from 51-61 dB, and the future build / no-build models resulted in a +1 to +2 dB increase. Abatement measures were therefore not warranted for NSA 15.

6. Noise Impact Analysis Conclusion

All representative NRUs within the noise impact study boundary have been assessed according to the methodology described above. When comparing the existing sound level to the build condition sound level, forty out of the forty-three NRUs modeled showed an imperceptible increase in sound level of two dB or less. The remaining receptor units (NRUs 5, 6, & 9) showed a slightly perceptible increase in sound level of 3 dB compared to existing levels. The sound levels at NRUs 12, 13, 18, & 21 would remain unchanged under the build condition with a 0 dB increase over existing conditions.

US 30 and SR 0048 are the primary source of noise in the vicinity of the project area. The relocation of turning traffic creates positive influence on the future noise environment of several sensitive receptors. NRU-11, NRU-12, & NRU-24 show a decrease in predicted future sound levels with the implementation of the build condition over the no-build condition.

There were also ten representative receptor units that warrant consideration for noise abatement. NRU-7, NRU-8, NRU-10, NRU-11, NRU-15, NRU-25, NRU-26, NRU-29, NRU-36, and NRU-37 approached or exceeded the noise abatement criteria in existing condition and/or future build/no-build conditions. These representative receptor units which approached or exceeded the criteria sound level of 67dB in both future no-build and build conditions were considered further for noise abatement, and represented a total of 33.80 impacted units collectively. Considerations first included, traffic control measures, alteration of horizontal / vertical alignments, and earthen berms, but proved to be non-achievable due to project constraints within the roadway corridor and the characteristics of the traffic traveling across US 30. Consideration of noise barriers was then analyzed for feasibility, but it was immediately apparent that noise abatement would not be feasible throughout the project vicinity. Noise barriers could not achieve the required insertion loss (sound level decrease of at least 5 dBA for 50% or more of impacted receptors in a noise study area) without restricting vehicular access or sight distance from the receptors.

It has been concluded that the type of project and various points of vehicular access within the project study area render the construction of noise barriers not feasible. Based on barrier design fundamentals that generally require a length extending four times the distance between source and receiver to account for flanking noise, feasible mitigation for receptors 7 & 8 (and all residents in between) in NSA 3 would require a barrier extending approximately 540 feet along the shoulder of SR 0048. Receptors 10, & 11 within NSAs 4 & 5 would require a barrier extending approximately 140 feet, and 240 feet, respectively, parallel along the north and south shoulders of SR 0030. Receptor 15 in NSA 6 would require a barrier extending approximately 200 feet along the shoulder of SR 0030. Receptor 25 in NSA 8 would also require a barrier extending approximately 200 feet along the shoulder of SR 0030. Receptor 26 in NSA 9 would require a barrier extending approximately 520 feet along the shoulder of SR 0030.

Receptor 29 in NSA 11 would require a barrier extending approximately 100 feet along the shoulder of SR 0030. Receptor 37 in NSA 14 would require a barrier extending approximately 120 feet along the shoulder of SR 0030.

Given the need to maintain direct vehicular access to adjacent parcels, any such barrier would be not feasible based on PennDOT/FHWA criteria listed above. Therefore, further analysis is not required. Using a worst-case scenario model in TNM 2.5, ten out of 43 NRUs approached or exceeded the noise abatement criteria, indicating that this is not an overall perceptible anticipated noise impact to the majority of the project along US 30.

In addition, temporary increases in noise levels will occur during construction. To reduce the noise impact associated with equipment, most construction activities will take place during permitted times dictated by local municipalities, which typically state that noise levels cannot exceed prescribed levels after 10:00 P.M. or before 7:00 A.M. Currently, neither North Versailles nor North Huntington have noise ordinances or enforceable code within their local ordinances stating a limit on the hours of construction. Noise generated from these activities cannot be completely avoided.

In closing, low-cost, easy to implement measures should be incorporated into project plans (e.g., work-hour limits, equipment muffler requirements, location of haul roads, elimination of “tail gate banging,” reduction of backing up for equipment with alarms, community rapport, complaint mechanisms) with specifications. Typical noise levels, measured at a distance of 50 feet from different types of construction equipment, are listed in the following table.

Typical Construction Equipment Noise Levels (50 ft from source)			
Equipment	dB(A)	Equipment	dB(A)
Air Compressor	81	Pile Driver (Impact)	101
Backhoe	80	Pile Driver (Sonic)	96
Ballast Equalizer	82	Pneumatic Tool	85
Ballast Tamper	83	Pump	76
Compactor	82	Rail Saw	90
Concrete Mixer	85	Rock Drill	98
Concrete Pump	82	Roller	74
Concrete Vibrator	76	Saw	76
Crane Derrick	88	Scarifier	83
Crane Mobile	83	Scraper	89
Dozer	85	Shovel	82
Generator	81	Spike Driver	77
Grader	85	Tie Cutter	84
Impact Wrench	85	Tie Handler	80
Jack Hammer	88	Tie Inserter	85
Loader	85	Truck	88
Paver	89		

7. Information for Local Public Officials

An overview of the project area has determined that areas of undeveloped land lie within the southern section project corridor. When designing any future developments, the practice of noise compatible land use planning should be considered by the local community, as outlined in FHWA's "Enter the Quiet Zone, Noise Compatible Land Use Planning", 2002. The resource has been developed to provide information to elected officials, planners, developers, and the interested public about the problem of highway traffic noise and effective responses to that problem.

Noise compatible land use planning is planning that eliminates or reduces the undesirable effects of highway traffic noise by:

- Encouraging the location of less noise-sensitive land uses next to highways.
- Promoting the use of open space or special building construction techniques to minimize noise impacts.

Furthermore, FHWA's "The Audible Landscape: A Manual for Highway Noise and Land Use", 1974, should also be used as a resource to assist local government officials in

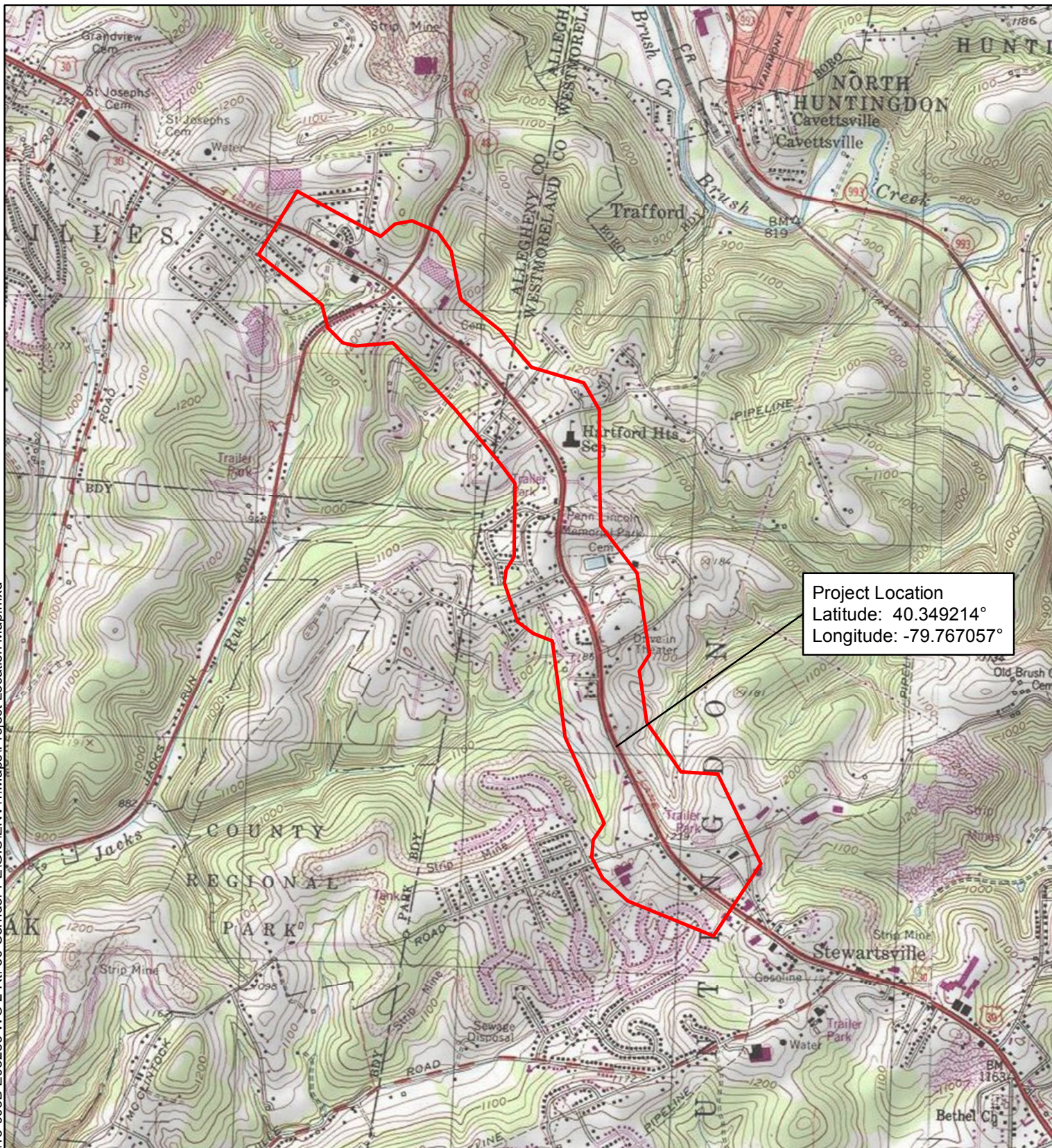
dealing with the problems of noise sensitive lands uses. Its purpose can be summarized below:

- Indicate ways in which local governments can guide the development of undeveloped land in the vicinity of existing highways.
- Indicate ways in which local governments can reduce the impact of highway generated noise upon existing developed lands.
- Recommend additional sources of information on these issues.

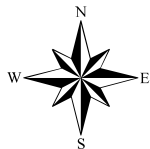
When determining a distance away from the roadway that would be considered “noise safe” for the general public and/or future planning, the NAC level of 66 dB(A) should be used as the buffer level for type B/C land use and 71 dB(A) for type E land use. Using TNM, a 66 and 71 dB(A) sound level contour was estimated along the US 30 corridor within the undeveloped lands identified. Noise levels were found to be 66 dB(A) or greater primarily adjacent to the US 30 roadway, and the widths ranged/varied from 0 to approximately 155 ft (with an average distance of ~105 ft). Noise levels were found to be 71 dB(A) or greater primarily adjacent to the US 30 roadway, and the widths ranged/varied from 0 to approximately 35 ft. These approximate areas can be found in Appendix C .

US 30 Corridor Improvements Project

APPENDIX A
Project Location Map




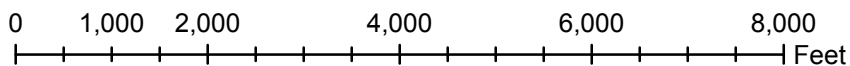
Project Location
 Latitude: 40.349214°
 Longitude: -79.767057°

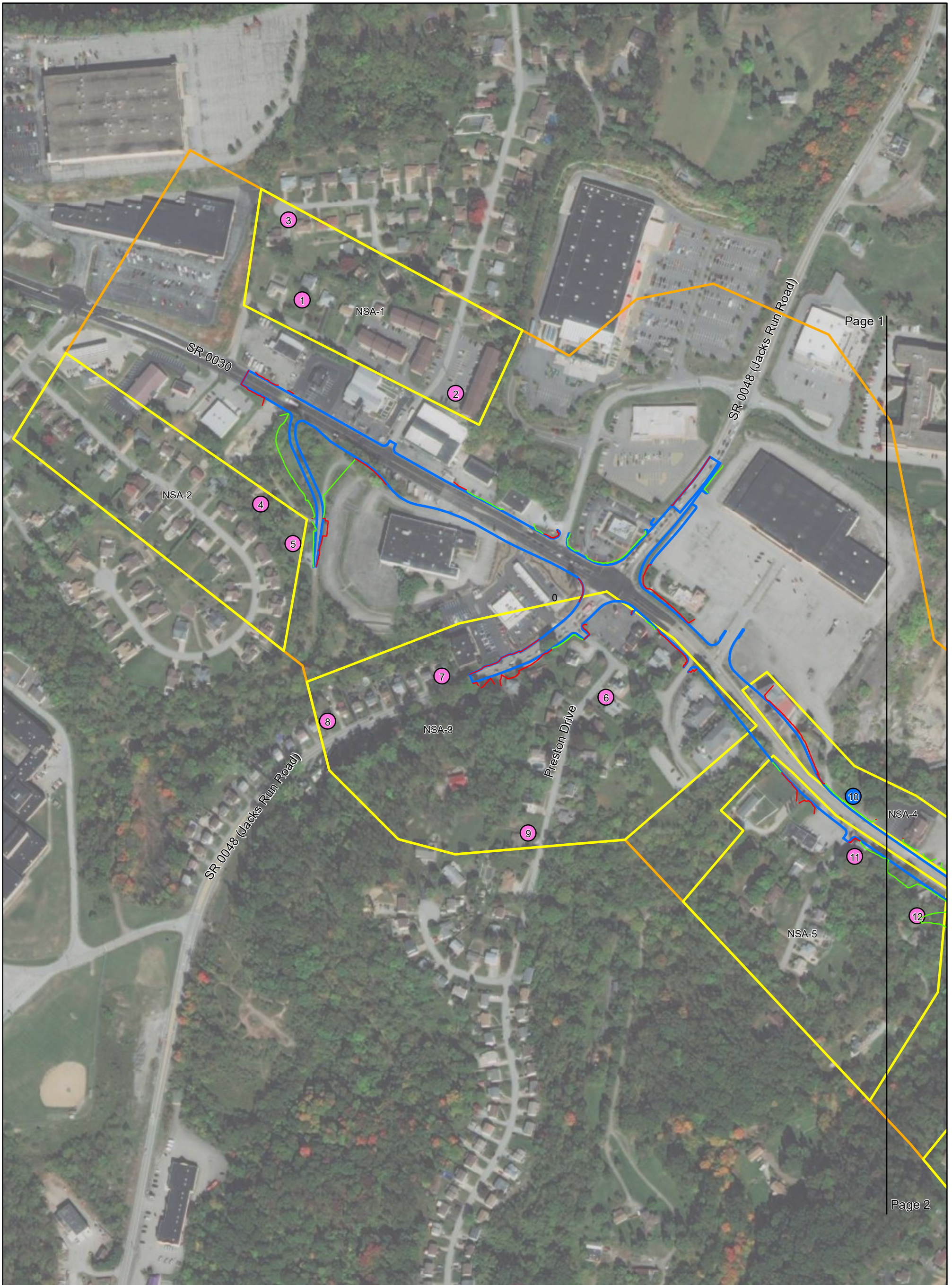


US 30 Corridor Improvements Project
 Pennsylvania Department of Transportation
 North Versailles and North Huntingdon Townships
 Allegheny and Westmoreland Counties, Pennsylvania
 USGS Mckeesport Quadrangle Mapping
 Project Location Map

Topography Source: National Geographic Society (NGS)

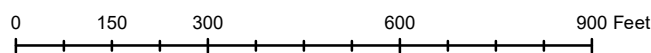
 Noise Study Boundary





US 30 Corridor Improvements Project
 Pennsylvania Department of Transportation
 North Versailles and North Huntingdon Townships
 Allegheny and Westmoreland Counties, Pennsylvania
 USGS Mckeesport Quadrangle Mapping
 Noise Study Plan
 1 of 4

Aerial Photography Source: World Imagery (ESRI)

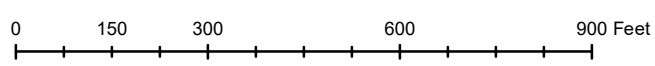
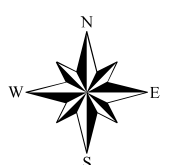


- Noise Receptor Unit (Category B)
- Noise Receptor Unit (Category C)
- Cut Boundary
- Fill Boundary
- Edge of Pavement
- Noise Study Area
- Noise Study Boundary



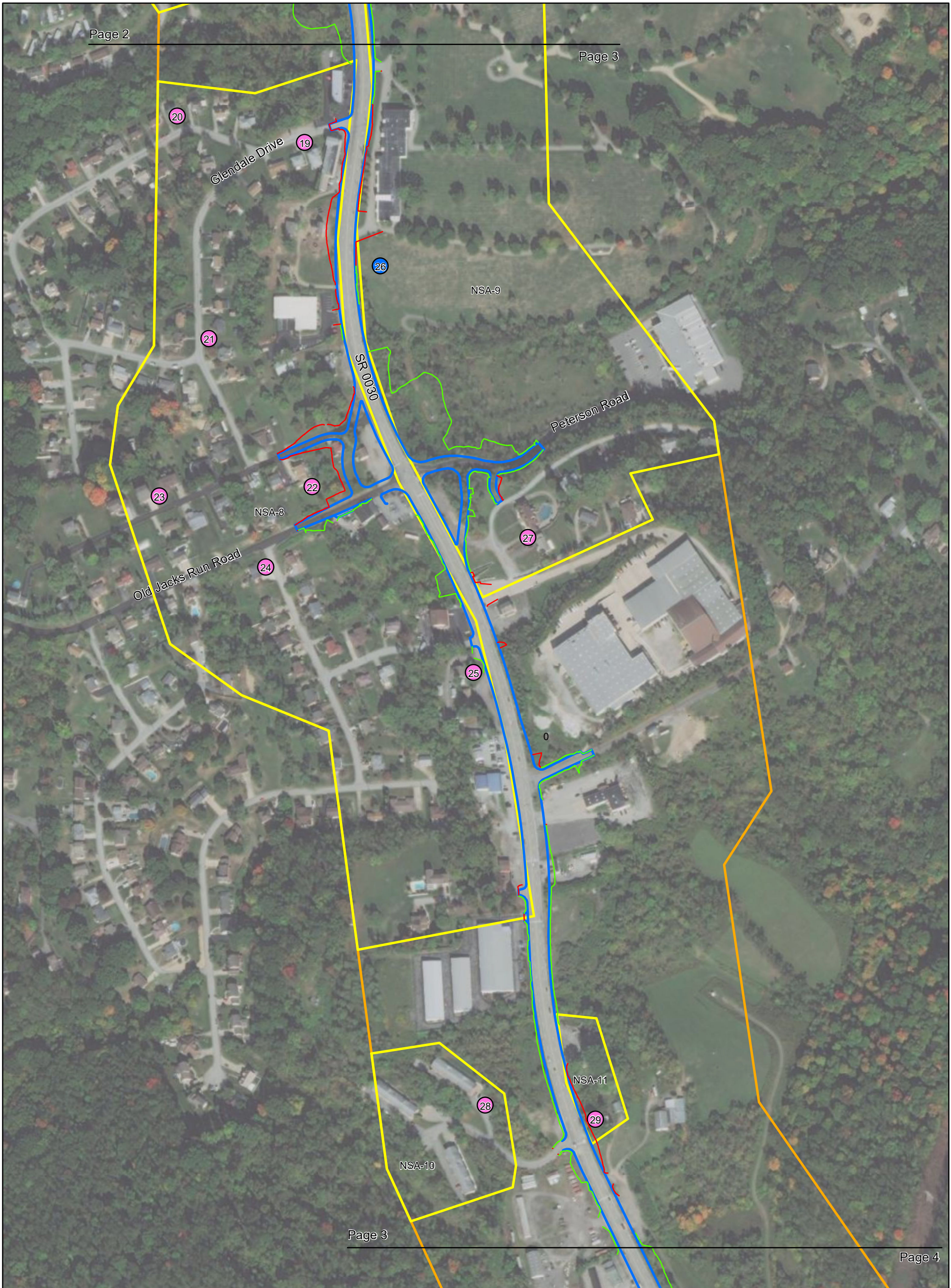
US 30 Corridor Improvements Project
 Pennsylvania Department of Transportation
 North Versailles and North Huntingdon Townships
 Allegheny and Westmoreland Counties, Pennsylvania
 USGS Mckeesport Quadrangle Mapping
 Noise Study Plan
 2 of 4

Aerial Photography Source: World Imagery (ESRI)



- Noise Receptor Unit (Category B)
- Noise Receptor Unit (Category C)
- Cut Boundary
- Fill Boundary
- Edge of Pavement
- Noise Study Area
- Noise Study Boundary

Document Path: G:\15-003 Route 30\15-003B E03289 WO 2 Rt. 30 Corridor PE\GIS\ENV\1. Maps\sg.Noise Study Plan Update.2020\Oct15.mxd

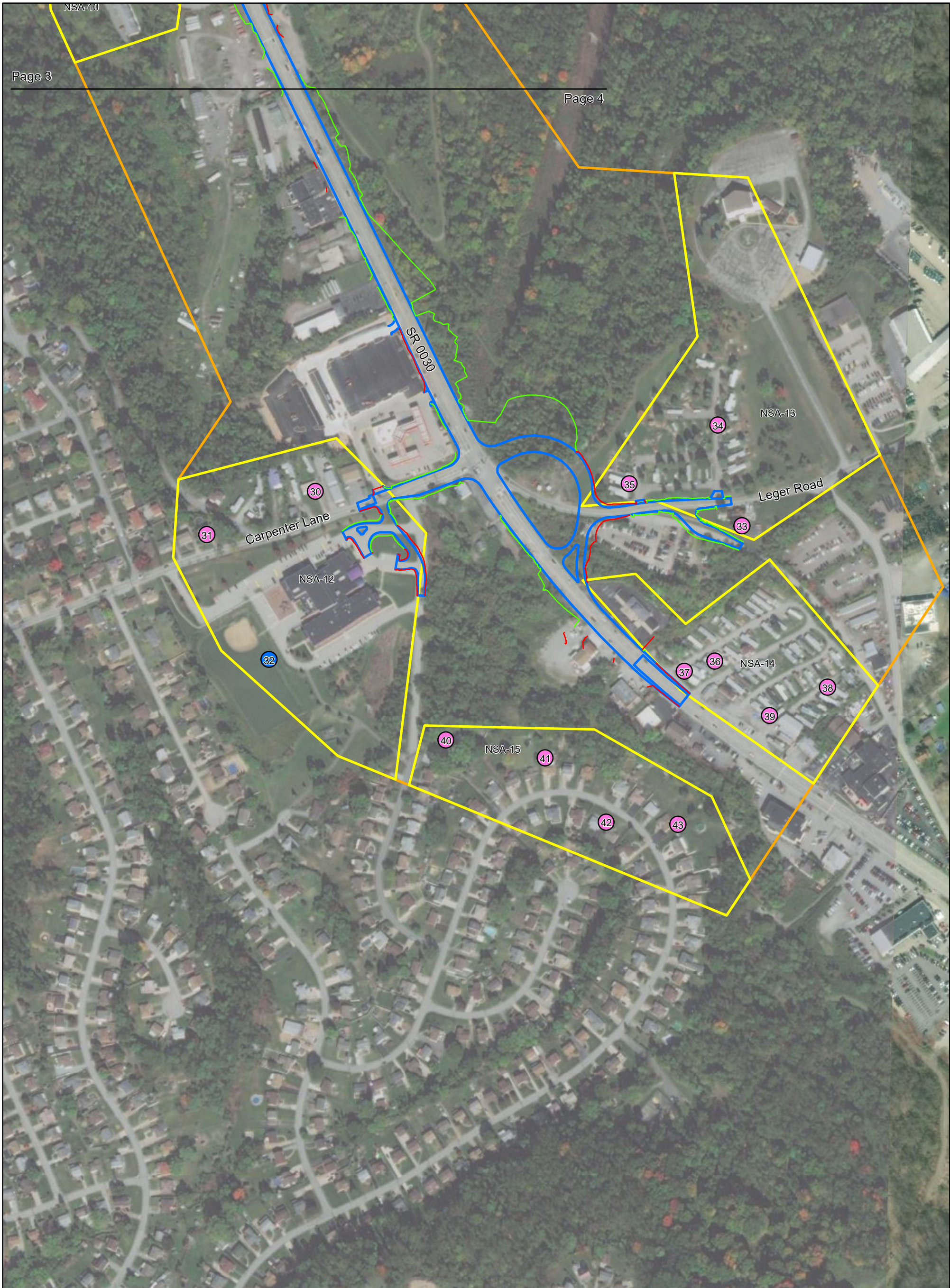


US 30 Corridor Improvements Project
 Pennsylvania Department of Transportation
 North Versailles and North Huntingdon Townships
 Allegheny and Westmoreland Counties, Pennsylvania
 USGS Mckeesport Quadrangle Mapping
 Noise Study Plan
 3 of 4

Aerial Photography Source: World Imagery (ESRI)



- Noise Receptor Unit (Category B)
- Noise Receptor Unit (Category C)
- Cut Boundary
- Fill Boundary
- Edge of Pavement
- Noise Study Area
- Noise Study Boundary

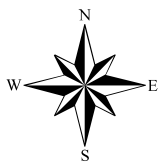


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US 30 Corridor Improvements Project
 Pennsylvania Department of Transportation
 North Versailles and North Huntingdon Townships
 Allegheny and Westmoreland Counties, Pennsylvania
 USGS Mckeesport Quadrangle Mapping
 Noise Study Plan
 4 of 4

Aerial Photography Source: World Imagery (ESRI)



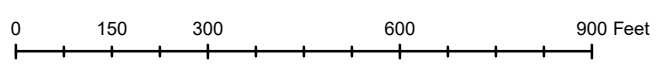
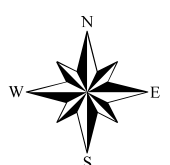
- Noise Receptor Unit (Category B)
- Noise Receptor Unit (Category C)
- Cut Boundary
- Fill Boundary
- Edge of Pavement
- Noise Study Area
- Noise Study Boundary



US 30 Corridor Improvements Project
 Pennsylvania Department of Transportation
 North Versailles and North Huntingdon Townships
 Allegheny and Westmoreland Counties, Pennsylvania
 USGS Mckeesport Quadrangle Mapping
 Noise Contour Map

- 66 dB(A) Buffer
- 71 dB(A) Buffer
- Noise Study Boundary
- Edge of Pavement

Aerial Photography Source: World Imagery (ESRI)



US 30 Corridor Improvements Project Peak Hour Traffic Volumes (Peak)

Year	2015				2045			
Vehicle Type	Total Vehicle Count	Autos	Medium Trucks	Heavy Trucks	Total Vehicle Count	Autos	Medium Trucks	Heavy Trucks
SR 0030 Eastbound (Seg. 1)	1,349	1,286	46	17	1,647	1,529	86	32
SR 0030 Eastbound (Seg. 2)	1,254	1,215	28	11	1,558	1,455	75	28
SR 0030 Eastbound (Seg. 3)	1,190	1,152	28	10	1,508	1,418	66	24
SR 0030 Eastbound (Seg. 4)	1,378	1,333	33	12	1,779	1,659	87	32
SR 0030 Westbound (Seg. 1)	1,423	1,354	50	19	1,775	1,703	52	19
SR 0030 Westbound (Seg. 2)	1,353	1,278	55	20	1,618	1,541	56	21
SR 0030 Westbound (Seg. 3)	1,320	1,247	53	20	1,575	1,500	55	20
SR 0030 Westbound (Seg. 4)	1,275	1,206	50	19	1,541	1,451	66	24
Jacks Run Road Northbound	503	467	22	14	647	576	52	19
Jacks Run Road Southbound	523	477	28	18	631	552	57	21
Mosside Boulevard Northbound	864	805	36	23	1,012	943	42	27
Mosside Boulevard Southbound	671	627	27	17	795	725	43	27
Old Jacks Run Road Northbound	49	46	2	1	66	60	4	2
Old Jacks Run Road Southbound	53	51	1	1	86	68	11	7
Peterson Drive Northbound	12	12	0	0	26	26	0	0
Peterson Drive Southbound	3	3	0	0	8	8	0	0
Leger Road Northbound	46	43	2	1	124	118	4	2
Leger Road Southbound	73	65	5	3	103	92	7	4
Carpenter Lane Northbound	329	312	10	7	445	415	18	12
Carpenter Lane Southbound	253	244	5	4	347	328	12	7

*Traffic data derived from the Traffic Design Report (9.28.16) provided by Whitman, Requardt, and Associates

Highway Traffic Noise Modeling Results (TNM 2.5)

Noise Study Area (NSA)	Total Receptors Represented	Noise Receptor ID (Respective Receptors Represented)	Existing dB(A) Modeled (2015)	No-Build Condition		Build Condition		Substantial Increase (10 dB)	Land Use Category/Criteria Sound Level (dB)	Barrier Warranted	Barrier Feasible	Barrier Reasonable
				Future dB(A) (2045)	Change over Existing (dB)	Future dB(A) (2045)	Change over Existing (dB)					
1	23	NRU-1 (12)	55	56	+1	57	+2	No	B (67)	No	N/A	N/A
		NRU-2 (4)	59	60	+1	61	+2	No	B (67)	No	N/A	N/A
		NRU-3 (7)	49	51	+2	51	+2	No	B (67)	No	N/A	N/A
2	24	NRU-4 (18)	56	58	+2	58	+2	No	B (67)	No	N/A	N/A
		NRU-5 (6)	55	57	+2	58	+3	No	B (67)	No	N/A	N/A
3	23	NRU-6 (9)	62	63	+1	65	+3	No	B (67)	No	N/A	N/A
		NRU-7 (5)	71	71	+1	72	+2	No	B (67)	Yes	No	N/A
		NRU-8 (4)	69	71	+2	71	+2	No	B (67)	Yes	No	N/A
		NRU-9 (5)	53	54	+1	56	+3	No	B (67)	No	N/A	N/A
4	2.50*	NRU-10 (2.50) *	70	71	+1	71	+1	No	C (67)	Yes	No	N/A
5	10	NRU-11 (3)	70	72	+2	71	+1	No	B (67)	Yes	No	N/A
		NRU-12 (7)	63	64	+1	63	0	No	B (67)	No	N/A	N/A
6	34	NRU-13 (26)	56	56	0	56	0	No	B (67)	No	N/A	N/A
		NRU-14 (7)	62	63	+1	64	+2	No	B (67)	No	N/A	N/A
		NRU-15 (1)	66	67	+1	67	+1	No	B (67)	Yes	No	N/A
7	11	NRU-16 (5)	61	61	0	62	+1	No	B (67)	No	N/A	N/A
		NRU-17 (5)	57	58	+1	58	+1	No	B (67)	No	N/A	N/A
		NRU-18 (1)	60	60	0	60	0	No	C (67)	No	N/A	N/A
8	70	NRU-19 (7)	64	65	+1	65	+1	No	B (67)	No	N/A	N/A
		NRU-20 (5)	55	56	+1	56	+1	No	B (67)	No	N/A	N/A
		NRU-21 (16)	59	59	0	59	0	No	B (67)	No	N/A	N/A
		NRU-22 (4)	61	62	+1	62	+1	No	B (67)	No	N/A	N/A
		NRU-23 (11)	53	54	+1	54	+1	No	B (67)	No	N/A	N/A
		NRU-24 (26)	58	62	+4	60	+2	No	B (67)	No	N/A	N/A
		NRU-25 (1)	65	67	+2	67	+2	No	B (67)	Yes	No	N/A
9	18.30 **	NRU-26 (10.30) **	66	67	+1	67	+1	No	C (67)	Yes	No	N/A
		NRU-27 (8)	60	62	+2	62	+2	No	B (67)	No	N/A	N/A
10	9	NRU-28 (9)	57	58	+1	59	+2	No	B (67)	No	N/A	N/A
11	1	NRU-29 (1)	67	68	+1	68	+1	No	B (67)	Yes	No	N/A
12	11	NRU-30 (8)	60	62	+2	62	+2	No	B (67)	No	N/A	N/A
		NRU-31 (2)	60	62	+2	62	+2	No	B (67)	No	N/A	N/A
		NRU-32 (1)	51	53	+2	53	+2	No	C (67)	No	N/A	N/A
13	22	NRU-33 (1)	55	57	+2	57	+2	No	C (67)	No	N/A	N/A
		NRU-34 (8)	50	52	+2	52	+2	No	B (67)	No	N/A	N/A
		NRU-35 (13)	59	61	+2	61	+2	No	B (67)	No	N/A	N/A
14	36	NRU-36 (4)	64	66	+2	66	+2	No	B (67)	Yes	N/A	N/A
		NRU-37 (2)	71	72	+1	72	+1	No	B (67)	Yes	No	N/A
		NRU-38 (16)	52	54	+2	54	+2	No	B (67)	No	N/A	N/A
		NRU-39 (14)	63	64	+1	64	+1	No	B (67)	No	N/A	N/A
15	25	NRU-40 (3)	51	53	+2	53	+2	No	B (67)	No	N/A	N/A
		NRU-41 (7)	57	58	+1	58	+1	No	B (67)	No	N/A	N/A
		NRU-42 (8)	56	58	+2	58	+2	No	B (67)	No	N/A	N/A
		NRU-43 (7)	61	63	+2	63	+2	No	B (67)	No	N/A	N/A

Level Approaches or Exceeds Criteria Noise Threshold for Land Use Category
 * Incorporated Cemetery ERU value of 2.50
 ** Incorporated Cemetery ERU value of 10.30

From: Meyer, Eric <emeyer@wrallp.com>
Sent: Monday, February 10, 2020 8:24 AM
To: Jason D. Harkcom <jharkcom@markosky.com>
Cc: Thompson-Graves, Scott <sthompson-graves@wrallp.com>
Subject: FW: SR 0030-A10 (District 12, Westmoreland County) Noise Study Plan

Jason,
Please see the attached comments. Let me know if you have any questions or need any clarification.
Thanks,

Eric C. Meyer, PE | *Vice President*



Whitman, Requardt & Associates, LLP

2009 Mackenzie Way, Suite 240
Cranberry Township, PA 16066
(Office) 724.779.7940
(Cell) 412.266.5029
emeyer@wrallp.com
www.wrallp.com

From: Zakovitch, Joshua J <jzakovitch@pa.gov>
Sent: Monday, February 10, 2020 7:26 AM
To: Meyer, Eric <emeyer@wrallp.com>; Thompson-Graves, Scott <sthompson-graves@wrallp.com>
Cc: Zelesnak, John <JZELESNAK@pa.gov>
Subject: SR 0030-A10 (District 12, Westmoreland County) Noise Study Plan

Eric,
See response from CO on Noise Study Submission. Any questions let me know.

Joshua Zakovitch, P.E. | Project Manager
Department of Transportation
Engineering District 12-0
825 N. Gallatin Avenue Ext. | Uniontown PA 15401
Phone: 724.439.7377 | Fax: 724.430.4401

From: Covert, Cristin
Sent: Monday, February 10, 2020 7:18 AM
To: Zakovitch, Joshua J <jzakovitch@pa.gov>
Cc: Susa, Joyce <JSUSA@pa.gov>
Subject: FW: [External] RE: SR 0030-A10 (District 12, Westmoreland County) Noise Study Plan

Good morning, Josh.

They decided to down-scope this to a Noise Screening Analysis.

Please let me know if you have any questions,
Cristin

From: Auker, Nicole
Sent: Friday, February 7, 2020 11:37 AM
To: Covert, Cristin <c covert@pa.gov>
Cc: Lombard, Mark <MLOMBARD@pa.gov>
Subject: FW: [External] RE: SR 0030-A10 (District 12, Westmoreland County) Noise Study Plan

Cristen,

Please see the Rob's recommendation below and rationale is attached. Please send the noise screening analysis to me once it is completed.

Thanks,
Nicole

Nicole L. Auker | Environmental Planning Supervisor
PA Department of Transportation
400 North Street - 7th Floor | Harrisburg, PA 17120
Phone: 717.787.0460 | Fax: 717.772.0834
www.dot.state.pa.us

From: Robert C. Kolmansberger <rkolmansberger@navarrowright.com>
Sent: Friday, February 07, 2020 9:07 AM
To: Lombard, Mark <MLOMBARD@pa.gov>; Auker, Nicole <nauker@pa.gov>
Cc: Nathaniel Weinstock <nweinstock@navarrowright.com>
Subject: [External] RE: SR 0030-A10 (District 12, Westmoreland County) Noise Study Plan

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Mark/Nicole,

Attached are N&W's comments on the S.R. 0030-A10 Noise Study Plan.

It is our recommendation to down-scope the effort to a Noise Screening Analysis which would eliminate the need for any noise monitoring in corridor. The rationale for this recommendation is provided in the attached Errata Sheet.

Please let us know if you have any questions or concerns.

Thanks,
Rob K.

Robert C. Kolmansberger | Director of Environmental Services

Navarro & Wright Consulting Engineers, Inc.
(717) 441-2216 [Tel] | (717) 441-2218 [Fax]
151 Reno Avenue | New Cumberland, PA 17070
rkolmansberger@navarrowright.com

From: Lombard, Mark <MLOMBARD@pa.gov>
Sent: Tuesday, February 4, 2020 11:07 AM
To: Robert C. Kolmansberger <rkolmansberger@navarrowright.com>
Cc: Auker, Nicole <nauker@pa.gov>
Subject: FW: SR 0030-A10 (District 12, Westmoreland County) Noise Study Plan

Hi Rob-

Does this noise study plan make sense? Let me know thanks.

From: Auker, Nicole
Sent: Tuesday, February 04, 2020 10:37 AM
To: Lombard, Mark <MLOMBARD@pa.gov>
Subject: FW: SR 0030-A10 (District 12, Westmoreland County) Noise Study Plan

Is this something that we are going to provide? Or will the district have to find another consultant for it?

Nicole L. Auker | Environmental Planning Supervisor
PA Department of Transportation
400 North Street - 7th Floor | Harrisburg, PA 17120
Phone: 717.787.0460 | Fax: 717.772.0834
www.dot.state.pa.us

From: Covert, Cristin
Sent: Tuesday, February 04, 2020 9:12 AM
To: Auker, Nicole <nauker@pa.gov>
Cc: Zakovitch, Joshua J <jzakovitch@pa.gov>; Susa, Joyce <JSUSA@pa.gov>
Subject: SR 0030-A10 (District 12, Westmoreland County) Noise Study Plan

Good morning, Nicole.

A noise study plan is attached for the SR 0030-A10 project. Can your noise experts approve of the locations of the noise receptors?

Sorry! 😊
Cristin

From: Zakovitch, Joshua J
Sent: Tuesday, February 4, 2020 9:07 AM
To: Covert, Cristin <ccover@pa.gov>
Subject: SR 30-A10 - Noise Study Plan

Cristin,

Attached is the Noise Study Plan for this project. Please review or forward on to the reviewer this attachment. Any questions let me know. Thank you.

Joshua Zakovitch, P.E. | Project Manager
Department of Transportation
Engineering District 12-0
825 N. Gallatin Avenue Ext. | Uniontown PA 15401
Phone: 724.439.7377 | Fax: 724.430.4401

From: Meyer, Eric <emeyer@wrallp.com>
Sent: Monday, February 3, 2020 1:31 PM
To: Zakovitch, Joshua J <jzakovitch@pa.gov>
Cc: Thompson-Graves, Scott <sthompson-graves@wrallp.com>; Skvarla, Jason <jskvarla@wrallp.com>
Subject: [External] SR 30-A10 - Noise Study Plan

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Josh,

Please find attached the Noise Study Plan showing the location of the noise receptors. Please forward on for review and approval. Let me know if you need anything else on this or if additional information is needed.

Thanks,

Eric C. Meyer, PE | *Vice President*



Whitman, Requardt & Associates, LLP

2009 Mackenzie Way, Suite 240

Cranberry Township, PA 16066

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WRA_Disclaimer_v20070222a

List of Preparers

Jason A. Anderson (no longer employed at Markosky)
Sr. Environmental Scientist
The Markosky Engineering Group Inc.

FHWA Traffic Noise Model 2.5 Training
May 2018

FHWA Highway Traffic Noise (NHI-142051)
June 2016

Joseph V. Vasinko, P.E.
Environmental Project Engineer
The Markosky Engineering Group, Inc.

FHWA Traffic Noise Model 2.5 Training
July 2020

Linear Frontage Length (ft)
Equivalent Residential Units (ERU) = Above Value divided by 130

NSA 4 NRU-10 Cemetery	NSA 9 NRU-26 Cemetery	
325	1,342	(730+612)
2.50	10.30	

NSA 4 Cemetery



Linear Frontage = 325'

NSA 9 Cemetery



Linear Frontage = 730'

Linear Frontage = 612'