October 2023

Noise Analysis Report

Brent Spence Bridge

HAM-75-1.05
PID 89068

Prepared for:
Ohio Department of Transportation
District 8
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EXECUTIVE SUMMARY

The noise analysis for this project was conducted in accordance with the Code of Federal Regulations (CFR), Title 23, Part 772, and the U.S. Department of Transportation, Federal Highway Administration (FHWA), Highway Traffic Noise Analysis and Abatement Policy and Guidance (FHWA, 2011). The project was further conducted in accordance with the Ohio Department of Transportation (ODOT) *Analysis and Abatement of Highway Traffic Noise Policy Statement* (ODOT, October 2023) and ODOT's *Noise Analysis Manual: Analysis and Abatement of Highway Traffic Noise* dated April 2015.

The HAM-75-1.05 (113361) project is located in the city of Cincinnati, Hamilton County, Ohio. The north limit of the study area is located just south of the Marshall Avenue overpass of Interstate 75 (I-75) and the south project limit is south of the existing I-71/I-75/US50 interchange. Feasible alternatives for the project were evaluated and Refined Alternative (Concept I-W) was selected as the preferred alternative. As part of Refined Alternative (Concept I-W), a local collector–distributor roadway (C-D roadway) will be constructed along both sides of I-75. The local northbound C-D roadway will carry local traffic from the existing bridge over the Ohio River and provide access ramps to Second Street, I-71 northbound, US 50 westbound, Fifth Street and Winchell Avenue before reconnecting to I-75 just south of Ezzard Charles Drive. The existing northbound ramp from Fourth Street will utilize the proposed northbound C-D roadway for access to I-75. The northbound ramps form Sixth and Nineth Streets to I-75 will be removed requiring traffic from these two roadways to utilize a new local roadway running parallel to I-75 connecting to Winchell Avenue and accessing I-75 at the Bank Street Interchange. The proposed southbound C-D roadway will begin near the Ezzard Charles Drive overpass and will carry traffic into downtown Cincinnati while providing local access to Seventh, Fifth and Second Streets. The southbound C-D roadway will also connect to access ramps from Western Avenue, Ninth Street and US 50 eastbound. Between Ezzard Charles Drive and the Western Hills Viaduct, northbound I-75 will have five lanes and southbound I-75 will have six lanes, for a total of 11 travel lanes. The ramps to Western Avenue and from Winchell Avenue just north of Ezzard Charles Drive to the Interstate will be eliminated. The southbound ramp to Freeman Avenue and the northbound ramp from Freeman Avenue to I-75 will remain. Refined Alternative (Concept I-W) will also improve Western and Winchell Avenues to facilitate traffic flow and increase capacity. Ramps to Western Avenue and from Winchell Avenue will be provided around the Western Hills Viaduct Interchange, which will be reconfigured to be a tight urban diamond design. The noise analysis was prepared for all noise sensitive receivers located within 500 feet of the existing and proposed driving lanes and entrance/exit ramps to/from I-75.

This noise analysis is a revision of the noise analysis originally prepared for this project dated December 2011. The roadway configurations proposed as Alternative I and described above were not changed in the revised analysis. Changes to the analysis include the update of traffic volumes and percent truck traffic to reflect the Existing Year 2029 and Design Year 2049 traffic volumes. The project area was also reviewed and updated for changes to noise sensitive receptor locations over the past 10 years. Some receptor sites have been removed (demolition) and other receptor sites were added (new construction).

The study area has been divided into nine noise sensitive areas (NSA) on the east side of I-75. The entire west side of I-75 was evaluated as one NSA due to the small number of noise sensitive receivers. All of the NSAs have been modeled for the Existing Year 2029 and Design Year 2049 using certified traffic data provided by ODOT dated May 2023. Noise abatement was not evaluated for receivers on the west side of I-75 as there were too few receivers located too far apart from one another to be cost reasonable. Noise impacts were identified and noise abatement measures, in the form of noise barrier walls, were evaluated at eight NSAs on the east side of I-75. Results are summarized in the following table. Noise barriers were not found to be both a feasible and a reasonable abatement measure at NSA 1 and NSA 7, NSA 8 and NSA 9. Noise barrier walls were found to be a feasible and reasonable noise abatement measure for receivers in NSA 2, NSA 3, NSA 4, NSA 5 and NSA 6.

Recommended Noise Barrier Walls

Barrier	Barrier Length (feet)	Barrier Height (feet)	Square Footage of Barrier	Maximum Insertion Loss[a] (dB)	Impacted Receptors	Benefitted Receptors [b]	Barrier Cost [c]	Cost per benefited receptor	Effectiveness		Barrier Location [f]	Barrier Recommended [g]
									Feasible [d]	Reasonable [e]		
NSA 2	1,115	10	11,150	8.9	76	44	$1,672,500	$38,011	Yes	Yes	EOS on Retaining Wall	Yes
NSA 3	767	10	7,670	6.7	135	87	$1,150,500	$13,224	Yes	Yes	EOS on Retaining Wall	Yes
NSA 4	1,020	10	10,200	8.0	153	62	$1,530,000	$24,677	Yes	Yes	EOS/ROW on Retaining Wall	Yes
NSA 5 On Ground On Wall	935 500 435	10	9,350	9.8	133	72	$852,500 $200,000 $652,500	$11,840	Yes	Yes	ROW Partial Retaining Wall	Yes
NSA 6	640	10	6,400	8.8	6	6	$256,000	$42,666	Yes	Yes	ROW	Yes

[a] Insertion Loss (IL) is the maximum noise reduction provided by the noise barrier.

[b] A receptor is considered benefited by the noise barrier if the IL is 5dB or greater.

[c] Cost is based on $40 per square foot of noise barrier constructed on ground and $150 per square foot constructed on structure.

[d] A noise barrier is considered feasible if it can provide a substantial noise reduction of at least 7dB at one receptor location.

[e] A noise barrier is considered cost reasonable if the cost per benefited receptor is less than $56,000.

[f] The location of the noise barrier wall: ROW=noise barrier is located along the right of way line; EOS=noise barrier is located along the edge of shoulder.

[g] Noise barrier recommendation is based on the number of benefited receptors and the relative cost per benefited receptor.

Section 1.0
INTRODUCTION

Project Description

The BSB corridor consists of 7.8 miles of I-71 and I-75 connecting southwest Ohio and northern Kentucky. The corridor is located within the Greater Cincinnati/Northern Kentucky region and is a major route for regional and local mobility. Regionally, the BSB carries both I-71 and I-75 traffic over the Ohio River and connects to I-74, I-275, and US-50. The BSB corridor also facilitates local travel by providing access to downtown Cincinnati in Hamilton County, Ohio and Covington in Kenton County, Kentucky. The corridor forms a critical part of a major freight route connecting Canada to Florida, carrying more than $1 billion of freight every day and more than $400 billion of freight every year.

The primary features of the BSB Corridor Project are illustrated in Figure 1a. The project will:

- Reconstruct I-71/I-75 and add one lane in each direction;
- Rebuild the overpass bridges and interchanges in the corridor and add a new exit at Ezzard Charles Drive in Ohio;
- Construct a collector-distributor (C-D) roadway system between West 12th Street in Kentucky and Ezzard Charles Drive in Ohio;
- Extend frontage roads connecting Pike Street to West 4th Street and West 5th Street in Kentucky;
- Add C-D lanes between Dixie Highway (US-25) and Kyles Lane (KY-1072) in Kentucky;
- Rehabilitate and reconfigure the existing double-decker BSB to carry three lanes of local traffic on each deck as part of the C-D roadway system; and
- Build a new double-decker companion bridge west of the existing BSB to carry five lanes of through (interstate) traffic on each deck.

The project will also add sidewalks and shared-use paths on local streets that are parallel to or cross the interstate and incorporate aesthetic treatments throughout the corridor.

The project will be delivered in three phases, as shown in Figure 1b. Phases I and II are following a traditional design-bid-build procurement process. Phase III is following a progressive design-build procurement process.

Existing Land Use

The study area for this noise analysis is shown in Figure 1c. Within the study area, the west side of I-75 is almost entirely comprised of commercial and industrial land use with a very few isolated residential dwelling units. The east side of I-75 is comprised mostly of residential dwelling units of single-family and multi-family land use. There are a few areas on the east side that are predominantly commercial/light industrial land use but overall, it is mostly residential land use.

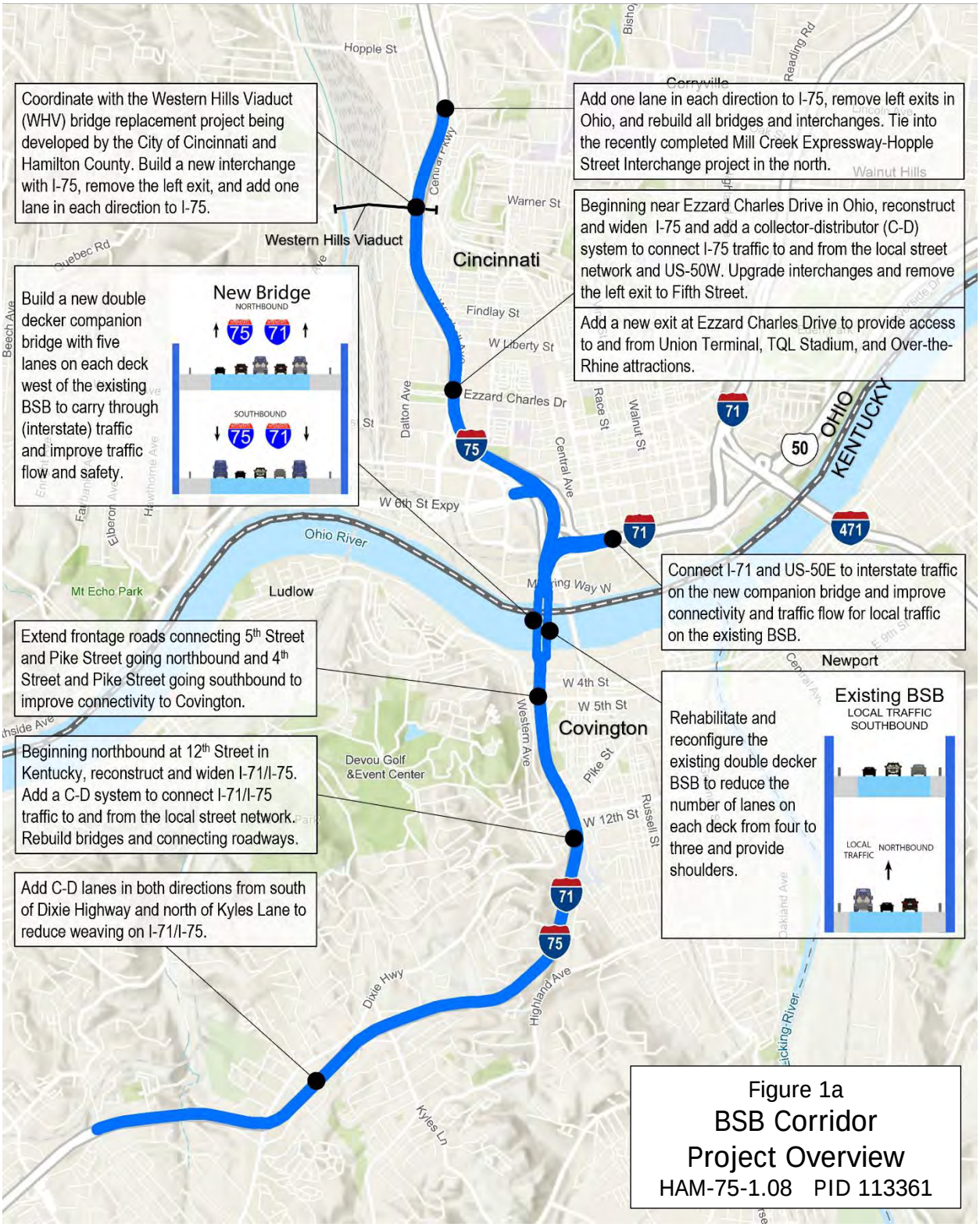

Figure 1a
BSB Corridor
Project Overview
HAM-75-1.08 PID 113361

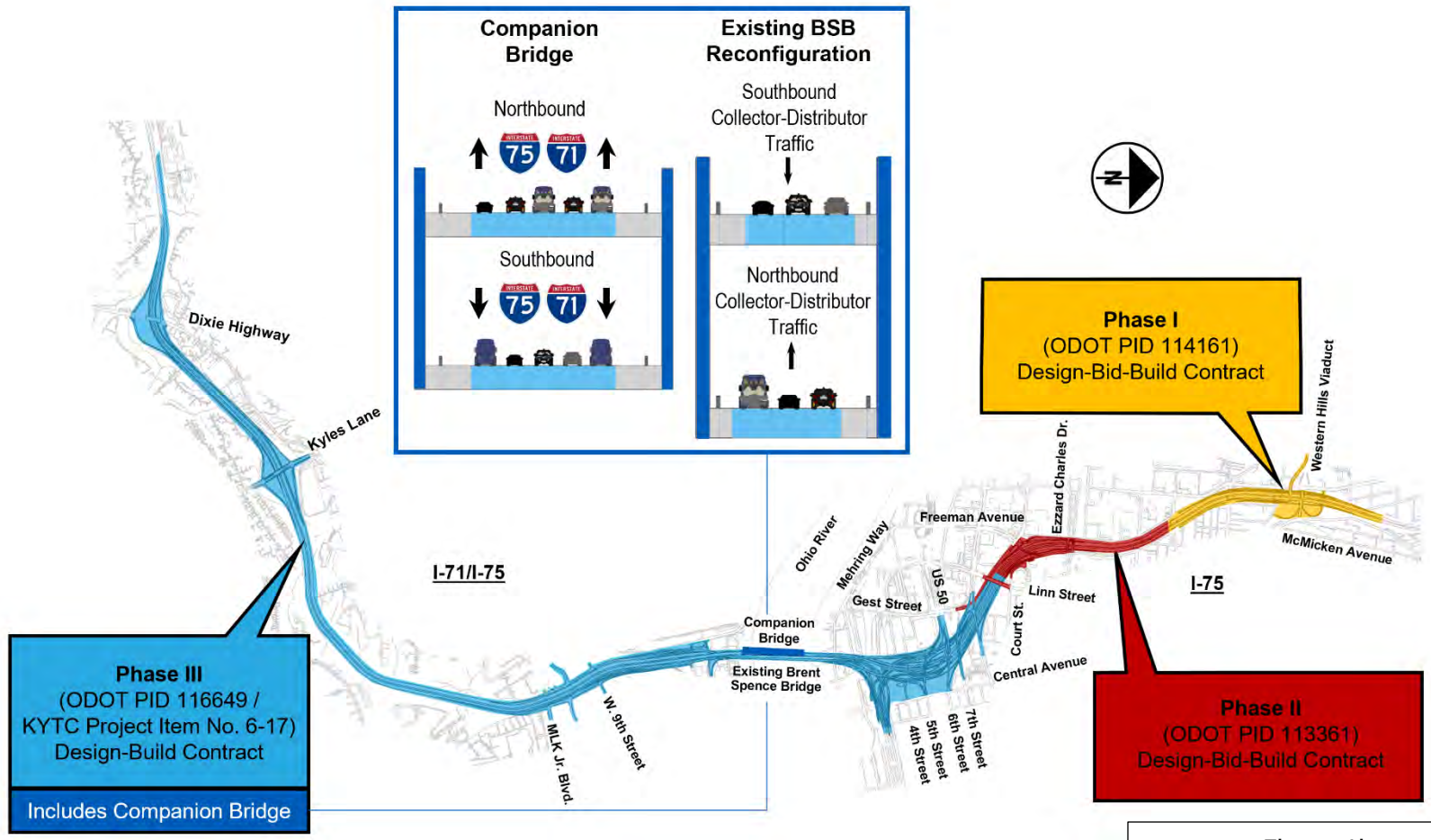

Figure 1b
BSB Corridor
Project Phases
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Figure 1c

Study Area

HAM-75-1.08 PID 113361

Section 2.0
NOISE ANALYSIS

The noise analysis prepared for this project was conducted in accordance with the Code of Federal Regulations (CFR), Title 23, Part 772, and the U.S. Department of Transportation, FHWA, *Highway Traffic Noise Analysis and Abatement Policy and Guidance* (FHWA, 2011). The project was further conducted in accordance with the ODOT *Analysis and Abatement of Highway Traffic Noise Policy Statement* (ODOT, October 2023) and ODOT's *Noise Analysis Manual: Analysis and Abatement of Highway Traffic Noise* dated April 2015. The Existing Year 2029 noise levels and noise levels for the Design Year 2049 Build alternative was modeled using the FHWA Traffic Noise Model (TNM) Version 2.5 (FHWA, 1998). Specific data and assumptions used in this analysis are described as follows:

Applicability

This noise analysis has been performed in accordance with the policy that applies to Type I projects. A Type I project as described by the ODOT Standard Procedures for Analysis and Abatement of Highway Traffic noise document is a federal aid highway project for the construction of highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through traffic lanes (ODOT, 2023). This project will modify existing access points along IR75 resulting in the re-direction of some traffic.

Analysis Objectives

The objectives of this noise analysis include: (1) identification of existing and future noise sensitive areas in the vicinity of the proposed roadway improvement; (2) characterization of the existing noise levels for the Existing Year 2029 environment through computer modeling; (3) prediction of future year noise levels for the Design Year 2049 Build alternative through computer modeling, (4) comparison of existing year noise levels against future, design year noise levels to identify noise impact within the project area; (5) evaluation of reasonable and feasible noise abatement measures for reducing noise levels where noise impacts are identified; and, (6) communication of the results to the public and local officials.

Noise Descriptors

Noise descriptors are used to describe the time varying nature of noise. In this report, noise levels will be described as hourly A weighted equivalent sound level in decibels, or dBA $L_{eq(h)}$. Noise is defined as unwanted sound, which is produced by the vibration of sound pressure waves. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels (dB). Decibels are a logarithmic unit, which expresses the ratio of sound pressure level to a standard reference scale. The decibel scale has a range of 0-120 and is used to show the amount of sound pressure at a given location from the general environment of specific sources. An increase or decrease of 10 dB is perceived as doubling or halving of the sound intensity since the decibel scale is logarithmic. In general, the average person cannot detect an increase or decrease in sound pressure level of less than 3 dB. A change in sound pressure level of 5dB is readily perceptible by most people.

Sound is composed of various frequencies which are measured in cycles per second or Hertz (Hz). The human ear can detect a wide range of frequencies from 20 to 20,000 Hz but is most sensitive to sounds over a frequency range of 200 to 5,000 Hz. The human ear does not respond in a uniform manner to different frequency sounds. A sound pressure level of 70 dB will be perceived as much louder at 1,000 Hz than at 100 Hz. To account for this, various weighting methods have been developed to reflect human sensitivity to noise. The purpose of a weighting method is to de-emphasize the frequency ranges in which the human ear is less sensitive. The most commonly used measure of noise level is the A-weighted sound level (dBA). The dBA sound level is widely used for transportation related noise measurements and specifications for community noise ordinances and standards. The dBA has been shown to be highly correlated to human response to noise.

In addition to noise fluctuating in frequency, environmental noise will fluctuate in intensity from moment to moment. Over a period of time there will be quiet moments and peak levels resulting from noisy, identifiable sources (trucks, aircraft, etc.). Because of these fluctuations, it is common practice to average these noise level fluctuations over a specified period of time. The equivalent sound level over a given period of interest, L_{eq}, is widely accepted as a valid measure of community noise. The L_{eq} is equal to the equivalent steady state noise level which, in a stated time period, would contain the same acoustical energy as the time varying noise levels that actually occurred during the same time period. The hourly value of L_{eq}, based upon the peak hour percentage of the annual average daily traffic, is referred to as $L_{eq(h)}$. Surveys have shown that L_{eq} properly predicts annoyance, and this descriptor is commonly used for noise measurement, prediction, and impact assessment.

The FHWA has established seven Activity Categories that must be considered for Noise Abatement Criteria (NAC). The Activity Categories are described in Table 1.

Table 1.
Noise Abatement Criteria (NAC): Hourly A-Weighted Sound Level in Decibels (dBA)

Activity Category	Leq(h)	L10(h)	Description of Activity Category
A	57 (Exterior)	60 (Exterior)	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	67	70	Residential
C	67 (Exterior)	70 (Exterior)	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, television studios, trails and trail crossings.
D	52 (Interior)	55 (Interior)	Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recording studios, schools and television studios.
E	72 (Exterior)	75 (Exterior)	Hotels, motels, offices, restaurant/bars, and other developed lands properties or activities not included in A-D, or F.

Table 1. Noise Abatement Criteria (NAC): Hourly A-Weighted Sound Level in Decibels (dBA)			
Activity Category	Leq(h)	L10(h)	Description of Activity Category
F	N/A	N/A	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	N/A	N/A	Undeveloped lands that are not permitted.

Noise Sensitive Areas

Noise sensitive areas (NSA) are areas of similar land use that would be sensitive to an increase in noise levels. The study area has been divided into NSAs and will be called the west side of I-75 and NSA 1 through NSA 9 located on the east side of I-75 as shown on Figures 2a through 2c. NSAs evaluated as part of this project have been modeled for the Existing Year 2029 and Design Year 2049 using ODOT certified traffic data dated May 2023. The NSAs for this project are described in detail from north to south in the following section.

The west side of I-75

The west side of I-75 in the study area is almost entirely industrial and commercial land uses. There are less than 10 noise sensitive receivers on the west side of I-75. Receivers include residential, a church, a hotel with an outdoor pool, the Cincinnati Job Corps having an outdoor area for sitting/eating and the WXIX TV television studio. The residential receivers on the west side of I-75 were evaluated for noise impact however, being so few and so widely spaced, evaluation for noise abatement measures was not conducted based on the following ODOT's policy on the topic: "The current reasonable cost for noise abatement is $56,000 per benefited receptor, based on ODOT's latest cost per benefiting receptor evaluation. The cost reasonableness criteria are reevaluated biennially as provided in IV, G. Noise abatement is often not reasonable to mitigate impacts for isolated receptors in rural areas. Using the cost estimating rules provided in II. B. 2., the cost to provide a noise barrier for a single receptor ranges from $125,000 - $250,000, which exceeds the reasonable cost of abatement. "

The Sacred Heart church, Quality hotel with an outdoor pool, the Cincinnati Job Corps having an outdoor area for sitting/eating and the WXIX TV television studio are west side NSAs that are discussed in the Impact Assessment Section 4.0 below. See figures 2a on page 8 and 2b on page 9 for the locations of noise receivers on the west side of the I-75 study corridor.

Noise sensitive areas located on the east side of the I-75 study corridor are shown on Figure 2c on page 10 and are discussed from north to south in the following paragraphs.

NSA 1

NSA 1 is located on the east side of I-75 at the north project limits. NSA 1 is comprised of 105 residential dwelling units located south of Marshall Avenue and north of Central Avenue. The front row receivers are situated at an elevation of 20 to 30 feet higher than I-75 and increase in elevation continuing east. Receivers in NSA 1 are all Activity Category B having an FHWA noise abatement criterion (NAC) of 67 dBA.

NSA 2

NSA 2 is located on the east side of I-75 south of Bank Street and north of York Street. NSA 2 is comprised of 76 residential dwelling units. The receivers in NSA 2 are older structures originally built in the late 1800s and early 1900s. Most of the receivers are multi-family, many with additions and other structural modifications over the years. Receivers in NSA 2 are all residential and were modeled as Activity Category B having an FHWA NAC of 67 dBA.

NSA 3

NSA 3 is located on the east side of I-75 south of Findlay Street and north of West Liberty Street. NSA 3 is mostly comprised of multi-family residentials units. Receivers in NSA 2 are all residential and were modeled as Activity Category B having an FHWA noise abatement criterion (NCA) of 67 db. There is also a community garden located on the south side of Poplar Street that was modeled as a Category C land use with an exterior NAC of 67 dBA.

NSA 4

NSA 4 is located on the east side of I-75 south of West Liberty Street and north of Ezzard Charles Drive. NSA 4 is comprised of 180 multi-family residential dwelling units. Receivers in NSA 4 were modeled as Activity Category B having an FHWA NAC of 67 dBA.

NSA 5

NSA 5 is located on the east side of I-75 south of Ezzard Charles Drive. NSA 5 is comprised of 205 multi-family residential dwelling units and outdoor locations at the Lincoln Recreation Center, the Senior Citizens Center and playgrounds at the Head Start Cincinnati School building. Residential receivers in NSA 5 were modeled as Activity Category B having an FHWA NAC of 67 dBA. The outdoor recreation locations were modeled as Activity Category C having an FHWA NAC (outdoor) of 67dBA.

NSA 6

NSA 6 is located on the east side of I-75 in the south end of the study area. NSA 6 is known as the Queens Gate Recreation Area and is located in the southeast corner of Linn Street and West Court Street. The recreation area is comprised of a playground and a baseball field and was modeled as an Activity Category C having an exterior NAC of 67 dBA. NSA6 also includes approximately 22 residential dwelling units located to the north and east of the recreation area. The residential receivers were modeled as a FHWA Activity Category B having an exterior NAC of 67 dBA.

NSA 7

NSA 7 is located on the east side of I-75 south of West 6th Street and west of Central Avenue and goes to 7th Street. NSA 7 is comprised of the Greater Cincinnati Firefighters Memorial and the Union Baptist Church. *The memorial is an open patio having a statue honoring firefighters who have died in the line of duty. The memorial was modeled as a FHWA Activity Category C having an exterior NAC of 67 dBA. The memorial and statue were originally dedicated on Memorial Day of 1968 to honor Cincinnati firefighters who have died in the line of duty. An annual service was held at the park on Memorial Day for many years honoring the deceased members of the Cincinnati Fire Department. The event is now held on Wednesday of Fire Prevention Week in October. In 2010, the park was redesigned, and the scope expanded to encompass firefighters throughout Greater Cincinnati and Northern Kentucky. The Memorial was officially rededicated on October 6, 2010

The church has no areas of outdoor use and was modeled as a FHWA Activity Category D having an interior NAC of 52dBA.

NSA 8

NSA 8 consists of two buildings located on the east side of Central Avenue south of Perry Street and north of McFarland Street. A nine-story apartment building is located on the east side of Central Avenue north of McFarland Street. The first two stories of the building consist of parking with the upper five stories of apartments. The apartments have areas for outdoor use, open-air balconies, situated on the west side of the building facing the highway. The building is located about 750 feet east of I-75 mainline but only about 160 feet east of the I-71 ramp that loops to I-75 southbound. The apartments were modeled as NAC Activity Category B having an NAC of 67 dBA. Another building, located on the south side of Perry Street and east of Central Avenue, is a four-story building with the bottom floor designed for retail/commercial use-most of which is boarded up. The upper stories could be used for residential or office space. The west side of the building facing the highway has windows, but no balconies or other areas intended for outdoor use. This building was not modeled for noise due to the lack of areas for outdoor use.

NSA 9

NSA 9 is located in the far south of the study area on the east side of I-75. NSA 9 is the Cincinnati Bengals outdoor practice facility. The facility is located about 650' east of the proposed new bridge. The facility is surrounded by surface streets and the primary noise source in the area of the facility is US 42. NSA 9 was modeled as NAC Activity Category C having an exterior NAC of 67 dBA.


Sacred Heart Church 41.7dBA
Interior Noise Level
Isolated Residential 64.7dBA
Not impacted
Isolated Residential 67.7dBA
Isolated Residential 68.2dBA
Isolated Residential 72.4dBA
Marshall Avenue
Spring Grove Ave
Diemer Street
LEGEND
Design Year Noise Level Exceeds Applicable NAC
Design Year Noise Level Lower than Applicable NAC
Figure 2a
Noise Sensitive Receivers on the West Side of I-75
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Figure 2b
Noise Sensitive Receivers on the West Side of I-75
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Figure 2c
Noise Sensitive Areas (NSA)
East Side of I-75
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Traffic

Traffic volumes used in this noise analysis were provided by the ODOT Office of Statewide Planning & Research Modeling and Forecasting Section on traffic plates dated May 2023. The traffic data includes peak hour volumes and percentage of truck traffic for the Existing Year 2029 and Design Year 2049. Evening (PM) Peak hour traffic volume was used in the analysis to represent worst case traffic conditions. Three (3) vehicle types were used in the noise model, automobiles, heavy trucks and medium trucks. Truck traffic volume is five percent of the peak hour traffic volume and was broken down to 60% heavy truck and 40% medium truck traffic. The same percentages were used in the existing year and design year noise models. Traffic data used in the analysis is provided in Appendix A.

Ambient Noise Measurements and Noise Model Validation

Field noise measurements were not taken as part of this revised noise analysis. The TNM model runs prepared for the original 2011 noise analysis were used in this analysis with no changes made to the existing and design year roadway alignments. Previous 2011 receiver site locations remained the same, however, several new NSAs were added since 2011.

New NSAs that were added since 2011 are the Quality hotel with an outdoor pool, the Cincinnati Job Corps having an outdoor area for sitting/eating, the WXIX TV television studio, the Greater Cincinnati Firefighters Memorial, the Union Baptist Church, two buildings located on the east side of Central Avenue south of Perry Street and north of McFarland Street, and the Cincinnati Bengals outdoor practice facility.

Using almost all of the same data points, there was no need to validate the noise model as that was done adequately with the original 2011 model runs. Because the previous noise model was used for the reanalysis and already validated, further measurements were not required. Sixteen (16) measurements were conducted in the 2011 noise analysis, and any additional measurements would have yielded similar results since current ADT is either similar or lower than the ADT in 2011.

Section 3.0
NOISE MODELING

Existing Condition 2029

The most dominant noise source within the project area is traffic noise generated by traffic on I-75. The FHWA Transportation Noise Model (TNM) Version 2.5 was used to determine the existing noise levels at sensitive receptor sites. Traffic noise levels for Existing Year 2029 condition were predicted for the PM peak hour condition using 2029 traffic volume and the existing roadway configuration.

Design Year 2049 Build Alternative

The Build Alternative is described as construction of the project as proposed under the Refined Alternative (Concept I-W). TNM was used to predict future year noise levels for the Refined Alternative (Concept I-W) Build 2049 as if the project were constructed as in the project description. Noise levels for the Build alternative were predicted for the PM peak hour using the Refined Alternative (Concept I-W) roadway alignment and projected Design Year 2049 traffic volumes that are provided in Appendix A.

Section 4.0
IMPACT ASSESSMENT

To evaluate the significance of the changes in the predicted noise levels, the FHWA has established NAC, as shown in Table 1, for various categories of land use and represents the upper limits of acceptable traffic generated noise emissions. According to FHWA guidance, a project may have a traffic noise impact if either or both of the following conditions exist under the design year conditions:

- The predicted noise levels associated with the Build Alternative approach, meet, or exceed the applicable NAC. According to ODOT, noise levels "approach" the NAC when they are within 1 dB of the applicable NAC.

- A substantial increase occurs in predicted noise levels between the future year Build Alternative and the existing year noise level, even though the applicable NAC may not be approached or exceeded. A substantial increase is considered to be a 10 dB or greater increase, representing a doubling or more of the perceived existing noise level.

All of the sensitive noise receptor sites modeled in this analysis fall under the NAC Activity Category B having an applicable outdoor NAC of 67 dBA [$L_{eq(h)}$]. Therefore, under Activity Category B, a predicted noise level of 66 dBA would approach the NAC and would be considered a noise impact.

Impact Assessment Summary

The evening PM peak hour was used to represent the worst-case traffic condition and is used for impact assessment for all of the NSAs in this analysis. The TNM-generated peak hour noise levels for the existing condition provides a baseline for a comparison to TNM-generated peak hour noise levels for the design year condition to determine the predicted increase in noise level and the extent of noise impact, if any.

The west side of I-75

A total of eight noise sensitive receiver sites representing six individual residential dwelling units, a church, a hotel, the Cincinnati Job Corps and a television studio were analyzed for potential noise impact. As shown on Figures 2a and 2b, the residential receivers, except for one, were predicted to experience design year noise level that would exceed the FHWA Activity Category B level. The church and the television studio have no outdoor areas of use and were modeled for interior noise level. Both buildings are of masonry construction and would receive a 25 dB noise reduction from exterior to interior use. Neither were predicted to exceed NAC Activity Category D noise level of 52 dBA for indoor areas. The Cincinnati Job Corps outdoor area- was predicted to experience noise levels above the Activity Category C. The Quality Inn hotel pool is located in a courtyard area and is shielded from traffic noise and will not exceed the Activity Category D outdoor noise level.

The west side of I-75 in the study area is almost entirely industrial and commercial land uses. There are less than 10 noise sensitive receivers including residential and places of worship on the west side. The receivers on the west side of I-75 were evaluated for noise impact however, being so few and so widely spaced, evaluation for noise abatement measures was not conducted for the impacted residential dwelling units. The following is ODOT's policy on the topic: "The current reasonable cost for noise abatement is $56,000 per benefited receptor, based on ODOT's latest cost per benefiting receptor evaluation. The cost reasonableness criteria are reevaluated biennially as provided in IV, G. Noise abatement is often not reasonable to mitigate impacts for isolated receptors in rural areas. Using the cost estimating rules provided in II. B. 2., the cost to provide a noise barrier for a single receptor ranges from $125,000 - $250,000, which exceeds the reasonable cost of abatement. "

The Cincinnati Job Corps receiver does not fit the category of the noise sensitive residential receiver explained above, so noise abatement was evaluated for the Cincinnati Job Corps receiver.

Cincinnati Job Corps

Cincinnati Job Corps is a trade/career school located on the west side of I-75 on the west side of Western Avenue north of Ezzard Charles Drive. Frequent exterior use areas include several covered pavilions and patio areas with tables for students to eat and relax. For noise modelling purposes, the center of the exterior use area was modeled as the location of the noise sensitive areas. The noise sensitive area was modeled as an Activity Category C having an exterior NAC of 67 dBA. The Cincinnati Job Corps outdoor area is situated at a slightly higher elevation than I-75. The predicted Existing Year 2029 noise level was 70.4 dBA. The predicted Design Year 2049 was 73.9 dBA. The increase in noise level from the existing year to the design year condition was predicted to be 3.5 dB. The receptor site is not predicted to experience a substantial increase (>10dB increase) in noise level under the design year condition but it was predicted to experience traffic noise levels that would exceed the Activity Category B NAC under the design year 2049 build alternative. Due to the predicted design year noise impact, noise abatement measures were considered for the Job Corps site.

To determine the effectiveness of a noise barrier wall as a noise abatement measure, an equivalent number of receptors was determined by using the following formula provided in the ODOT Noise Analysis Manual:

The equivalent number of receptors = number of occupants ÷ (# people/receptor) x usage
Where:
Number of occupants = number of persons using the exterior area
Number of people per residence (household size Ohio Average) = 3
Usage = (Average number of outdoor hours used per day ÷ 24 hours) x (Average days used per year ÷ 365 days)

An online search of the Cincinnati Job Corps determined that the facility can provide for a maximum of 202 students and has 20 faculty/staff. To determine the equivalent number of receptors for the exterior area, it was assumed that 50% of the student/staff would make use the exterior area. It was also assumed that students/staff would spend up to four hours a day in the area and the area would be available for use up to eight months per year. Half of the student/staff is 111 persons. Therefore: (111÷3) x (4÷24) x (240÷365) = 1.54 or say, 2 equivalent number of receptors.

A noise barrier wall was modeled along the west side of the I-75 southbound exit ramp to Western Avenue. A noise barrier wall at a length of 674 feet and a height of 18 feet could provide a noise reduction of 6.6 dB at the outdoor. ODOT requires a minimum noise reduction of 7 dB for at least one receiver location to be considered a feasible noise abatement measure. Rounded up the 6.6 dB would meet the feasible criterion. At a cost of $40/ft^2$, the noise barrier wall would cost $485,280. With two equivalent benefited receptors, the noise barrier would cost $242,640/benefited receptor which far exceeds the cost reasonable criterion of $56,000/benefited receptor. A noise barrier wall is not recommended as a noise abatement measure for the Cincinnati Job Corps area of exterior use.

The impact assessment for each of the nine NSAs located on the east side of I-75 is described as follows:

NSA 1

A total of 53 noise sensitive receiver sites representing 101 individual residential dwelling units were analyzed for potential noise impact. As shown in Table 2, the predicted Existing Year 2029 noise levels range between 60 and 75 dBA. The predicted Design Year 2049 noise levels range from 63 to 75 dBA. The greatest increase in noise level from the existing year to the design year condition was predicted to be 3.9 dB at receptor site NSA 1-5. None of the receptor sites are predicted to experience a substantial increase (>10dB increase) in noise level under the design year condition. 79 residential dwelling units in NSA 1 were predicted to experience traffic noise levels that would exceed the Activity Category B NAC under the design year 2049 build alternative. Due to the predicted design year noise impacts, noise abatement measures were considered for all receptor sites in NSA 1. TNM output data sheets for the Existing Year 2029 and the Design Year 2049 model runs are provided in Appendix B. The existing year and design year noise levels for all receptors in NSA 1 are summarized in the following table:

Table 2.
NSA 1
Existing and Design Year Noise Levels

Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 1-1	1	75.0	74.1	0.9	B	10	66	Yes
NSA 1-2	1	74.5	73.4	1.1	B	10	66	Yes
NSA 1-3	1	74.7	73.3	1.4	B	10	66	Yes
NSA 1-4	1	73.1	71.9	1.2	B	10	66	Yes
NSA 1-5	2	68.0	71.9	3.9	B	10	66	Yes
NSA 1-6	2	68.9	71.6	2.7	B	10	66	Yes
NSA 1-7	1	70.6	71.4	0.8	B	10	66	Yes
NSA 1-8	1	70.7	71.0	0.3	B	10	66	Yes
NSA 1-9	1	68.0	70.1	2.1	B	10	66	Yes
NSA 1-10	1	65.3	67.4	2.1	B	10	66	Yes
NSA 1-11	2	66.9	69.8	2.9	B	10	66	Yes
NSA 1-12	2	68.4	69.5	1.1	B	10	66	Yes

Table 2.
NSA 1
Existing and Design Year Noise Levels

Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 1-13	1	63.9	65.6	1.7	B	10	66	Yes
NSA 1-14	3	70.1	71.7	0.6	B	10	66	Yes
NSA 1-15	2	70.6	71.2	0.6	B	10	66	Yes
NSA 1-16	1	72.9	73.6	0.7	B	10	66	Yes
NSA 1-17	2	73.2	73.6	0.4	B	10	66	Yes
NSA 1-18	1	74.0	74.3	0.3	B	10	66	Yes
NSA 1-19	2	71.6	72.1	0.5	B	10	66	Yes
NSA 1-20	2	68.8	71.2	2.7	B	10	66	Yes
NSA 1-21	1	68.4	71.5	3.1	B	10	66	Yes
NSA 1-22	3	66.8	71.0	4.2	B	10	66	Yes
NSA 1-23	1	68.7	70.9	2.2	B	10	66	Yes
NSA 1-24	2	70.0	71.0	1.0	B	10	66	Yes
NSA 1-25	3	69.4	69.9	0.5	B	10	66	Yes
NSA 1-26	2	67.3	69.4	2.1	B	10	66	Yes
NSA 1-27	2	64.7	68.0	3.3	B	10	66	Yes
NSA 1-28	2	64.9	66.9	2.0	B	10	66	Yes
NSA 1-29	2	64.1	66.2	2.1	B	10	66	Yes
NSA 1-30	3	63.9	66.0	2.3	B	10	66	Yes
NSA 1-31	1	63.4	65.7	2.3	B	10	66	Yes
NSA 1-32	2	63.5	65.7	2.2	B	10	66	Yes
NSA 1-33	4	62.6	65.3	2.7	B	10	66	No
NSA 1-34	2	62.3	65.6	3.3	B	10	66	Yes
NSA 1-35	2	68.2	69.5	1.3	B	10	66	Yes
NSA 1-37	2	69.5	69.1	1.8	B	10	66	Yes
NSA 1-38	2	68.5	70.0	0.5	B	10	66	Yes
NSA 1-39	2	69.3	69.4	0.1	B	10	66	Yes
NSA 1-40	2	69.0	69.2	0.2	B	10	66	Yes
NSA 1-41	1	66.0	67.2	1.2	B	10	66	Yes
NSA 1-42	6	63.7	65.4	1.7	B	10	66	No
NSA 1-43	1	63.8	65.8	2.0	B	10	66	Yes
NSA 1-44	1	63.0	65.2	2.5	B	10	66	No
NSA 1-45	1	64.9	66.5	2.0	B	10	66	Yes
NSA 1-46	1	65.4	66.9	1.8	B	10	66	Yes
NSA 1-47	2	69.0	68.9	0.1	B	10	66	Yes
NSA 1-48	3	69.7	69.6	0.1	B	10	66	Yes
NSA 1-49	1	64.9	67.3	2.4	B	10	66	Yes
NSA 1-50	3	65.3	66.4	1.1	B	10	66	Yes
NSA 1-51	4	63.3	64.1	0.8	B	10	66	No
NSA 1-52	1	60.3	62.7	2.4	B	10	66	No
NSA 1-53	4	62.0	64.9	2.9	B	10	66	No

Table 2. NSA 1 Existing and Design Year Noise Levels								
Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 1-54	2	64.4	65.1	0.7	B	10	66	Yes
	101					Impacted Receptors		79

NSA 2

A total of 31 noise sensitive receiver sites representing 76 individual residential dwelling units were analyzed for potential noise impact. As shown in Table 3, the predicted Existing Year 2029 noise levels range between 67 and 76 dBA. The predicted Design Year 2049 noise levels range from 67 to 78 dBA. The greatest increase in noise level from the existing year to the design year condition was predicted to be 1.0 dB at receptor site NSA 2-19. None of the receptor sites are predicted to experience a substantial increase (>10dB increase) in noise level under the design year condition. Seventy-six residential dwelling units in NSA 2 were predicted to experience traffic noise levels that would exceed the Activity Category B NAC under the design year 2049 build alternative. Due to the predicted design year noise impacts, noise abatement measures were considered for all receptor sites in NSA 2. TNM output data sheets for the Existing Year 2029 and the Design Year 2049 model runs are provided in Appendix B. The existing year and design year noise levels for all receptors in NSA 2 are summarized in the following table:

Table 3 NSA 2 Existing and Design Year Noise Levels								
Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 2-1	2	67.2	68.3	1.1	B	10	66	Yes(4)
NSA 2-2	1	71.5	71.4	0.1	B	10	66	Yes(4)
NSA 2-3	2	67.4	68.9	1.5	B	10	66	Yes(4)
NSA 2-4	1	69.6	70.4	0.8	B	10	66	Yes(4)
NSA 2-5	1	73.0	73.9	0.9	B	10	66	Yes
NSA 2-6	2	71.9	72.8	0.9	B	10	66	Yes
NSA 2-7	3	71.2	72.2	1.0	B	10	66	Yes
NSA 2-8	2	70.7	71.8	1.1	B	10	66	Yes
NSA 2-9	2	70.0	71.2	1.2	B	10	66	Yes
NSA 2-10	2	69.4	70.8	1.4	B	10	66	Yes
NSA 2-11	1	77.0	78.8	1.8	B	10	66	Yes
NSA 2-12	3	75.3	76.9	1.6	B	10	66	Yes
NSA 2-13	3	73.3	75.0	1.7	B	10	66	Yes

Table 3 NSA 2 Existing and Design Year Noise Levels								
Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 2-14	2	72.6	74.1	1.5	B	10	66	Yes
NSA 2-15	4	73.1	74.7	1.6	B	10	66	Yes
NSA 2-16	2	76.4	76.5	0.1	B	10	66	Yes
NSA 2-17	2	75.1	79.0	0.9	B	10	66	Yes
NSA 2-18	2	68.2	69.8	1.6	B	10	66	Yes
NSA 2-19	2	67.8	69.5	1.7	B	10	66	Yes
NSA 2-20	4	68.1	69.7	1.6	B	10	66	Yes
NSA 2-21	4	67.4	69.1	1.7	B	10	66	Yes
NSA 2-22	2	72.5	73.9	1.4	B	10	66	Yes
NSA 2-23	3	72.0	73.6	1.6	B	10	66	Yes
NSA 2-24	4	71.8	73.3	1.5	B	10	66	Yes
NSA 2-25	4	72.8	74.1	1.3	B	10	66	Yes
NSA 2-26	2	70.0	71.8	1.8	B	10	66	Yes
NSA 2-27	2	70.9	72.4	1.5	B	10	66	Yes
NSA 2-28	2	71.0	72.5	1.5	B	10	66	Yes
NSA 2-29	4	71.4	72.8	1.4	B	10	66	Yes
NSA 2-30	4	71.9	73.1	1.2	B	10	66	Yes
NSA 2-31	2	68.4	69.8	1.4	B	10	66	Yes
	76						Noise Impacts	76

NSA 3

A total of 19 noise sensitive receiver sites representing 135 individual residential dwelling units were analyzed for potential noise impact. As shown in Table 4, the predicted Existing Year 2029 noise levels range between 67 and 70 dBA. The predicted Design Year 2049 noise levels range from 66 to 71 dBA. The greatest increase in noise level from the existing year to the design year condition was predicted to be 0.8 dB at NSA 3-14. None of the receptor sites are predicted to experience a substantial increase (>10dB increase) in noise under the design year condition. 135 residential dwelling units in NSA 3 were predicted to experience traffic noise levels that would exceed the Activity Category B NAC under the design year 2049 build alternative. Due to the predicted design year noise impacts, noise abatement measures were considered for all receptor sites in NSA 3. TNM output data sheets for the Existing Year 2029 and the Design Year 2049 model runs are provided in Appendix B. The existing year and design year noise levels for all receptors in NSA 3 are summarized in the following table:

Table 4
NSA 3
Existing and Design Year Noise Levels

Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 3-1	1	71.0	70.9	0.1	B	10	66	Yes
NSA 3-2	4	70.0	70.7	0.7	B	10	66	Yes
NSA 3-3	3	70.0	70.5	0.5	B	10	66	Yes
NSA 3-4	6	70.1	69.6	0.5	B	10	66	Yes
NSA 3-5	3	69.9	69.3	0.6	B	10	66	Yes
NSA 3-6	4	69.5	69.1	0.4	B	10	66	Yes
NSA 3-7	6	69.3	69.7	0.4	B	10	66	Yes
NSA 3-8	6	69.6	69.3	0.3	B	10	66	Yes
NSA 3-9	8	69.0	68.2	0.8	B	10	66	Yes
NSA 3-10	65	69.8	69.8	0.0	B	10	66	Yes
NSA 3-11	2	69.2	67.9	1.3	B	10	66	Yes
NSA 3-12	4	69.1	68.0	1.1	B	10	66	Yes
NSA 3-13	3	67.6	67.3	0.3	B	10	66	Yes
NSA 3-14	1	67.0	67.8	0.8	B	10	66	Yes
NSA 3-15	4	67.8	66.5	1.3	B	10	66	No
NSA 3-16	6	67.1	66.4	0.7	B	10	66	Yes
NSA 3-17	4	68.1	66.5	1.6	B	10	66	Yes
NSA 3-18	1	66.5	66.8	0.3	B	10	66	Yes
NSA 3-19	4	67.3	67.1	0.2	B	10	66	Yes
	135						Noise Impacts	135

NSA 4

A total of 31 noise sensitive receiver sites representing 183 individual residential dwelling units were analyzed for potential noise impact. As shown in Table 5, the predicted Existing Year 2029 noise levels range between 60 and 72 dBA. The predicted Design Year 2049 noise levels range from 63 to 75 dBA. The greatest increase in noise level from the existing year to the design year condition was predicted to be 4.7 dB at NSA 4-4. None of the receptor sites are predicted to experience a substantial increase (>10dB increase) in noise under the design year condition. 151 residential dwelling units in NSA 4 were predicted to experience traffic noise levels that would exceed the Activity Category B NAC under the design year 2049 build alternative. Due to the predicted design year noise impacts, noise abatement measures were considered for all receptor sites in NSA 4. TNM output data sheets for the Existing Year 2029 and the Design Year 2049 model runs are provided in Appendix B. The existing year and design year noise levels for all receptors in NSA 4 are summarized in the following table:

Table 5 NSA 4 Existing and Design Year Noise Levels								
Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 4-1	8	68.7	70.0	1.3	B	10	66	Yes
NSA 4-2	8	69.4	70.8	1.4	B	10	66	Yes
NSA 4-3	8	69.9	71.4	1.5	B	10	66	Yes
NSA 4-4	8	68.8	73.5	4.7	B	10	66	Yes
NSA 4-5	8	71.6	74.5	2.9	B	10	66	Yes
NSA 4-6	4	71.4	73.4	2.0	B	10	66	Yes
NSA 4-7	4	71.1	73.0	1.9	B	10	66	Yes
NSA 4-8	4	70.6	72.4	1.8	B	10	66	Yes
NSA 4-9	4	70.1	72.0	1.9	B	10	66	Yes
NSA 4-10	8	66.8	68.4	1.6	B	10	66	Yes
NSA 4-11	8	66.8	69.5	2.7	B	10	66	Yes
NSA 4-12	8	67.3	70.4	3.1	B	10	66	Yes
NSA 4-13	6	64.5	68.0	3.5	B	10	66	Yes
NSA 4-14	6	64.4	67.6	3.2	B	10	66	Yes
NSA 4-15	4	66.3	68.5	2.2	B	10	66	Yes
NSA 4-16	4	65.9	67.9	2.0	B	10	66	Yes
NSA 4-17	4	65.5	67.7	2.2	B	10	66	Yes
NSA 4-18	4	65.3	67.5	2.2	B	10	66	Yes
NSA 4-19	4	65.4	67.1	1.7	B	10	66	Yes
NSA 4-20	1	66.6	68.4	1.8	B	10	66	Yes
NSA 4-21	8	64.1	66.5	2.4	B	10	66	Yes
NSA 4-22	8	62.7	66.1	3.4	B	10	66	Yes
NSA 4-23	6	64.1	67.2	3.1	B	10	66	Yes
NSA 4-24	8	61.3	63.8	2.5	B	10	66	No
NSA 4-25	8	60.0	63.0	3.0	B	10	66	No
NSA 4-26	8	63.0	66.7	3.7	B	10	66	Yes
NSA 4-27	8	63.6	67.1	3.5	B	10	66	Yes
NSA 4-28	4	63.3	64.8	1.5	B	10	66	No
NSA 4-29	4	62.4	64.0	1.6	B	10	66	No
NSA 4-30	4	62.5	64.1	1.6	B	10	66	No
NSA 4-31	4	62.5	64.1	1.6	B	10	66	No
	183						Noise Impacts	151

NSA 5

A total of 24 noise sensitive receiver sites representing 220 individual residential dwelling units and a community center pool were analyzed for potential noise impact. As shown in Table 6, the predicted Existing Year 2029 noise levels range between 60 and 72 dBA. The predicted Design Year 2049 noise levels range from 63 to 76 dBA. The greatest increase in noise level from the existing year to the design year condition was predicted to be 3.8 dB at NSA 5-9. None of the receptor sites are predicted to experience a substantial

increase (>10dB increase) in noise under the design year condition. 156 residential dwelling units in NSA 5 were predicted to experience traffic noise levels that would exceed the Activity Category B NAC under the design year 2049 build alternative. Due to the predicted design year noise impacts, noise abatement measures were considered for all receptor sites in NSA 5. TNM output data sheets for the Existing Year 2029 and the Design Year 2049 model runs are provided in Appendix B. The existing year and design year noise levels for all receptors in NSA 5 are summarized in the following table:

Table 6
NSA 5
Existing and Design Year Noise Levels

Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 5-1	12	74.3	76.2	1.9	B	10	66	Yes
NSA 5-2	12	72.3	73.7	1.4	B	10	66	Yes
NSA 5-3	12	71.8	72.9	1.1	B	10	66	Yes
NSA 5-4	12	73.6	75.1	1.5	B	10	66	Yes
NSA 5-5	12	72.6	74.2	1.6	B	10	66	Yes
NSA 5-6	12	71.7	74.6	2.9	B	10	66	Yes
NSA 5-7	12	66.2	69.5	3.3	B	10	66	Yes
NSA 5-8	12	64.0	67.7	3.7	B	10	66	Yes
NSA 5-9	12	61.5	65.3	3.8	B	10	66	No
NSA 5-10	12	62.9	65.5	2.6	B	10	66	Yes
NSA 5-11	12	62.5	66.1	3.6	B	10	66	Yes
NSA 5-12	12	64.8	67.8	3.8	B	10	66	Yes
NSA 5-13	12	62.7	66.1	3.4	B	10	66	Yes
NSA 5-14	12	61.5	63.8	2.3	B	10	66	No
NSA 5-15	12	60.5	62.9	2.4	B	10	66	No
NSA 5-16	12	60.2	64.0	3.8	B	10	66	No
NSA 5-17	12	60.9	63.8	2.9	B	10	66	No
NSA 5-18	5	66.9	69.3	2.4	B	10	66	Yes
NSA 5-19	5	70.4	73.3	2.9	B	10	66	Yes
NSA 5-20	1	60.6	62.0	1.4	C	10	66	No
NSA 5-21	1	62.1	63.6	1.5	C	10	66	No
NSA 5-22	1	62.9	64.6	1.7	C	10	66	No
NSA 5-23	2	66.7	68.3	1.6	C	10	66	Yes
NSA 5-24	1	62.2	63.3	1.1	C	10	66	No
	220						Noise Impacts	156

NSA 6

A total of 10 noise sensitive receiver sites representing 33 individual residential dwelling units, a playground and a baseball field were analyzed for potential noise impact. As shown in Table 7, the predicted Existing Year 2029 noise levels range between 59 and 69 dBA. The predicted Design Year 2049 noise levels range

from 60 to 72 dBA. The greatest increase in noise level from the existing year to the design year condition was predicted to be 3.2 dB at the playground area. None of the receptor sites are predicted to experience a substantial increase (>10dB increase) in noise under the design year condition. The playground area in NSA 6 was predicted to experience traffic noise levels that would exceed the Activity Category C NAC under the design year 2049 build alternative. Due to the predicted design year noise impacts, noise abatement measures were considered for all receptor sites in NSA 6. TNM output data sheets for the Existing Year 2029 and the Design Year 2049 model runs are provided in Appendix B. The existing year and design year noise levels for all receptors in NSA 6 are summarized in the following table:

Table 7
NSA 6
Existing and Design Year Noise Levels

Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 6-1	6	69.2	72.4	3.2	C	10	66	Yes
NSA 6-2	1	60.5	62.4	1.9	C	10	66	No
NSA 6-3	6	62.1	63.4	1.3	B	10	66	No
NSA 6-4	5	61.5	61.5	0.0	B	10	66	No
NSA 6-5	2	59.0	59.9	0.9	B	10	66	No
NSA 6-6	3	63.6	65.1	1.5	B	10	66	No
NSA 6-7	3	63.9	64.2	0.3	B	10	66	No
NSA 6-8	3	62.2	63.1	0.9	B	10	66	No
NSA 6-9	2	63.8	64.6	0.8	B	10	66	No
NSA 6-10	2	62.5	63.6	1.1	B	10	66	No
	33						Noise Impacts	6

NSA 7

In NSA 7, one noise sensitive receiver representing a park/memorial and a church were analyzed for potential noise impact. As shown in Table 8, the predicted Existing Year 2029 noise level was 69.1 dBA and the predicted Design Year noise level was 69.6. Since the church has no areas of frequent human exterior use, the interior noise level was modeled. The church is a masonry structure with double paned windows that provide a noise reduction of 25 dB from exterior levels. The predicted Existing Year noise level was 43.2 dBA and the Design Year noise level was predicted to be 45.1 dBA. The greatest increase in noise level from the existing year to the design year condition was predicted to be 1.9 dB at the church. Neither receptor site is predicted to experience a substantial increase (>10dB increase) in noise under the design year condition. The park/memorial location was predicted to experience traffic noise levels that would exceed the exterior Activity Category C NAC of 67 dBA under the design year 2049 build alternative. The church would not exceed the FHWA Activity Category D (interior) NAC of 52 dBA. Due to the predicted design year noise impact at the park, noise abatement measures were considered for NSA 7. TNM output data sheets for the Existing Year 2029 and the Design Year 2049 model runs are provided in Appendix B. The existing year and design year noise levels for NSA 7 are summarized in the following table:

Table 8 NSA 7 Existing and Design Year Noise Levels								
Receptor		2029 Existing	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated LAeq1h	Calculated Laeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 7-1	1	69.1	69.6	0.9	C	10	66	Yes
NSA 7-2 (interior)	1	43.2	45.1	1.9	D	10	52	No
	2						Noise Impacts	1

NSA 8

NSA 8 consists of two buildings located on the east side of Central Avenue south of Perry Street and north of McFarland Street. A nine-story apartment building is located on the east side of Central Avenue north of McFarland Street. The first two stories of the building consist of parking with the upper five stories of apartments. The apartments have areas for outdoor use, open-air balconies, situated on the west side of the building facing the highway. The building is located about 750 feet east of I-75 mainline but only about 160 feet east of the I-71 ramp that loops to I-75 southbound. The apartments were modeled as NAC Activity Category B having an NAC of 67 dBA. Another building, located on the south side of Perry Street and east of Central Avenue, is a four-story building with the bottom floor designed for retail/commercial use-most of which is boarded up. The upper stories could be used for residential or office space. The west side of the building facing the highway has windows, but no balconies or other areas intended for outdoor use. This building was not modeled for noise due to the lack of areas for outdoor use.

As shown in Table 9, the predicted Existing Year 2029 noise levels range from 69 to 71 dBA. The predicted Design Year 2049 noise level range from 71 to 72 dBA. The noise level from the existing year to the design year condition increased a maximum of 1.3 dB. The receptor sites are not predicted to experience a substantial increase (>10dB increase) in noise under the design year condition. The receptor sites were predicted to experience traffic noise levels that would exceed the Activity Category B NAC under the design year 2049 build alternative. Due to the predicted design year noise impacts, noise abatement measures were considered for NSA 8. TNM output data sheets for the Existing Year 2029 and the Design Year 2049 model runs are provided in Appendix B. The existing year and design year noise levels for NSA 8 are summarized in the following table:

Table 9 NSA 8 Existing and Design Year Noise Levels								
Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated Laeq1h	Calculated Laeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 8-3rd story	6	69.2	70.5	1.3	B	10	66	Yes
NSA 8-4th story	6	69.9	71.1	1.2	B	10	66	Yes
NSA 8-5th story	6	70.2	71.3	1.1	B	10	66	Yes
NSA 8-6th story	6	70.5	71.5	1.0	B	10	66	Yes
NSA 8-7th story	6	70.7	71.5	0.8	B	10	66	Yes
	30	Noise Impacts						30

NSA 9

One noise sensitive receiver representing The Cincinnati Bengals outdoor practice facility was analyzed for potential noise impact. As shown in Table 10, the predicted Existing Year 2029 noise level was 64.9 dBA. The predicted Design Year 2049 noise level was 65.1 dBA. The increase in noise level from the existing year to the design year condition was predicted to be 0.2 dB. The receptor site is not predicted to experience a substantial increase (>10dB increase) in noise under the design year condition. The receptor site was not predicted to experience traffic noise levels that would exceed the Activity Category C NAC under the design year 2049 build alternative. The evaluation of noise abatement measures is not warranted for NSA 9. TNM output data sheets for the Existing Year 2029 and the Design Year 2049 model runs are provided in Appendix B. The existing year and design year noise levels for NSA 9 are summarized in the following table:

Table 10 NSA 9 Existing and Design Year Noise Levels								
Receptor		2029 Existing Year	2049 Build		Impact Criteria			
Site	Dwelling Units	Calculated Laeq1h	Calculated Laeq1h	Increase Build over Existing	NAC Activity Category	Substantial Increase	Sound Level Criterion	Impact
		dBA	dBA	dB		dB	dBA	
NSA 9-1	1	64.9	65.1	0.2	C	10	66	No
	1	Noise Impacts						0

Section 5.0
EVALUATION OF NOISE ABATEMENT MEASURES

In accordance with 23 CFR Part 772, noise abatement measures were considered for sites which were predicted to either approach, meet, or exceed the applicable FHWA NAC. Abatement measures that were considered include traffic management, modifications to the vertical and horizontal roadway alignments, noise insulation, and construction of permanent noise barriers within or adjacent to the right-of-way. In order to be considered for implementation, a potential mitigation measure must be determined to be both feasible and reasonable. Feasibility includes such considerations as effectiveness of the measure in attaining specified reductions in predicted noise levels, the cost of the measure, and the number of receptors that will benefit. Reasonableness considerations can include overall environmental effects and whether the affected community would desire an abatement measure.

Traffic management measures: Traffic management measures, which can include restrictions on access to specific motor vehicle types, travel speed, traffic volumes, and/or time of operation, are sometimes used as noise abatement measures. A reduction in speed limit, while possibly generating some beneficial effects on noise level reduction, would affect the ability of the roadway to accommodate anticipated traffic volumes and reduce the capacity of the proposed facility. Limiting truck traffic and/or time of truck traffic operation is not a feasible option to reduce noise impacts due to the lack of nearby routes capable of handling the existing capacity. Limiting truck traffic may further result in economic impact that time use limitations may have on commercial traffic and businesses both within and beyond the project locale. Traffic management measures would not be a feasible noise abatement measure; therefore, it is not considered as an option for this project.

Traffic management measures applied for the purpose of noise abatement would be inconsistent with the purpose of this project. Use of restrictions, including the restriction of certain vehicle types and time use restrictions, would eliminate certain traffic from using the roadway.

The installation of additional traffic control devices or the modification of speed limits would result in a decreased level of service and decreased efficiency of the proposed roadway; therefore, the implementation of traffic management measures for the purpose of the noise abatement is not deemed reasonable or likely for this project.

Alteration of horizontal and vertical alignments: Alignment modifications generally involve orienting and/or siting the roadway a sufficient distance from noise sensitive areas to minimize noise impact. Vertical alignment is dictated by the existing roadway elevations at existing intersections. Altering the proposed vertical alignment of I-75 would result in an additional project cost and is not a feasible option. Further altering the horizontal alignment in this populated area would result in additional project costs due to acquisition of new permanent right-of-way, as well as economic and social impacts due to additional residential and commercial relocations. Vertical and/or horizontal alignment modifications to the proposed alignment were considered and are not feasible or reasonable noise abatement measures.

Acquisition of real property or interests therein to serve as a buffer zone: Buffer zones are undeveloped, open spaces which border a highway and are created when a highway agency purchases land or

development rights, in addition to the normal right-of-way, so that future dwellings cannot be constructed next to the highway. Following ODOT guidelines, the amount of public funds considered reasonable for noise abatement purposes is $56,000 per benefited noise sensitive receptor. A property acquisition program to provide a noise buffer zone adjacent to the existing route is not a reasonable noise abatement measure because the land and numerous impacted residential properties adjacent to the project corridor are likely to be of a considerably higher value. Creating a buffer zone is not considered to be a reasonable or feasible abatement measure for this project.

Noise insulation of public use or nonprofit institutional structures: This mitigation measure applies only to public use structures. No public use structures in the project area were impacted by noise. Noise insulation is not considered for the residential structures impacted by the proposed project.

Noise Barrier Construction: Noise barriers are generally the abatement measure most often associated with noise abatement on highway lane addition projects. Noise barriers reduce noise levels by blocking the sound path between the noise source and noise sensitive receptors. To be effective, noise barriers must be long, continuous, and sufficiently high to break the line of sight from the highway to the receptor. When designing a noise barrier wall, every attempt should be made to obtain a substantial noise reduction of 7 dB for at least one receptor. Noise barriers are generally designed to provide a minimum reduction of 7 dB for receptor sites located closest to the roadway. Noise levels must be reduced by a minimum of 4.5 dB at any sensitive receptor site for that site to be considered a benefited receptor. The construction of a noise barrier is considered a feasible mitigation measure if 40% of the impacted dwelling units receive at least a 4.5 dB noise reduction. The construction of a noise barrier is considered a reasonable mitigation measure if the construction cost is less than $56,000 per benefited receptor. Reasonableness also includes the desires of the affected property owners to have a noise barrier constructed adjacent to their property.

Barrier Wall Analysis

NSA 1

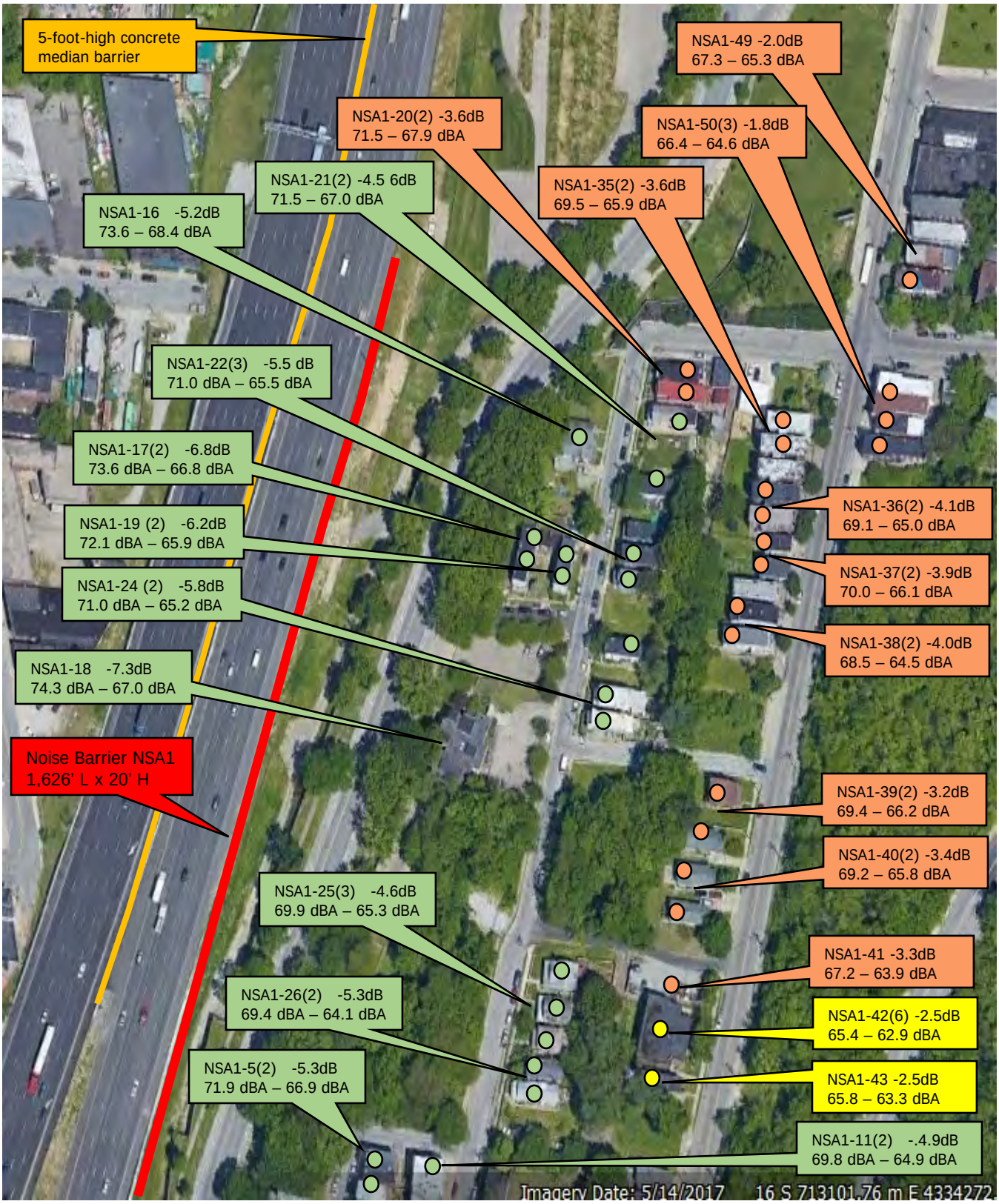
A noise barrier wall was evaluated for potential noise abatement for the receptors in NSA 1 and is shown on Figure 3. Noise barrier wall NSA 1 was modeled along the proposed edge of shoulder (EOS) of northbound I-75 as shown on Figures 3a and 3b. Noise barrier NSA 1 was evaluated at a length of 1,626 feet at different various heights ranging from 14 foot to 20 foot. Table 11 shows the effectiveness of the configurations of noise barrier NSA 1. The ground mounted noise barrier would have a cost of $40 per square foot.

Table 11.
Noise Barrier Height Comparison
Noise Barrier NSA 1 Modeled along EOS

Scenario	Barrier Length	Barrier Height	Cost of Barrier	Impacted receptors	Benefited Receptors	Cost per Benefited Receptor	Maximum Insertion Loss (dB)	Recommended Height
NSA 1	1,626'	14'	$910,560	79	2	$455,280	4.5	No noise barrier recommended
	1,626'	15'	$975,600	79	3	$325,200	4.9	
	1,626'	16'	$1,040,640	79	5	$208,128	5.2	
	1,626'	17'	$1,105,680	79	10	$110,558	5.5	

	1,626’	18’	$1,170,720	79	12	$97,560	5.9	
	1,626’	19’	$1,235,760	79	16	$77,235	6.1	
	1,626’	20’	$1,300,800	79	21	$61,942	6.4	

The evaluated noise barrier NSA 1, at the maximum ODOT height of 20 feet, does not achieve the ODOT design goal of 7 dB(A) noise reduction for at least one benefited receptor. Also, the barrier does not achieve the ODOT acoustically feasible noise reduction to benefit 40% of the impacted receivers and does not meet the ODOT reasonable cost criterion of $56,000/benefited receivers. The evaluated noise barrier wall NSA 1 along the EOS is not a feasible or reasonable noise abatement measure; therefore, a noise barrier wall is not recommended for noise abatement at NSA 1.



LEGEND

- Impacted and Benefited
- Impacted and Not Benefited
- Not Impacted and Benefited
- Not Impacted and Not Benefited
- Noise Barrier NSA1

Figure 3a

Design Year Noise Levels Without and With Noise Barrier

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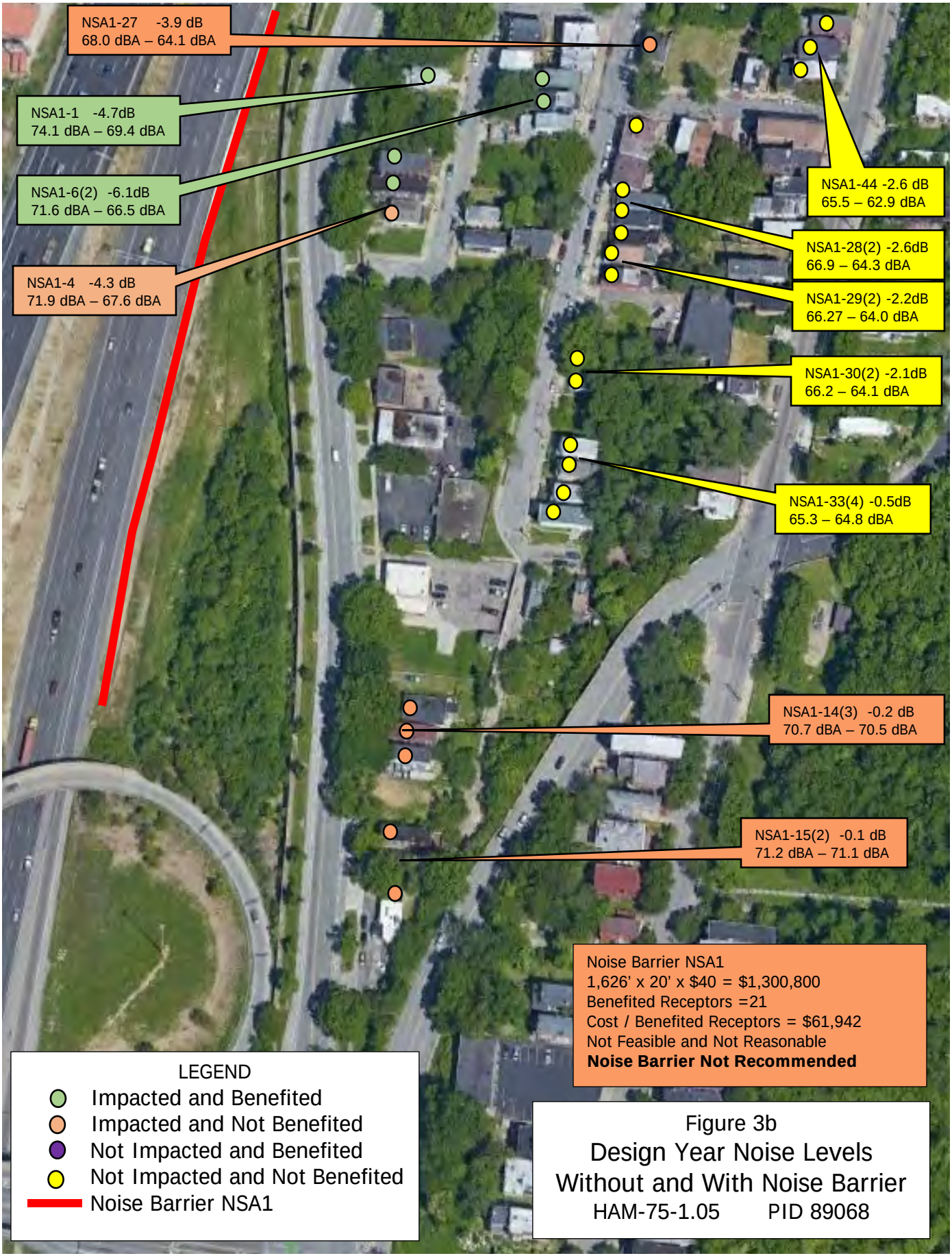

Figure 3b
Design Year Noise Levels
Without and With Noise Barrier
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NSA 2

I-75 was constructed in a fill configuration along the section of roadway where the interstate crosses over both Bank Street and Findlay Street. Receptors in NSA 2 are situated anywhere from 5 to 10 feet lower than I-75. Only one noise barrier wall was modeled for NSA 2 and is located along the EOS of I-75 to take advantage of the height differential. As shown on Figure 4, noise barrier wall NSA 2 begins at the bridge approach just south of Bank Street and extends south a distance of 1,115 feet to a point just south of York Street. Barrier wall NSA 2 was evaluated at various heights as shown in Table 12.

Table 12
Noise Barrier Height Comparison
NSA 2 – Noise Barrier Modeled along EOS

Scenario	Barrier Length	Barrier Height	Cost of Barrier	Impacted receptors	Benefited Receptors	Cost per Benefited Receptor	Maximum Insertion Loss (dB)	Recommended Height
NSA 2	1,115'	9'	$1,505,250	76	40	$37,631	7.6	
	1,115'	10'	$1,672,500	76	44	$38,011	8.9	10'
	1,115'	11'	$1,839,750	76	46	$39,994	9.5	
	1,115'	12'	$2,007,000	76	56	$35,839	9.9	
	1,115'	13'	$2,174,250	76	68	$31,974	10.2	
	1,115'	14'	$2,341,500	76	70	$33,450	10.4	
	1,115'	15'	$2,508,750	76	70	$35,839	10.7	

Noise barrier NSA 2 would be built on a proposed concrete retaining wall along the proposed EOS. Current cost estimates for a noise barrier wall constructed on a bridge structure or on a retaining wall, as is the case in NSA 2 is $150 ft^2. As shown in Table 13, noise barrier wall NSA 2, at a height of ten feet, would meet all the criteria for a reasonable and feasible noise abatement measure. Barrier NSA 2 does meet the ODOT acoustically feasible noise reduction by benefiting 58% of the impacted receivers, provides a maximum insertion loss of 8.9 dB and also meets meet the ODOT reasonable cost criterion of $56,000/benefited receiver. Although other noise barrier heights were also shown to meet the reasonable and feasible criteria, a maximum height of ten feet can be constructed on retaining wall. Noise barrier wall NSA 2 at a height of 10 feet is recommended for noise abatement for NSA 2.

Table 13
Noise Levels without and with construction of barrier wall NSA 2 along EOS

Receptor		2049 Build No Barrier Wall	2049 Build With Barrier Wall	Noise Reduction with Barrier Wall		
Site	Dwelling Units	Calculated Laeq1h	Calculated Laeq1h	Calculated	Goal	Benefited
		dBA	dBA	dB	dBA	
NSA 2-1	2	68.3	67.0	1.3	5	No
NSA 2-2	1	71.4	66.7	4.7	5	Yes
NSA 2-3	2	68.9	66.3	2.6	5	No
NSA 2-4	1	70.4	66.1	4.3	5	No
NSA 2-5	1	76.9	67.7	6.2	5	Yes

Table 13 Noise Levels without and with construction of barrier wall NSA 2 along EOS						
Receptor		2049 Build No Barrier Wall	2049 Build With Barrier Wall	Noise Reduction with Barrier Wall		
Site	Dwelling Units	Calculated Laeq1h	Calculated Laeq1h	Calculated	Goal	Benefited
		dBA	dBA	dB	dBA	
NSA 2-6	2	72.8	67.4	5.4	5	Yes(2)
NSA 2-7	3	72.2	67.2	5.0	5	Yes (3)
NSA 2-8	2	71.8	67.2	4.6	5	Yes (2)
NSA 2-9	2	71.2	67.1	4.1	5	No
NSA 2-10	2	70.8	66.9	3.9	5	No
NSA 2-11	1	78.8	69.9	8.9	5	Yes
NSA 2-12	3	76.9	70.2	6.7	5	Yes (3)
NSA 2-13	3	75.0	69.3	5.7	5	Yes (3)
NSA 2-14	2	74.1	69.0	5.1	5	Yes (2)
NSA 2-15	4	74.7	69.1	5.6	5	Yes (4)
NSA 2-16	2	76.5	69.2	7.3	5	Yes (2)
NSA 2-17	2	76.0	68.8	7.2	5	Yes (2)
NSA 2-18	2	69.8	66.2	3.6	5	No
NSA 2-19	2	69.5	66.1	3.4	5	No
NSA 2-20	4	69.7	66.0	3.7	5	No
NSA 2-21	4	69.1	65.6	3.5	5	No
NSA 2-22	2	73.9	69.0	4.9	5	Yes (2)
NSA 2-23	3	73.6	68.6	5.0	5	Yes (3)
NSA 2-24	4	73.3	68.2	5.1	5	Yes (4)
NSA 2-25	4	74.1	69.3	4.8	5	Yes (4)
NSA 2-26	2	71.8	67.7	4.1	5	No
NSA 2-27	2	72.4	68.5	3.9	5	No
NSA 2-28	2	72.5	68.9	3.6	5	No
NSA 2-29	4	72.8	69.2	3.6	5	No
NSA 2-30	4	73.1	69.1	4.0	5	No
NSA 2-31	2	69.8	68.3	1.5	5	No
	76				Benefited Receptors	44

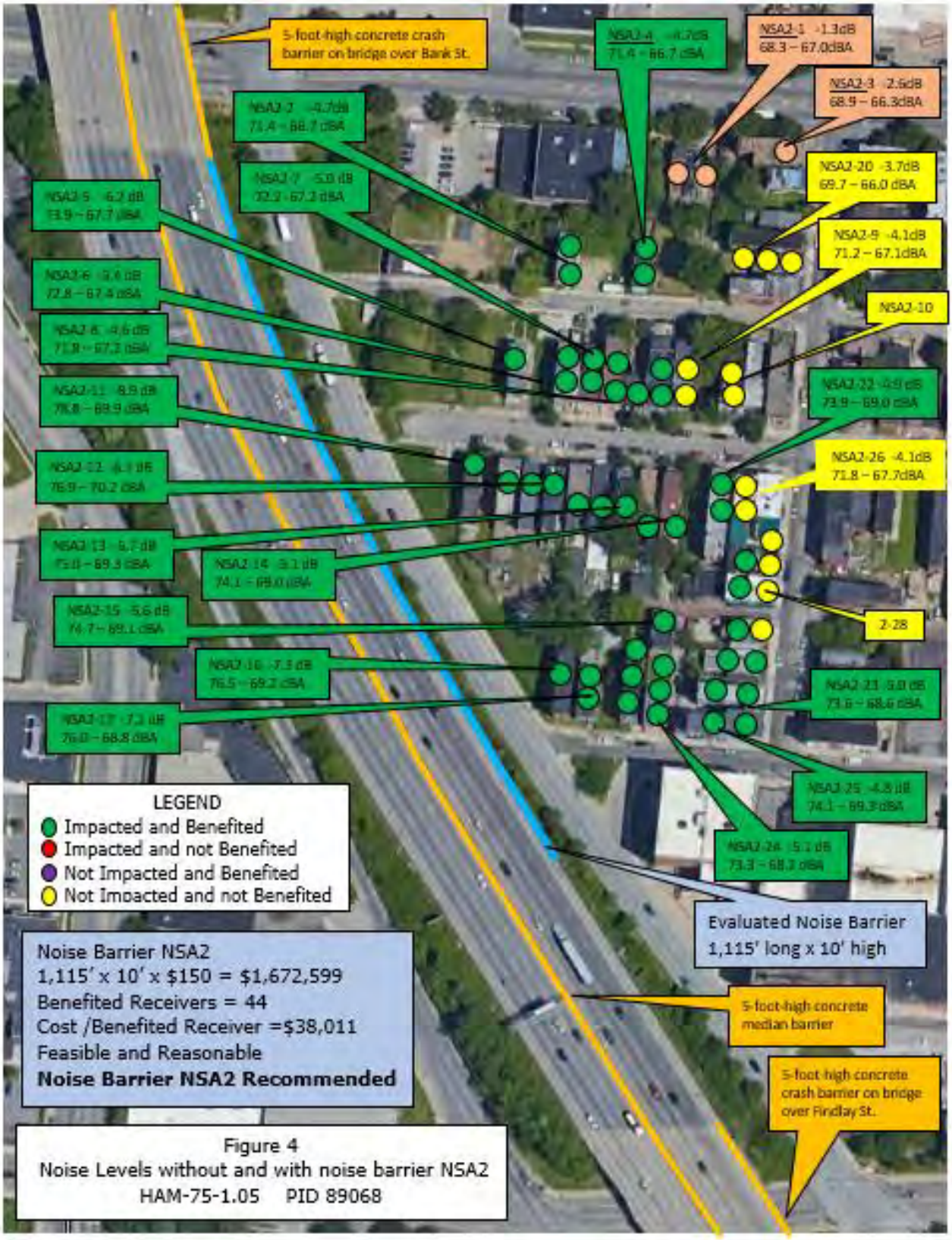

Figure 4
Noise Levels without and with noise barrier NSA2
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NSA 3

NSA 3 is located on the east side of I-75 beginning on the south side of Findlay Street and continuing three blocks to the south at West Liberty Street. All of the land use in NSA 3 is residential aside from a playground on Poplar Street and a community garden located south of the Sands Senior Apartments that were modeled as an exterior area of frequent use. NSA 3 is comprised of 19 receiver locations comprising 131 residential dwelling units, a playground and garden located within 500 feet of I-75. All of the residential dwelling units were modeled as Activity Category B having a NAC of 67 dBA. The playground and garden were modeled using the Activity Category C (outdoor) having a NAC of 67 dBA. To determine the effectiveness of a noise barrier wall, an equivalent number of receptors must be determined for certain land uses such as the community garden. The equivalent number of receptors is determined by using the following formula provided in the ODOT Noise Analysis Manual:

The equivalent number of receptors = number of occupants ÷ (# people/receptor) x usage
Where:
Number of occupants = number of gardeners
Number of people per residence (household size Ohio Average) = 3
Usage = (Average number of outdoor hours used per day ÷ 24 hours) x (Average days used per year ÷ 365 days)
About 50 individual plots were identified at the community garden. Assuming gardeners may visit the plots during daylight hours and roughly five months growing season, therefore: (50÷3) x (12÷24) x (150÷365) = 3 equivalent number of receptors

This section of I-75 was originally constructed in a fill configuration where the interstate crosses over Findlay Street to where it crosses over West Liberty Street. Receptors in NSA 3 are situated anywhere from 15 to 20 feet lower than I-75. This section of I-75 will be expanded towards the east and a concrete retaining wall will be constructed between I-75 and Winchell Avenue due to what will be a tight configuration between I-75 and Winchell Avenue. Noise barrier wall NSA 3 would be constructed on top of the retaining wall along its entire length at a cost of $150 per square foot. Only one noise barrier wall location was modeled for NSA 3 and is located along the proposed EOS of I-75 to take advantage of the height differential. As shown on Figure 5, noise barrier wall NSA 3 would begin at the I-75 bridge approach just south of Findlay Street and would extend south a distance of 767 feet to the I-75 bridge approach north of West Liberty Street. A five-foot-high concrete center median barrier was modeled as part of the NSA as were five-foot-high concrete crash barriers on the bridges over Findlay Street and West Liberty Street. Barrier wall NSA 3 was evaluated at various heights as shown in Table 14.

Table 14
Noise Barrier Height Comparison
NSA 3 – Noise Barrier Modeled along EOS

Scenario	Barrier Length	Barrier Height	Cost of Barrier	Impacted receptors	Benefited Receptors	Cost per Benefited Receptor	Maximum Insertion Loss (dB)	Recommended Height
NSA 3	767	8’	$920,400	135	21	$43,828	6.1	
	767	9’	$1,035,352	135	22	$47,061	6.4	
	767	10’	$1,150,500	135	87	$13,224	6.7	10’

	767	11'	$1,265,400	135	93	$13,606	7.0	
	767	12'	$1,380,470	135	93	$14,843	7.3	
	767	13'	$1,495,500	135	93	$16,080	7.5	

Noise barrier NSA 3 would be built on a proposed concrete retaining wall along the proposed EOS. Current cost estimates for a noise barrier wall constructed on a retaining wall is $150 ft^2. As shown in Table 15, noise barrier wall NSA 3, at a height of ten feet, would meet all the criteria for a reasonable and feasible noise abatement measure. Barrier NSA 3 does meet the ODOT acoustically feasible noise reduction by benefiting 64% of the impacted receivers, provides a maximum insertion loss of 6.7 dB and also meets meet the ODOT reasonable cost criterion of $56,000/benefited receiver. Although other noise barrier heights were also shown to meet the reasonable and feasible criteria, a maximum height of ten feet can be constructed on retaining wall. Noise barrier wall NSA 3 at a height of 10 feet is recommended for noise abatement for NSA3.

Table 15
Noise Levels without and with construction of barrier wall NSA 3 along EOS

Receptor		2049 Build No Barrier Wall	2049 Build With Barrier Wall	Noise Reduction with Barrier Wall		
Site	Dwelling Units	Calculated Laeq1h	Calculated Laeq1h	Calculated	Goal	Benefited
		dBA	dBA	dB	dBA	
NSA 3-1	1	70.9	66.9	4.0	5	No
NSA 3-2	4	70.7	65.2	5.5	5	Yes (4)
NSA 3-3	3	70.5	64.6	5.9	5	Yes (3)
NSA 3-4	6	69.6	64.4	5.2	5	Yes (6)
NSA 3-5	3	69.3	64.0	5.3	5	Yes (3)
NSA 3-6	4	69.1	65.9	3.2	5	Yes (4)
NSA 3-7	6	69.7	63.1	6.6	5	Yes (6)
NSA 3-8	6	69.3	64.0	5.3	5	Yes (6)
NSA 3-9	8	68.2	67.4	0.8	5	No
NSA 3-10	65	69.8	64.8	5.0	5	Yes (65)
NSA 3-11	2	67.9	66.6	1.3	5	No
NSA 3-12	4	68.0	66.8	1.2	5	No
NSA 3-13	3	67.3	65.4	1.9	5	No
NSA 3-14	1	67.8	65.6	2.2	5	No
NSA 3-15	4	66.5	63.6	2.9	5	No
NSA 3-16	6	66.4	63.9	2.5	5	No
NSA 3-17	4	66.5	65.1	1.4	5	No
NSA 3-18	1	66.8	63.6	3.2	5	No
NSA 3-19	4	67.1	63.7	3.4	5	No
	135				Benefited Receptors	87

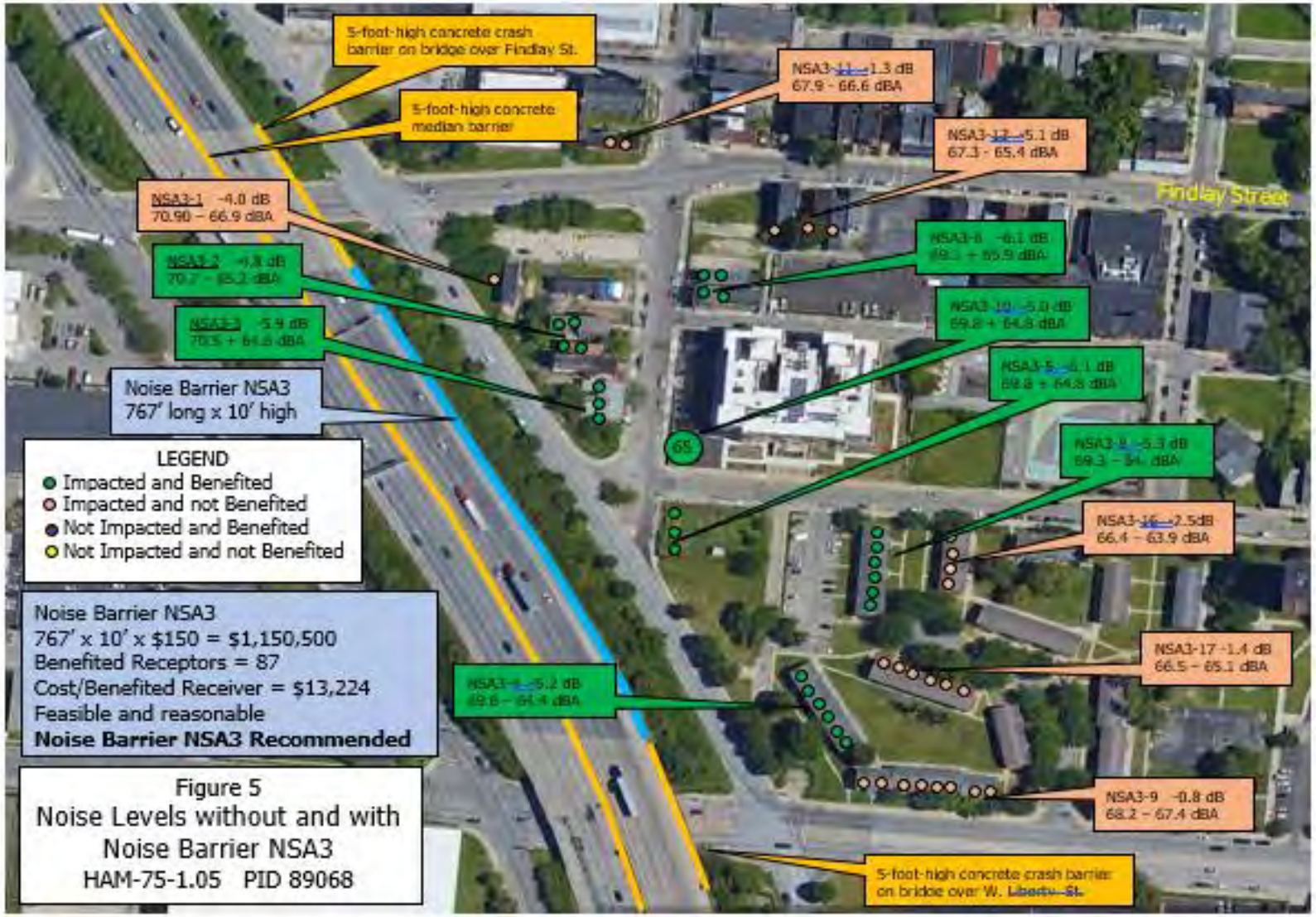

Figure 5
Noise Levels without and with Noise Barrier NSA3
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NSA 4

The section of I-75 that crosses over West Liberty Street was constructed in a fill configuration. The receptors near the north end of the NSA are at a lower elevation than I-75. Moving south, I-75 rises in elevation to where, at the mid-point of the NSA, receivers are at a similar elevation to I-75. Near the south end of the NSA, where I-75 crosses under Ezzard Charles Drive, receptors are situated at a higher elevation than I-75. The northbound entrance ramp from Winchell Avenue to I-75 will be removed as part of the project.

The proposed widening of I-75 will be mostly to the east of the existing highway. This would require the construction of a retaining wall along the edge of shoulder to accommodate the tight configuration and difference in elevation between I-75 and Winchell Road. The proposed retaining wall would begin near the south bridge approach of I-75 over West Liberty Street and continue south 405 feet to a point where the difference in elevation does no longer require a retaining wall. Only one noise barrier wall configuration was modeled for NSA 4 and it would begin at the I-75 south bridge approach over West Liberty Road. Continuing south, the noise barrier would begin a transition toward the ROW line and follow along the east side of the entrance ramp to a point where it would end along the ROW about 300 feet north of Ezzard Charles Drive. A five-foot-high concrete center median barrier was modeled as part of the NSA as well as a five-foot-high concrete crash barrier on the bridge over West Liberty Street. As shown on Figure 6, noise barrier wall NSA 4 would extend a total length of 1,020 feet and was evaluated at various heights as shown in Table 16.

Table 16
Noise Barrier Height Comparison
NSA 4 – Noise Barrier Modeled along EOS transitioning to the ROW

Scenario	Barrier Length	Barrier Height	Cost of Barrier	Impacted receptors	Benefited Receptors	Cost per Benefited Receptor	Maximum Insertion Loss (dB)	Recommended Height
NSA 4	1,020	8’	$1,224,000	151	20	$61,200	5.6	
	1,020	9’	$1377,000	151	24	$57,375	6.1	
	1,020’	10’	$1,530,000	151	62	$24,677	8.0	10’
	1,020’	11’	$1,683,000	151	104	$16,182	8.5	
	1,020’	12’	$1,836,000	151	116	$15,827	9.0	
	1,020’	13’	$1,989,000	151	124	$16,040	9.4	

As shown in Table 16, noise barrier wall NSA 4 would meet all the criteria for a reasonable and feasible noise abatement measure in several configurations. A noise barrier height of 10 feet would meet the ODOT criteria for being reasonable and feasible for noise abatement, as shown in Table 17. Barrier NSA 4 does meet the ODOT acoustically feasible noise reduction by benefiting 41% of the impacted receivers, provides a maximum insertion loss of 8.0 dB and also meets meet the ODOT reasonable cost criterion of $56,000/benefited receiver. The height of ten feet was selected because it is the maximum height a noise barrier on retaining wall can be constructed. Noise barrier wall NSA 4 at a height of 10 feet is recommended for noise abatement for NSA 4. Current cost estimates for a noise barrier wall constructed on a bridge structure or on a retaining wall, as is the case in NSA 4 is $150 ft^2.

Table 17 Noise Levels without and with construction of barrier wall NSA 4 along the EOS						
Receptor		2049 Build No Barrier Wall	2049 Build With Barrier Wall	Noise Reduction with Barrier Wall		
Site	Dwelling Units	Calculated Laeq1h	Calculated Laeq1h	Calculated	Goal	Benefited
		dBA	dBA	dB	dBA	
NSA 4-1	8	70.0	67.8	2.2	5	No
NSA 4-2	8	70.8	67.3	3.5	5	No
NSA 4-3	8	71.4	67.0	4.4	5	No
NSA 4-4	8	73.5	65.5	8.0	5	Yes (8)
NSA 4-5	8	74.5	68.1	6.4	5	Yes (8)
NSA 4-6	4	73.4	67.5	5.9	5	Yes (4)
NSA 4-7	4	73.0	67.5	5.5	5	Yes (4)
NSA 4-8	4	72.4	67.5	4.9	5	Yes (4)
NSA 4-9	4	72.0	67.4	4.6	5	Yes (4)
NSA 4-10	8	68.4	65.4	3.0	5	No
NSA 4-11	8	69.5	65.1	4.4	5	No
NSA 4-12	8	70.4	64.8	5.6	5	Yes (8)
NSA 4-13	6	68.0	64.1	3.9	5	No
NSA 4-14	6	67.6	63.6	4.0	5	No
NSA 4-15	6	68.5	63.8	4.7	5	Yes (6)
NSA 4-16	4	67.9	63.4	4.5	5	Yes (4)
NSA 4-17	4	67.7	63.2	4.5	5	Yes (4)
NSA 4-18	4	67.5	63.4	4.1	5	No
NSA 4-19	4	67.1	64.3	2.8	5	No
NSA 4-20	1	68.4	65.1	3.3	5	No
NSA 4-21	8	66.5	64.4	2.1	5	No
NSA 4-22	8	66.1	61.5	4.6	5	Yes (8)
NSA 4-23	6	67.2	63.6	3.6	5	No
NSA 4-24	8	63.8	62.4	1.4	5	No
NSA 4-25	8	63.0	60.6	2.4	5	No
NSA 4-26	8	66.7	62.8	3.9	5	No
NSA 4-27	8	67.1	63.5	3.6	5	No
NSA 4-28	4	64.8	61.3	3.5	5	No
NSA 4-29	4	64.0	60.4	3.6	5	No
NSA 4-30	4	64.1	60.5	3.6	5	No
NSA 4-31	4	64.1	60.9	3.2	5	No
	189				Benefited Receptors	62

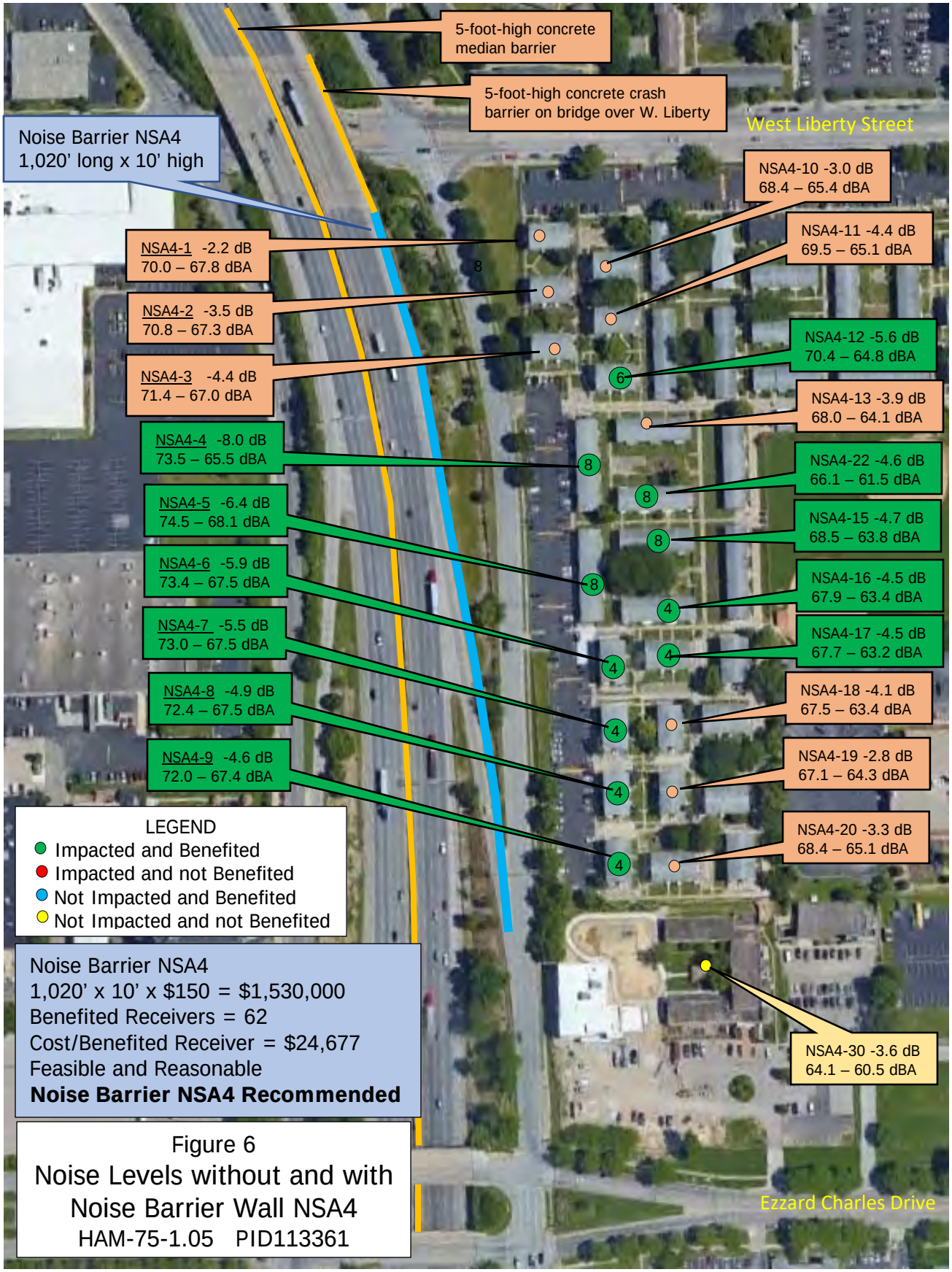


Figure 6
Noise Levels without and with Noise Barrier Wall NSA4
HAM-75-1.05 PID113361

NSA 5

NSA 5 is located on the east side of I-75 beginning on the south side of Ezzard Charles Drive and continuing south to West Court Street. All of the land use in NSA 5 is multi-family residential. NSA 5 is comprised of 17 receiver locations comprising 204 residential dwelling units located within 500 feet of I-75. All of the residential dwelling units were modeled as Activity Category B having a NAC of 67 dBA.

The section of I-75 by NSA 5 was constructed in a cut configuration with the I-75 roadway being 15 to 20 feet lower than the receivers. Only one noise barrier wall was modeled for NSA 5 and it would run along the east ROW line on the east side of Winchell Avenue. The noise barrier would begin just south of Ezzard Charles Drive and would continue south along the ROW line for a total length of 935 feet. A section of noise barrier, 435 feet in length would be constructed on top of a proposed retaining wall. A barrier wall constructed on top of a retaining wall would cost $150 per ft^2 and ground mounted noise barrier would have a cost of $40 ft^2. A five-foot-high concrete center median barrier was modeled as part of the NSA. As shown on Figure 7, noise barrier wall NSA 5 would extend a total length of 935 feet and was evaluated at various heights as shown in Table 18.

Table 18
Noise Barrier Height Comparison
NSA 5 – Noise Barrier Modeled along the ROW

Scenario	Barrier Length	Barrier Height	Cost of Barrier	Impacted receptors	Benefited Receptors	Cost per Benefited Receptor	Maximum Insertion Loss (dB)	Recommended Height
NSA 5	935′	8′	$682,000	156	72	$7,250	7.2	
	935′	9′	$767,250	156	72	$10,656	8.8	
	935′	10′	$852,500	156	72	$11,840	9.8	10′
	935′	11′	$937,750	156	72	$13,024	10.6	
	935′	12′	$1,023,000	156	72	$14,208	11.2	

As shown in Table 19, noise barrier wall NSA 5, at a height of ten feet, would meet all the criteria for a reasonable and feasible noise abatement measure. Barrier NSA 5 does meet the ODOT acoustically feasible noise reduction by benefiting 60% of the impacted receivers, provides a maximum insertion loss of 9.8 dB and also meets meet the ODOT reasonable cost criterion of $56,000/benefited receiver. Although other noise barrier heights were also shown to meet the reasonable and feasible criteria, a maximum height of ten feet can be constructed on retaining wall. Noise barrier wall NSA 5 at a height of 10 feet is recommended for noise abatement for NSA 5 north of the new pedestrian bridge location.

A Noise Barrier along West Court in front of the CAA Head Start Building was evaluated. The retaining wall along I-75 NB adjacent to the CAA Head Start playground is identified as Wall 2 in the HAM-75-1.05 set of plans. The design for this wall consists of cantilevered drilled shaft wall that will be over 20 ft. in height. The height of the wall requires larger than typical drilled shafts. The structural drilled shafts, permanent concrete facing and porous backfill behind the facing will occupy approximately 10 ft. of space the planned wall face. The geometry of the site is such that the edge of the new West Court Street in from the CAA facility is approximately 5 to 6 ft. from the proposed wall face. The West Court Street alignment would require revision, moving toward the CAA Head Start building, in order to install a typical ground mounted noise barrier. Thus,

a ground mounted noise barrier in this location is not feasible due to space constraints between the proposed West Court Street alignment and the CAA Head Start area.

Beyond the site constraint consideration, the proposed pedestrian bridge over the relocated Winchell Avenue ramp and mainline Ramp V includes an ADA compliant connection that ties directly into the sidewalk at West Court Street, in front of the CAA Head Start building. Including a noise barrier in this area would conflict with the ADA ramps and the sidewalk connection to West Court Street.

Table 19
Noise Levels without and with construction of barrier wall NSA 5 along ROW

Receptor		2049 Build No Barrier Wall	2049 Build With Barrier Wall	Noise Reduction with Barrier Wall		
Site	Dwelling Units	Calculated Laeq1h	Calculated Laeq1h	Calculated	Goal	Benefited
		dBA	dBA	dB	dBA	
NSA 5-1	12	76.2	66.4	9.8	5	Yes (12)
NSA 5-2	12	73.7	66.6	7.1	5	Yes (12)
NSA 5-3	12	72.9	65.8	7.1	5	Yes (12)
NSA 5-4	12	75.1	66.1	8.9	5	Yes (12)
NSA 5-5	12	74.1	65.7	8.4	5	Yes (12)
NSA 5-6	12	74.4	65.7	8.7	5	Yes (12)
NSA 5-7	12	69.5	67.8	1.6	5	No
NSA 5-8	12	67.6	64.8	2.8	5	No
NSA 5-9	12	65.0	63.1	1.9	5	No
NSA 5-10	12	65.1	62.6	2.5	5	No
NSA 5-11	12	65.6	62.4	3.1	5	No
NSA 5-12	12	67.3	63.3	4.0	5	No
NSA 5-13	12	65.3	62.2	2.8	5	No
NSA 5-14	12	63.5	62.5	1.0	5	No
NSA 5-15	12	62.5	61.2	1.3	5	No
NSA 5-16	12	63.4	61.5	1.9	5	No
NSA 5-17	12	63.1	61.0	2.0	5	No
NSA 5-18	5	69.3	65.6	3.7	5	No
NSA 5-19	5	73.3	69.8	3.5	5	No
NSA 5-20	1	62.0	60.8	1.2	5	No
NSA 5-21	1	63.6	62.3	1.4	5	No
NSA 5-22	1	64.6	64.7	0.3	5	No
NSA 5-23	2	68.4	68.7	0.1	5	No
NSA 5-24	1	63.3	63.1	0.3	5	No
	200				Benefited Receptors	72

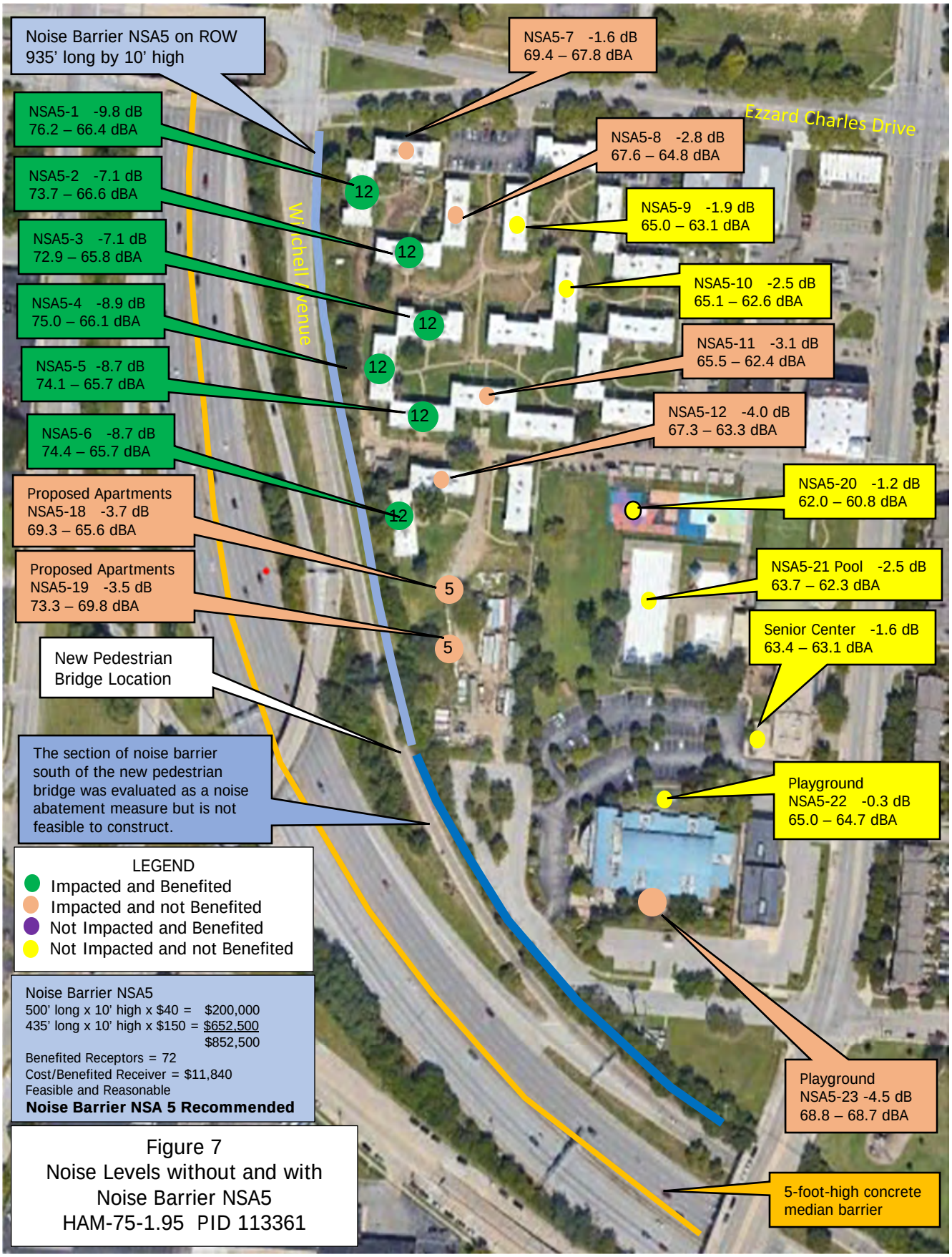


Figure 7
Noise Levels without and with
Noise Barrier NSA5
HAM-75-1.95 PID 113361

NSA 6

NSA 6 is located on the east side (north) of I-75 beginning east of the Linn Street overpass of I-75 and continuing east to Mound Street intersection at Winchell Avenue. NSA 6 consists of the Queensgate Playfield located east of Linn Street and south of West Court Street. There are two areas of exterior use at the playfield and include a children's playground area at the west end of the park and a ballfield located near the east side of the park. For noise modelling purposes, the southern point of the playground and home plate area of the ballfield were considered the locations of noise sensitive areas. Both receptor areas in the park were modeled as Activity Category C having an exterior NAC of 67 dBA. Queensgate Playfield is situated at a slightly higher elevation than I-75. The alignment of I-75, along this section or roadway, will be expanded to the north.

To determine the effectiveness of a noise barrier wall, an equivalent number of receptors is determined by using the following formula provided in the ODOT Noise Analysis Manual:

The equivalent number of receptors = number of occupants ÷ (# people/receptor) x usage
Where:
Number of occupants = number of visitors
Number of people per residence (household size Ohio Average) = 3
Usage = (Average number of outdoor hours used per day ÷ 24 hours) x (Average days used per year ÷ 365 days)

As shown on Figure 8, noise barrier wall NSA 6 would extend a total length of 680 feet and was evaluated at various heights and lengths as shown in Table 20. The only receiver impacted in NSA 6 is the playground. To determine the equivalent receptors for the playground: There is no parking lot at Queensgate Playfield so it was assumed that visitors would walk to the park. A one eighth-mile distance was assumed to be the furthest distance since there are other playgrounds in the area. There are 72 residences within that distance. Therefore: (72÷3) x (12÷24) x (180÷365) = 6 equivalent number of receptors.

Table 20
Noise Barrier Height Comparison
NSA 6 – Noise Barrier Modeled along 6 the ROW

Scenario	Barrier Length	Barrier Height	Cost of Barrier	Impacted receptors	Benefited Receptors	Cost per Benefited Receptor	Maximum Insertion Loss (dB)	Recommended Height
NSA 6	640'	9'	$230,400	6	0	---	2.0	
	640'	10'	$256,000	6	6	$42,666	7.9	10'
	640'	11'	$281,600	6	6	$46,933	8.1	
	640'	12'	$307,200	6	6	$51,200	8.3	
	640'	13'	$332,800	6	6	$55,466	8.5	
	640'	14'	$358,400	6	6	$59,733	6.7	

As shown in Table 21, a noise barrier wall at all evaluated heights would benefit 6 receivers. Barrier NSA 5 does meet the ODOT acoustically feasible noise reduction by benefiting 55% of the impacted receivers, provides a maximum insertion loss of 7.9 dB and also meets meet the ODOT reasonable cost criterion of

$56,000/benefited receiver. A noise barrier wall at a height of 10 feet would be reasonable and feasible and is recommended for noise abatement for NSA 6.

Table 21
Noise Levels without and with construction of barrier wall NSA 6 along ROW

Receptor		2049 Build No Barrier Wall	2049 Build With Barrier Wall	Noise Reduction with Barrier Wall		
Site	Dwelling Units	Calculated Laeq1h	Calculated Laeq1h	Calculated	Goal	Benefited
		dBA	dBA	dB	dBA	
NSA 6-1	6	72.4	63.6	8.8	5	Yes (6)
NSA 6-2	1	62.4	60.1	2.3	5	No
NSA 6-3	6	63.4	62.4	1.0	5	No
NSA 6-4	5	61.5	59.6	1.9	5	No
NSA 6-5	2	59.9	58.4	1.5	5	No
NSA 6-6	3	65.1	63.9	1.2	5	No
NSA 6-7	3	64.2	63.1	1.1	5	No
NSA 6-8	3	63.1	62.2	0.9	5	No
NSA 6-9	2	64.6	64.5	0.1	5	No
NSA 6-10	2	63.6	63.5	0.1	5	No
	33				Benefited Receptors	6

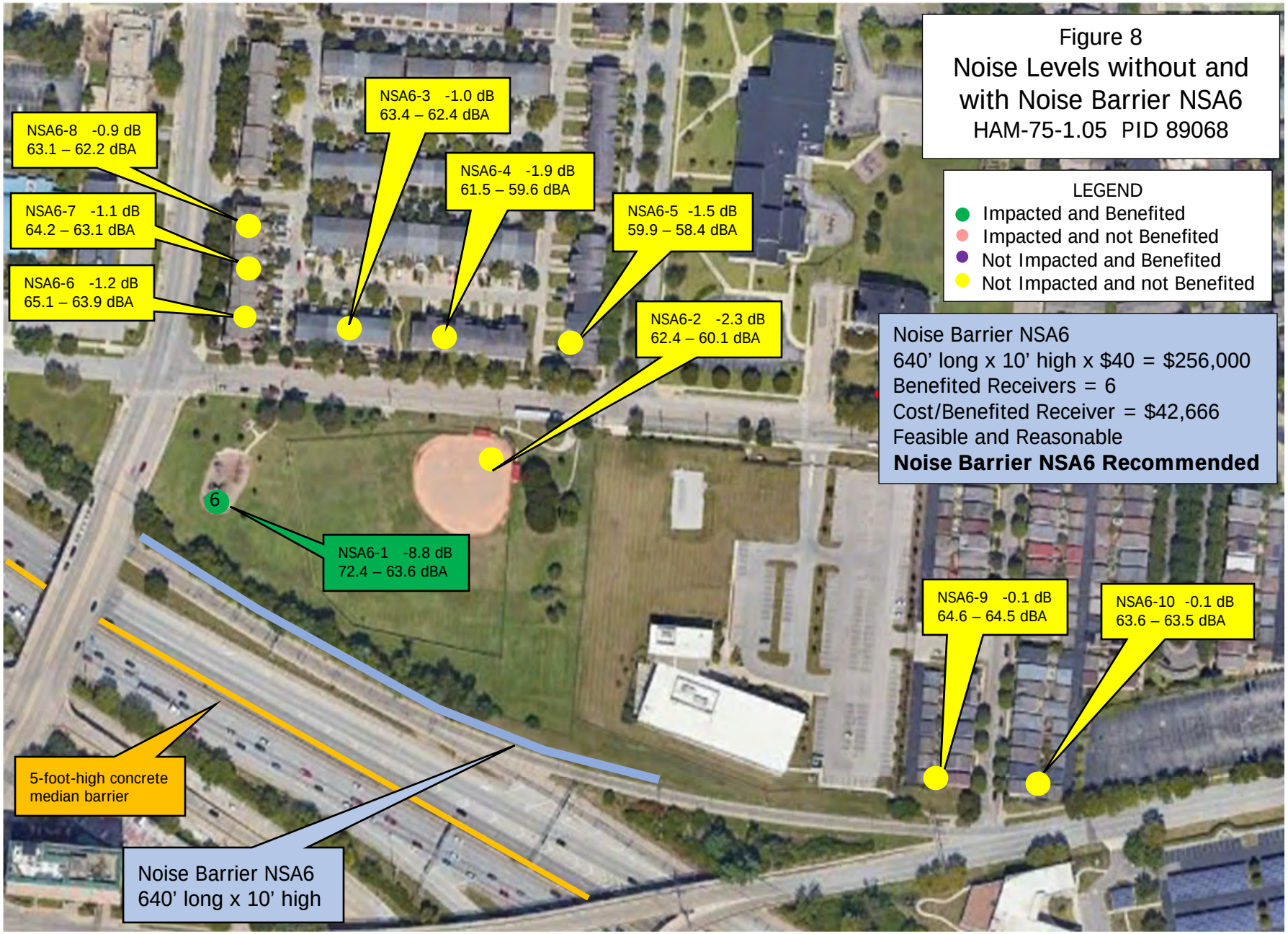


Figure 8
Noise Levels without and with Noise Barrier NSA6
HAM-75-1.05 PID 89068
LEGEND
Impacted and Benefited
Impacted and not Benefited
Not Impacted and Benefited
Not Impacted and not Benefited
NSA6-8 -0.9 dB
63.1 – 62.2 dBA
NSA6-7 -1.1 dB
64.2 – 63.1 dBA
NSA6-6 -1.2 dB
65.1 – 63.9 dBA
NSA6-3 -1.0 dB
63.4 – 62.4 dBA
NSA6-4 -1.9 dB
61.5 – 59.6 dBA
NSA6-5 -1.5 dB
59.9 – 58.4 dBA
NSA6-2 -2.3 dB
62.4 – 60.1 dBA
Noise Barrier NSA6
640' long x 10' high x $40 = $256,000
Benefited Receivers = 6
Cost/Benefited Receiver = $42,666
Feasible and Reasonable
Noise Barrier NSA6 Recommended
6
NSA6-1 -8.8 dB
72.4 – 63.6 dBA
NSA6-9 -0.1 dB
64.6 – 64.5 dBA
NSA6-10 -0.1 dB
63.6 – 63.5 dBA
5-foot-high concrete median barrier
Noise Barrier NSA6
640' long x 10' high

NSA 7

NSA 7 is located on the east side of I-75 south of Seventh Street and east of Central Avenue. NSA 7 consists of the Greater Cincinnati Firefighter's Memorial and the Union Baptist Church. The church has no areas for exterior use so the interior space was modeled for noise levels and it was determined the church will not be impacted by project noise.

The memorial and statue were originally dedicated on Memorial Day of 1968 to honor Cincinnati firefighters who have died in the line of duty. An annual service was held at the park on Memorial Day for many years honoring the deceased members of the Cincinnati Fire Department. The event is now held on Wednesday of Fire Prevention Week in October. In 2010, the park was redesigned, and the scope expanded to encompass firefighters throughout Greater Cincinnati and Northern Kentucky. The Memorial was officially rededicated on October 6, 2010. It is open to the general public on all other days of the year. The memorial is modeled as Activity Category C having an exterior NAC of 67 dBA. The memorial is situated at a slightly higher elevation than I-75 and is situated about 120 feet east of the entrance ramp to I-75 from West 4th Street. The I-75 mainline is located about 450 feet west of the memorial. Due to the higher elevation of the memorial in relation to the highway ramp, a noise barrier wall was modeled along the west right of way line.

To determine the effectiveness of a noise barrier wall, an equivalent number of receptors is determined by using the following formula provided in the ODOT Noise Analysis Manual:

The equivalent number of receptors = number of occupants ÷ (# people/receptor) x usage
Where:
Number of occupants = number of visitors
Number of people per residence (household size Ohio Average) = 3
Usage = (Average number of outdoor hours used per day ÷ 24 hours) x (Average days used per year ÷ 365 days)
For the memorial, the number of equivalent receptors was calculated for the day of the year in October that it is used for observance added to the equivalent receptors for a typical day in the year. It is assumed that 300 people attend the observance day for a duration of 3 hours. On a typical day it is assumed that there are ten visits per day during daylight hours on days of good weather.

Observance day: (300 people/3) x (3/24 hours) x (observance day/365 days year)= .03 equivalent receptors
Average day (10 people/3) x (12/24 hours) x (180/365 days)= .75 equivalent receptors. Adding the two numbers equals .78 or 1 equivalent receptor.

As shown on Figure 9, noise barrier wall NSA 7 would extend a total length of 300 feet and was evaluated at various heights and lengths as shown in Table 22. The only receiver impacted in NSA 7 is the memorial. There is one equivalent receptor.

Table 22
Noise Barrier Height Comparison
NSA 7 – Noise Barrier Modeled along the ROW

Scenario	Barrier Length	Barrier Height	Cost of Barrier	Impacted receptors	Benefited Receptors	Cost per Benefited Receptor	Maximum Insertion Loss (dB)	Recommended Height
NSA 7	300'	8'	$96,000	1	1	$96,000	5.2	Noise barrier not recommended
	300'	9'	$108,000	1	1	$108,000	6.1	
	300'	10'	$120,000	1	1	$120,000	6.8	
	300'	11'	$132,000	1	1	$132,000	7.2	

As shown in Table 22, a noise barrier wall is not feasible and reasonable at any height. None of the configurations would meet the cost reasonable criterion of $56,000/benefited receiver. A noise barrier wall at any height would not be cost reasonable and therefore a noise barrier wall is not recommended for noise abatement for NSA 7.

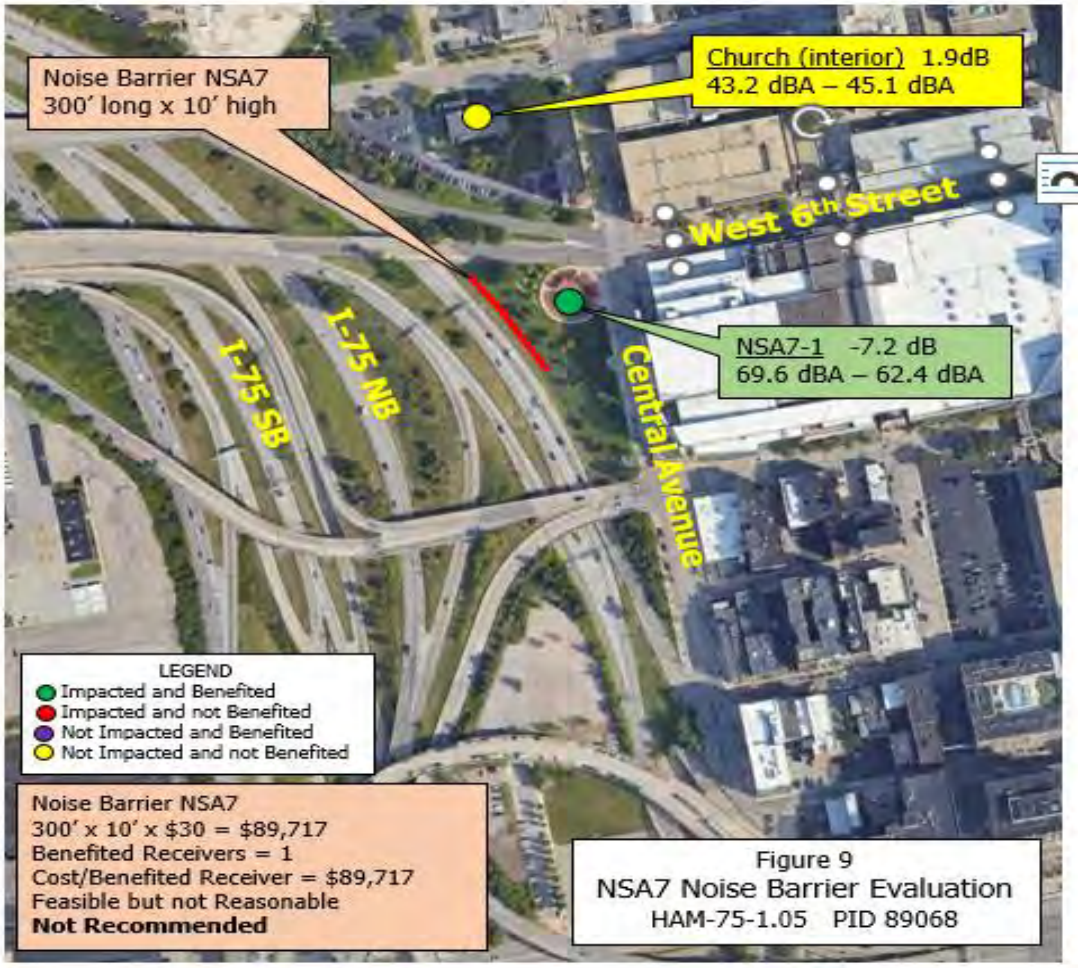


Figure 9
NSA7 Noise Barrier Evaluation
HAM-75-1.05 PID 89068

NSA 8

NSA 8 is located on the east side of I-75, on the east side of Central Avenue south of Perry Street and north of McFarland Street. NSA 8 is comprised of two large buildings that are used for multi-family residential. As shown on Figure 10, the building in the southeast corner of Grand Avenue and Perry Street has no areas of frequent human exterior use and was not modeled for traffic noise. The building on the northeast corner of

Central Avenue and McFarland Street is a seven-story residential structure with areas of exterior use (open air balconies) facing the highway. The building has five receiver locations comprising 30 residential dwelling units and were modeled as Activity Category B having a NAC of 67 dBA.

The section of I-75 and its associated connecting ramps, including I-71 are mostly constructed on bridge structures. The first two floors of the apartment building consist of a parking garage. The upper five residential floors are situated at a similar (third floor) or higher (floors four and up) elevation than the highways and ramps to the west. Only one noise barrier wall location was modeled for NSA 8 and it would run along the I-71 ramp that carries traffic from southbound I-71 to southbound I-75. As shown on Figure 10, the ramp was located on the on the north and east side of the I-71 ramp having a length of about 500 feet. The barrier would be constructed on the bridge structure and would have a cost $150 per ft^2. Noise barrier wall NSA 8 was evaluated at various heights as shown in Table 23.

Table 23
Noise Barrier Height Comparison
NSA 8 – Noise Barrier Modeled along Bridge Ramp

Scenario	Barrier Length	Barrier Height	Cost of Barrier	Impacted receptors	Benefited Receptors	Cost per Benefited Receptor	Maximum Insertion Loss (dB)	Recommended Height
NSA 8	595'	13'	$1,160,250	30	0	N/A	0.5	No Noise Barrier Recommended
	595'	14'	$1,249,500	30	0	N/A	0.6	
	595'	15'	$1,338,750	30	0	N/A	0.6	
	595'	16'	$1,428,000	30	0	N/A	0.6	

As shown in Table 24, a noise barrier wall is not reasonable and feasible at any height. None of the configurations would provide the minimum noise reduction criterion of 7.0 dB or meet the cost reasonable criterion of $42,000/benefited receiver. A noise barrier wall at any height would not be feasible or cost reasonable and therefore a noise barrier wall is not recommended for noise abatement for NSA 8.

Table 24
Noise Levels without and with construction of barrier wall NSA 8 along bridge EOS

Receptor		2049 Build No Barrier Wall	2049 Build With Barrier Wall	Noise Reduction with Barrier Wall		
Site	Dwelling Units	Calculated LAeq1h	Calculated LAeq1h	Calculated	Goal	Benefited
		dBA	dBA	dB	dBA	
NSA 8 3rd floor	6	70.5	70.0	0.5	5	No
NSA 8 4th floor	6	71.1	70.7	0.4	5	No
NSA 8 5th floor	6	71.3	71.0	0.2	5	No
NSA 8 6th floor	6	71.5	71.2	0.3	5	No
NSA 8 7th floor	6	71.5	71.3	0.2	5	No
	30				Benefited Receptors	0

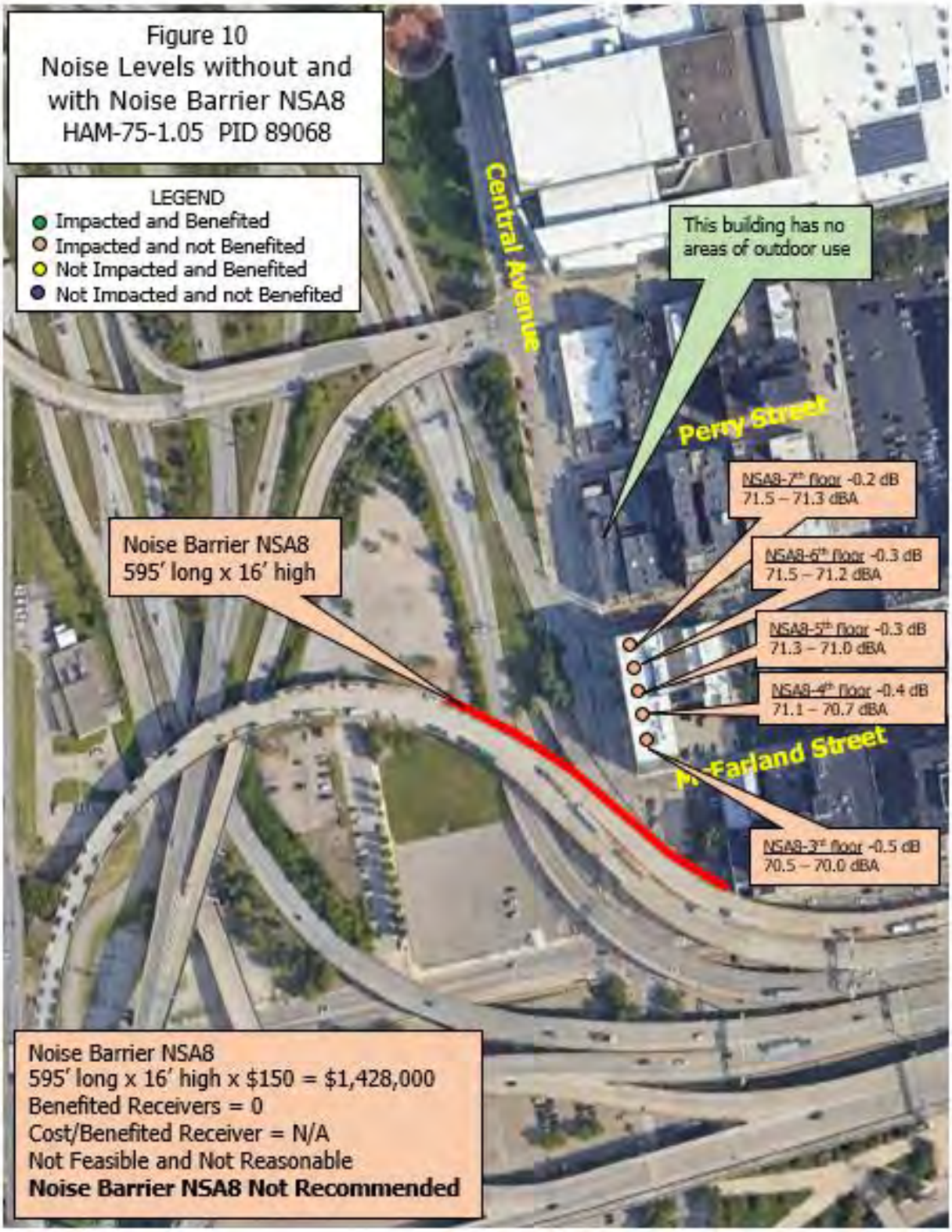


Figure 10
Noise Levels without and with Noise Barrier NSA8
HAM-75-1.05 PID 89068
LEGEND
Impacted and Benefited
Impacted and not Benefited
Not Impacted and Benefited
Not Impacted and not Benefited
Central Avenue
This building has no areas of outdoor use
Perry Street
NSA8-7th floor -0.2 dB
71.5 – 71.3 dBA
NSA8-6th floor -0.3 dB
71.5 – 71.2 dBA
NSA8-5th floor -0.3 dB
71.3 – 71.0 dBA
NSA8-4th floor -0.4 dB
71.1 – 70.7 dBA
Noise Barrier NSA8
595′ long x 16′ high
NSA8-3rd floor -0.5 dB
70.5 – 70.0 dBA
Noise Barrier NSA8
595′ long x 16′ high x $150 = $1,428,000
Benefited Receivers = 0
Cost/Benefited Receiver = N/A
Not Feasible and Not Reasonable
Noise Barrier NSA8 Not Recommended

NSA 9

NSA 9 is located in the far south of the study area on the east side of I-75. NSA 9 is the Cincinnati Bengals outdoor practice facility. The facility is located about 650' east of the proposed new bridge. The facility is surrounded by surface streets and the primary noise source in the area of the facility is US 42. The facility is modeled as NAC Activity Category C having an exterior NAC of 67 dBA and is situated at approximately 50 feet lower elevation than I-75. The facility was predicted to experience a design year noise level of 65.1 dBA which would not exceed the applicable NAC of 67 dBA. The analysis of noise abatement measures is not warranted for NSA 9.

Figure 11
NSA9 Existing and Design Year Noise Levels
HAM-75-1.05 PID89068

Section 6.0
CONSTRUCTION NOISE

Noise sensitive receptors will also be subjected to noise impacts associated with the construction phase of the proposed project. Construction noise will generate temporary noise impacts on adjacent and nearby properties, particularly those in residential land use. Construction noise will be emitted intermittently by a range of construction equipment at varying levels of intensity based on the types of operations being performed and the number of pieces of equipment in operation at any given time. Depending on project circumstances, options are available to minimize the temporary adverse noise impacts, including the proper maintenance of equipment, most notably adequate lubrication, and non-leaking mufflers, equipment restriction modifications to reduce noise emissions and restrict the use of certain equipment by location and time of day, controlling non-construction traffic by limiting heavy truck movements on residential streets, maximizing the distance between equipment and receptors where possible and, enclosing or screening noisy activities or stationary equipment. The contractor will be required to adhere to any and all federal, state, and local noise controls or ordinances in effect within the project limits. It will be the responsibility of the contractor to monitor construction noise and be aware of violations of the maximum allowable noise levels. Consideration of construction noise minimization and mitigation (as necessary) is required pursuant to CFR 772.19. Additional information on construction noise can be accessed in the FHWA Construction Noise Handbook (FHWA-HEP-06-015) and the Roadway Construction Noise Model (RCNM) Version 2.0.

During design development, in addition to evaluating parameters such as cost, schedule, access, traffic impacts, safety, risk, etc., in areas where noise sensitive receptors are present, the project team will also consider construction noise abatement. Some examples would be:

- Foundation type selection. Different foundation types have varying effects on the intensity and duration of construction noise. (e.g. piling versus cast-in-place concrete shafts)
- Installation methodology. The same feature of work can be achieved in a variety of ways and planned for in the design phase. This could involve using mechanical or chemical splitting as means of demolition versus the use of explosives, or drilling and setting a retaining wall versus driving soldier piles.
- Storage and staging areas. Identification or acquisition of locations/properties that provide separation from sensitive receptors. This could be by proximity or by the use of existing barriers.
- Phasing of work. Consideration of how work is phased can have a prominent impact on the duration for which a noise sensitive receptor is exposed to construction noise from a particular feature of work. This concept is especially evident when dealing with a receptor like a school that is out of session during the summer. Phasing the project to allow/facilitate all high decibel work to be completed at once, during this window, not only reduces, but eliminates this impact.
- Permanent noise barriers. Consideration will be given to the feasibility of constructing permanent noise barrier earlier in the project that are needed for noise abatement of the project's final configuration, to help mitigate temporary construction noise.
- Maintenance of Traffic (MOT). The development of the MOT plan provides a variety of opportunities with respect to mitigation of construction noise with respect to both intensity and duration. These include considering the location of noise sensitive receptors when setting detour routes and

establishing haul routes. Note it will not only be important to evaluate the official routes, but also the "defacto" routes that may also be used as these can often result in heavy truck traffic utilizing residential streets. MOT plan development also provides for an avenue to evaluate the availability of night-time and weekend work in conjunction with the permitted lane closure maps.

- Incentives. There are provisions to establish schedule based incentives. These incentives could be used to help minimize the duration of overall construction noise.

During construction, the project team will be both proactive and reactive with respect to construction noise. This will be accomplished through:

- Equipment selection. Often there is a variety of equipment available to the Contractor to perform a particular task. Where noise sensitive receptors are present, specific consideration will be given to the selection of equipment to be utilized. This may include: the age of the equipment as newer equipment typically employs new technology with respect to emissions and noise, if shielding or engine enclosures are standard, size appropriateness and power source (gas/diesel, electric/solar, pneumatic, hydraulic).
- Equipment maintenance. The Contractor will have an established maintenance program for their equipment fleet. They will ensure that necessary maintenance/repairs are performed before putting equipment into service. They will also be pulled out of service to address deficiencies identified during operation. When noise sensitive receptors are present, specific attention will be given to the muffler systems on all combustion engines, as that is often a primary source of construction noise.
- Screening/shielding/barriers. Having something between the source and the receptor is an effective mitigation technique and can take on many forms. The project team will take advantage of existing features where practical to minimize the impacts of construction noise on receptors. This will include bridges, berms, retaining walls, buildings and noise walls. Additionally, temporary features already necessary for performing the work like stockpiles and tool trailers can also be by strategically utilized to assist in this effort. Lastly, it may be necessary to construct temporary features such as hay bales specifically for this purpose.
- Scheduling of Work. If not dictated during design, the Contractor will give consideration to noise sensitive receptors when scheduling work. This may include: time of day, day of week, number of consecutive hours/days, special events and number of crews. With a project of this magnitude, there will also be opportunities to schedule concurrent operations in the same timeframe to reduce the overall duration of exposure, with potentially minimal increase in intensity.
- Education of Staff. The project staff will be educated on the noise sensitive receptors. This will include not only their location, but also the type (resident, school, business, etc.), hours of operation and any prior concerns communicated.
- Communication plan. As part of the project's overall communication plan, there will be a protocol established to notify the public, receive concerns/complaints and provide responses and/or resolutions. It will clearly provide contact information to submit electronically or via phone. All noise related complaints will be investigated by project personnel.

Section 7.0
UNDEVELOPED LANDS

Information for Local Officials

In accordance with 23 CFR 772.17, in an effort to prevent future traffic noise impacts on currently undeveloped lands, highway agencies shall inform local officials within whose jurisdiction the highway project is located of the following:

(a) The best estimation of future noise levels (for various distances from the highway improvement) for both developed and undeveloped lands and other properties in the immediate vicinity of the project,

(b) Information that may be useful to local communities to protect future land development from becoming incompatible with anticipated highway noise levels,

For undeveloped properties which have not received a building permit by the date of National Environmental Policy Act (NEPA) document approval, noise analyses for the Design Year 2049 were performed to determine the offset from the roadway at which future noise levels would approach an FHWA NAC. All of the project corridor on the west side of I-75 is developed with industrial or commercial land use. The east side of I-75 entirely developed with residential land use with some blocks of commercial land. Any future development on the east side of I-75 is expected to be new residential infill where older residential buildings have been removed.

The Transportation Noise Model was used to estimate the distance from the proposed roadway edge of pavement to a distance where traffic noise impact would occur for Activity Category B based on the Design Year traffic volumes. The same traffic volumes and vehicle mix was used for this estimation purpose as was used for the Design Year 2049 Build condition. The dBA levels shown below are measured in feet from the proposed edge of pavement to points where 71 dBA (Activity Category E) would be expected to be encountered and to where 66 dBA (Activity Categories B and C) would be expected to be encountered.

New development east and west of I-75

66 dBA contour	320 feet
71 dBA contour	129 feet

The distance away from the edge of shoulder on the east side of I-75 to where the 66 dBA contour line would be expected to occur is at an average distance of 186 feet. The construction of any future residential land use within 320 feet of the proposed edge of shoulder in this section of the roadway corridor would be expected to experience noise levels that would exceed the Category B NAC. The construction of any future commercial land use within 129 feet of the proposed edge of shoulder in this section of roadway would be expected to experience noise levels that would exceed the Category E NAC. Similar logic can be used to identify distances where future impact would be expected to the west side of I-75.

Section 8.0
CONCLUSION AND RECOMMENDATION

A noise analysis was prepared for all noise sensitive receivers located within 500 feet of the existing driving lanes and associated roadway ramps along I-75 from south of Marshall Avenue to a point just south of the I-75/I-71 interchange. The noise analysis for this project was conducted in accordance with the Code of Federal Regulations (CFR), Title 23, Part 772, and the U.S. Department of Transportation, Federal Highway Administration (FHWA), Highway Traffic Noise Analysis and Abatement Policy and Guidance (FHWA, 2011). The project was further conducted in accordance with the Ohio Department of Transportation (ODOT) *Analysis and Abatement of Highway Traffic Noise Policy Statement* (ODOT, October 2023) and the changes, clarifications and additions incorporated into ODOT's *Noise Analysis Manual: Analysis and Abatement of Highway Traffic Noise* dated April 2015. Existing year 2029 noise levels and noise levels for Design Year 2049 Build Refined Alternative (Concept I-W) were modeled using the FHWA Traffic Noise Model (TNM) Version 2.5 (FHWA, 1998).

The study area has been divided into nine noise sensitive areas and the west side of I-75. All of the NSAs have been modeled for the Existing Year 2029 and Design Year 2049 using certified traffic data provided by ODOT dated May 2023. Noise sensitive receivers were predicted to experience traffic noise levels above the applicable FHWA NAC in the design year. In accordance with 23 CFR Part 772, when noise impacts are identified as a result of a proposed action, noise abatement measures must be considered for impacted sites predicted to approach or exceed the applicable FHWA NAC. Noise abatement was not evaluated for receivers on the west side of I-75 as there were too few receivers and those receivers are located too far apart from one another for noise abatement to be feasible and reasonable. Noise abatement measures, including noise barrier walls, were evaluated for the impacted receivers on the east side of I-75. Noise barrier walls were determined to be both a reasonable and a feasible noise abatement measure for the impacted receptors in NSA 2, NSA 3, NSA 4, NSA 5 and NSA 6. The noise barrier walls are recommended for construction as part of the project.

A noise barrier evaluation summary of all of the NSA scenarios is presented in Table 25 on the following page. Noise barrier walls that were determined to be both feasible and reasonable are highlighted in green.

Table 26, on page 53, summarizes the recommended noise barrier walls for the project. Figure 12, on page 54 shows the recommended noise barrier wall locations for the project.

10' tall noise walls were recommended along the NB I-75. They will be a structure mounted post and panel or integral design. ODOT is firmly committed to building 57" tall parapets on the bridges along the northbound side of I-75. In addition, 57-inch barriers will be built in the median. ODOT has standard designs for these barriers and bridges will be designed to accommodate the 57" parapet. The 57" median wall is an ODOT standard and will help contribute to noise reduction, but it is understood more fully that they are being installed for safety and that this is an enhancement, not a mitigation.

In accordance with the ODOT Noise Policy – Analysis and Abatement of Highway Traffic Noise, ODOT will conduct noise abatement public involvement with benefited receptors where noise abatement has been determined reasonable and feasible.

Table 25
Noise Barrier Evaluation Summary

Barrier	Barrier Length (feet)	Barrier Height (feet)	Square Footage of Barrier	Maximum Insertion Loss[a] (dB)	Impacted Receptors	Benefitted Receptors [b]	Barrier Cost [c]	Cost per benefited receptor	Effectiveness		Barrier Location [f]	Barrier Recommended [g]
									Feasible [d]	Reasonable [e]		
Cincinnati Job Corps	674	18	12,132	6.6	2	2	$485,280	$242,640	Yes	**No**	ROW	**No**
NSA 1	1,626	20	32,520	6.5	65	21	$1,300,800	$61,942	**No**	**No**	EOS	**No**
NSA 2	1,115	10	11,150	8.9	76	44	$1,672,500	$38,011	Yes	Yes	EOS on Retaining Wall	Yes
NSA 3	767	10	7,670	6.7	135	87	$1,150,500	$13,224	Yes	Yes	EOS on Retaining Wall	Yes
NSA 4	1,020	10	10,200	8.0	153	62	$1,530,000	$24,677	Yes	Yes	EOS/ROW on Retaining Wall	Yes
NSA 5 On Ground On Wall	935 500 435	10	9,350	9.8	133	72	$852,500 $200,000 $652,500	$11,840	Yes	Yes	ROW Partial Retaining Wall	Yes
NSA 6	640	10	6,400	8.8	6	6	$256,000	$42,666	Yes	Yes	ROW	Yes
NSA 7	300	11	3,000	6.8	1	1	$132,000	$132,000	Yes	**No**	ROW	**No**
NSA 8	595	16	9,520	0.6	30	0	$1,428,000	N/A	**No**	**No**	EOS	**No**
NSA 9	No impacts identified											

[a] Insertion Loss (IL) is the maximum noise reduction provided by the noise barrier.
[b] A receptor is considered benefited by the noise barrier if the IL is 5dB or greater.
[c] Cost is based on $40 per square foot of noise barrier constructed on ground and $150 per square foot constructed on structure.
[d] A noise barrier is considered feasible if it can provide a substantial noise reduction of at least 7dB at one receptor location.
[e] A noise barrier is considered cost reasonable if the cost per benefited receptor is less than $56,000.
[f] The location of the noise barrier wall: ROW=noise barrier is located along the right of way line; EOS=noise barrier is located along the edge of shoulder.
[g] Noise barrier recommendation is based on the number of benefited receptors and the relative cost per benefited receptor.

Table 26.
Recommended Noise Barrier Walls

Barrier	Barrier Length (feet)	Barrier Height (feet)	Square Footage of Barrier	Maximum Insertion Loss[a] (dB)	Impacted Receptors	Benefitted Receptors [b]	Barrier Cost [c]	Cost per benefited receptor	Effectiveness		Barrier Location [f]	Barrier Recommended [g]
									Feasible [d]	Reasonable [e]		
NSA 2	1,115	10	11,150	8.9	76	44	$1,672,500	$38,011	Yes	Yes	EOS on Retaining Wall	Yes
NSA 3	767	10	7,670	6.7	135	87	$1,150,500	$13,224	Yes	Yes	EOS on Retaining Wall	Yes
NSA 4	1,020	10	10,200	8.0	153	62	$1,530,000	$24,677	Yes	Yes	EOS/ROW on Retaining Wall	Yes
NSA 5 On Ground On Wall	935 500 435	10	9,350	9.8	133	72	$852,500 $200,000 $652,55	$11,840	Yes	Yes	ROW Partial Retaining Wall	Yes
NSA 6	640	10	6,400	8.8	6	6	$256,000	$42,666	Yes	Yes	ROW	Yes

[a] Insertion Loss (IL) is the maximum noise reduction provided by the noise barrier.
[b] A receptor is considered benefited by the noise barrier if the IL is 5dB or greater.
[c] Cost is based on $40 per square foot of noise barrier constructed on ground and $150 per square foot constructed on structure.
[d] A noise barrier is considered feasible if it can provide a substantial noise reduction of at least 7dB at one receptor location.
[e] A noise barrier is considered cost reasonable if the cost per benefited receptor is less than $56,000.
[f] The location of the noise barrier wall: ROW=noise barrier is located along the right of way line; EOS=noise barrier is located along the edge of shoulder.
[g] Noise barrier recommendation is based on the number of benefited receptors and the relative cost per benefited receptor.

Figure 12
Recommended Noise Barrier Wall Locations
HAM-75-1.08 PID 89068

Section 9.0
REFERENCES

Code of Federal Regulations (CFR) Title 23, Part 772, U.S. Department of Transportation, Federal Highway Administration (FHWA), *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. Washington, D.C.

Ohio Department of Transportation, Office of Environmental Services. April 2015. ODOT's Highway Traffic Noise Analysis Manual .

Ohio Department of Transportation, Office of Environmental Services. ODOT, October, 2023. ODOT noise policy pertaining to *Standard Procedure for Analysis and Abatement of Highway Traffic Noise*

U.S. Department of Transportation, Federal Highway Administration. January, 1998. *FHWA Traffic Noise Model (TNM).* Report No. FHWA-PD-96-009. Washington, D.C.

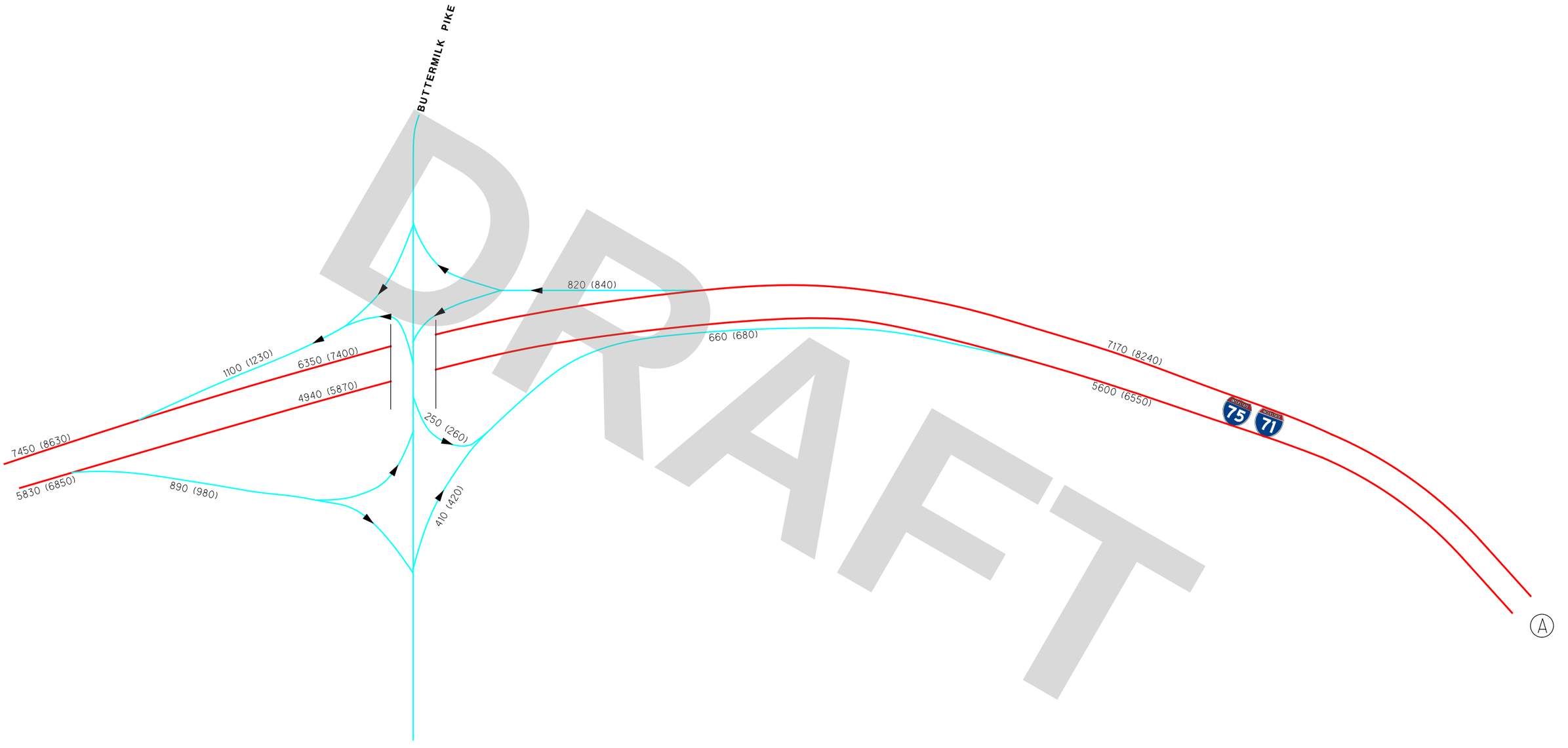
U.S. Department of Transportation, Federal Highway Administration. May, 1996. *Measurement of Highway-Related* Report No. FHWA-PD-96-046. Washington, D.C.

U.S. Department of Transportation, Federal Highway Administration. January, 2011. *Highway Traffic Noise Analysis and Abatement - Policy and Guidance.* Washington, D.C.

APPENDIX A
ODOT Certified Traffic Data
MAY 2023

NOTE

BUTTERMILK DDI CONFIGURATION IS NOT INCLUDED IN BRENT SPENCE BRIDGE PROJECT.



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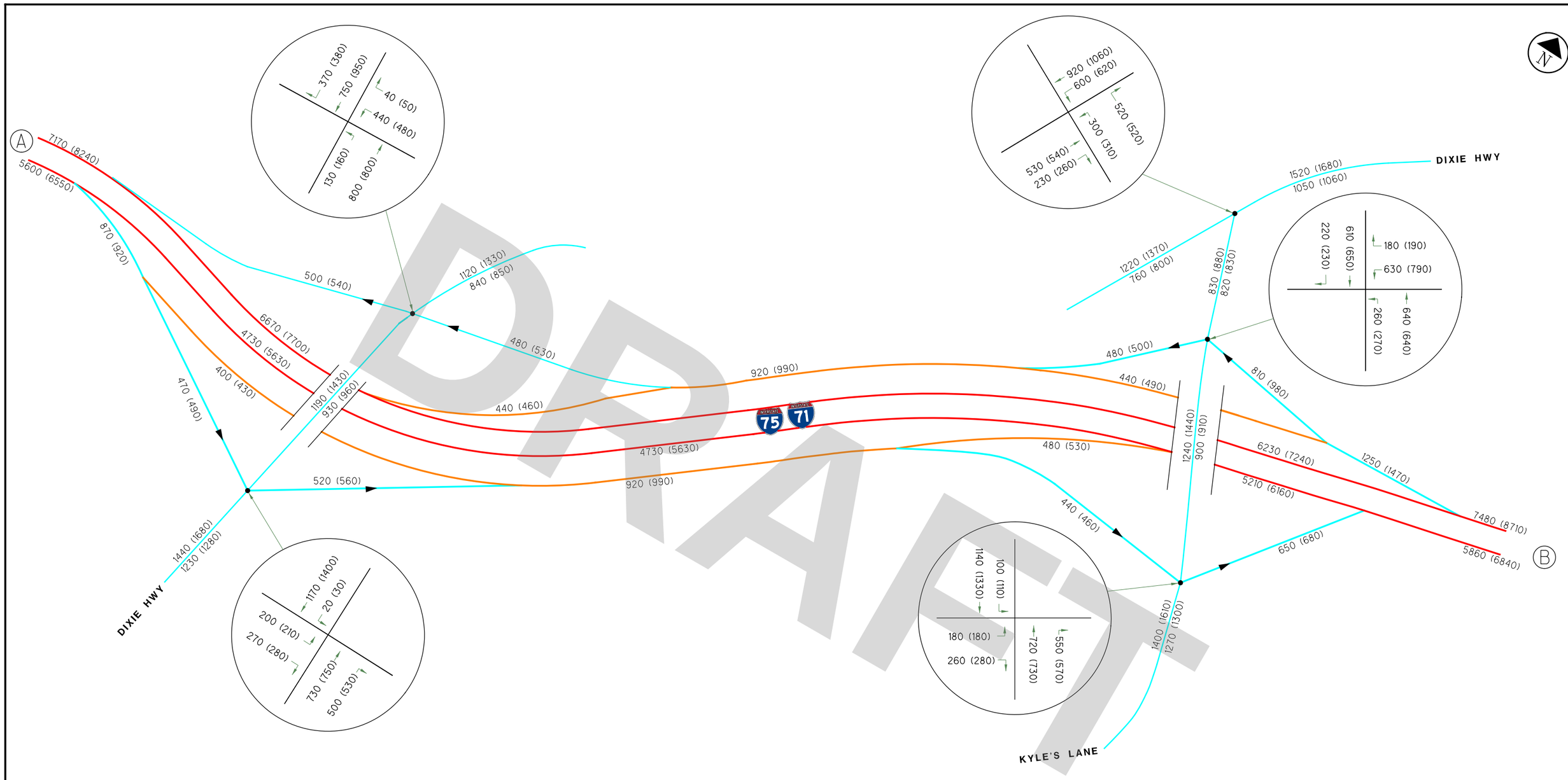
XXXX [XXXX] = 2029 AM DHV [2049 AM DHV]

I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS

BRENT SPENCE BRIDGE	
2029 & 2049 PM DHV TRAFFIC FORECASTS	
PLATE 1 OF 12 (KY)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE
HNTB	



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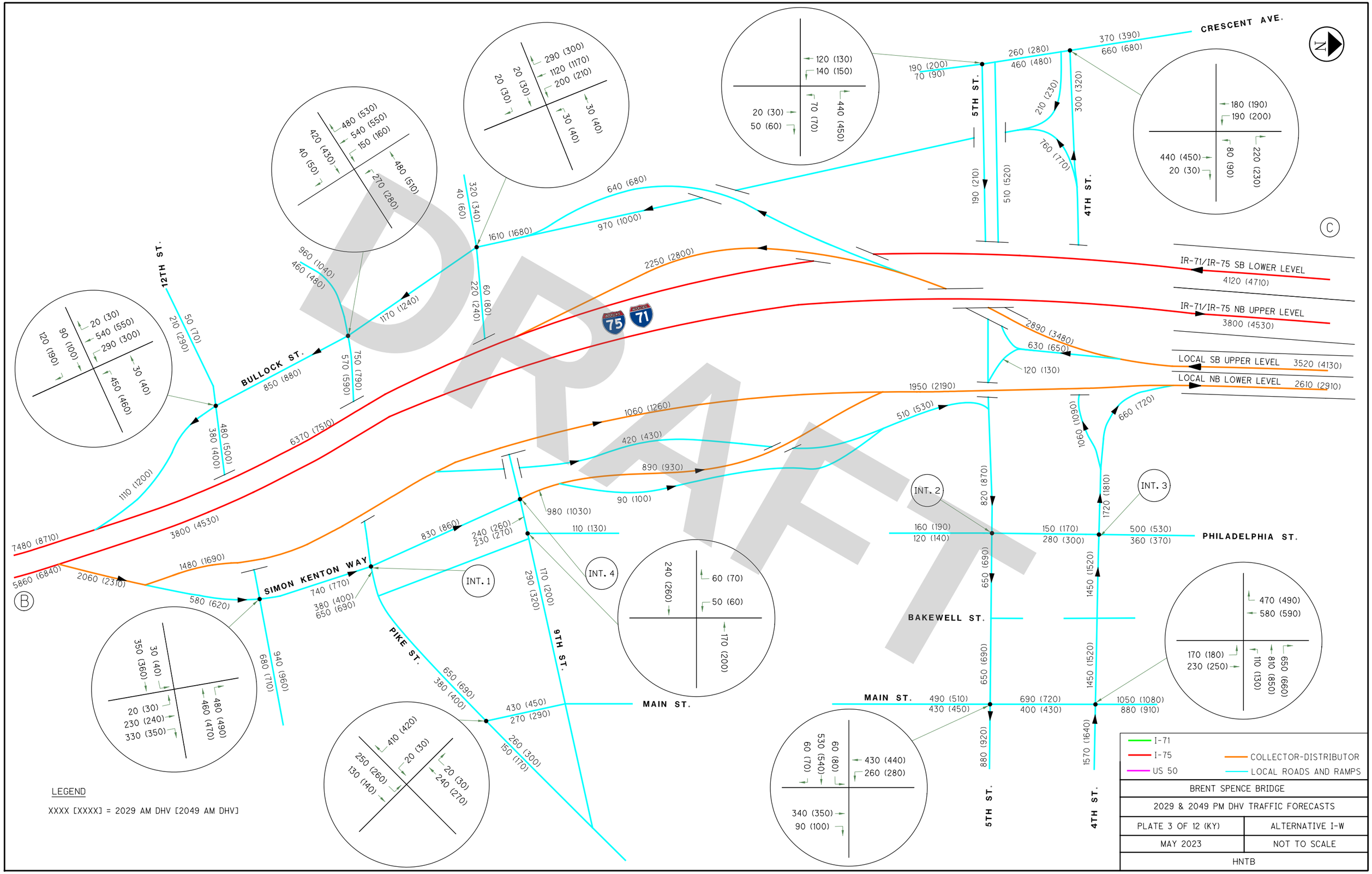
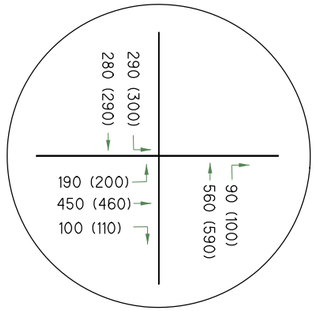
I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS

BRENT SPENCE BRIDGE	
2029 & 2049 PM DHV TRAFFIC FORECASTS	
PLATE 2 OF 12 (KY)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE
HNTB	

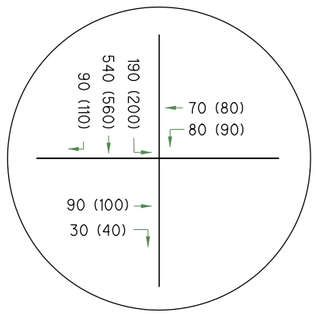

CRESCENT AVE.
5TH ST.
4TH ST.
BULLOCK ST.
12TH ST.
SIMON KENTON WAY
PIKE ST.
9TH ST.
MAIN ST.
BAKEWELL ST.
PHILADELPHIA ST.
INT. 1
INT. 2
INT. 3
INT. 4
IR-71/IR-75 SB LOWER LEVEL 4120 (4710)
IR-71/IR-75 NB UPPER LEVEL 3800 (4530)
LOCAL SB UPPER LEVEL 3520 (4130)
LOCAL NB LOWER LEVEL 2610 (2910)
LEGEND
XXXX [XXXX] = 2029 AM DHV [2049 AM DHV]
I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS
BRENT SPENCE BRIDGE
2029 & 2049 PM DHV TRAFFIC FORECASTS
PLATE 3 OF 12 (KY)
ALTERNATIVE I-W
MAY 2023
NOT TO SCALE
HNTB

INT. 1



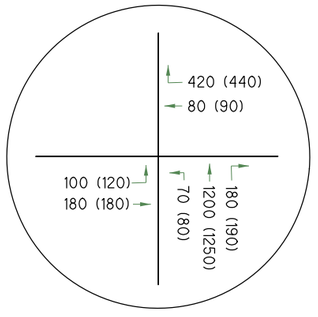
SIMON KENTON WAY & PIKE STREET

INT. 2



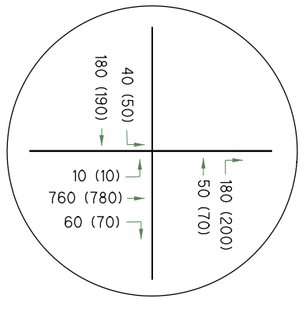
5TH STREET & PHILADELPHIA STREET

INT. 3



4TH STREET & PHILADELPHIA STREET

INT. 4



JILLIANS WAY & 9TH STREET

I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS

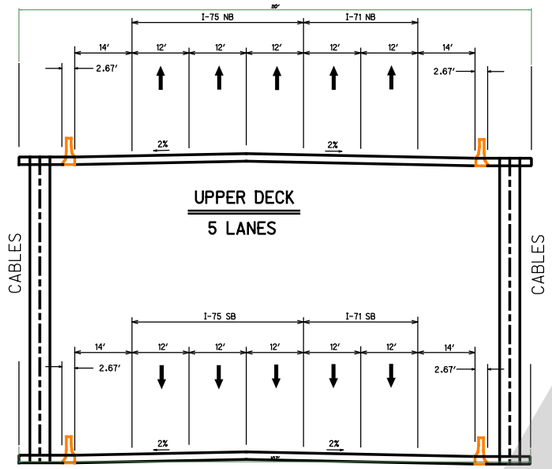
BRENT SPENCE BRIDGE

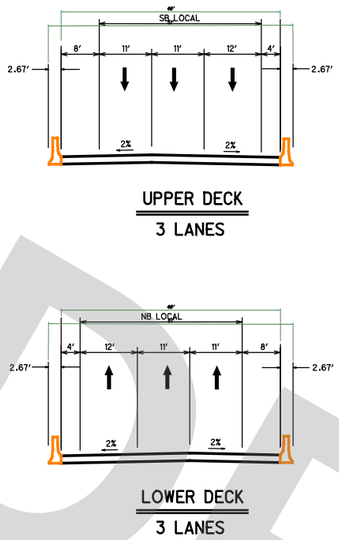
2029 & 2049 PM DHV TRAFFIC FORECASTS

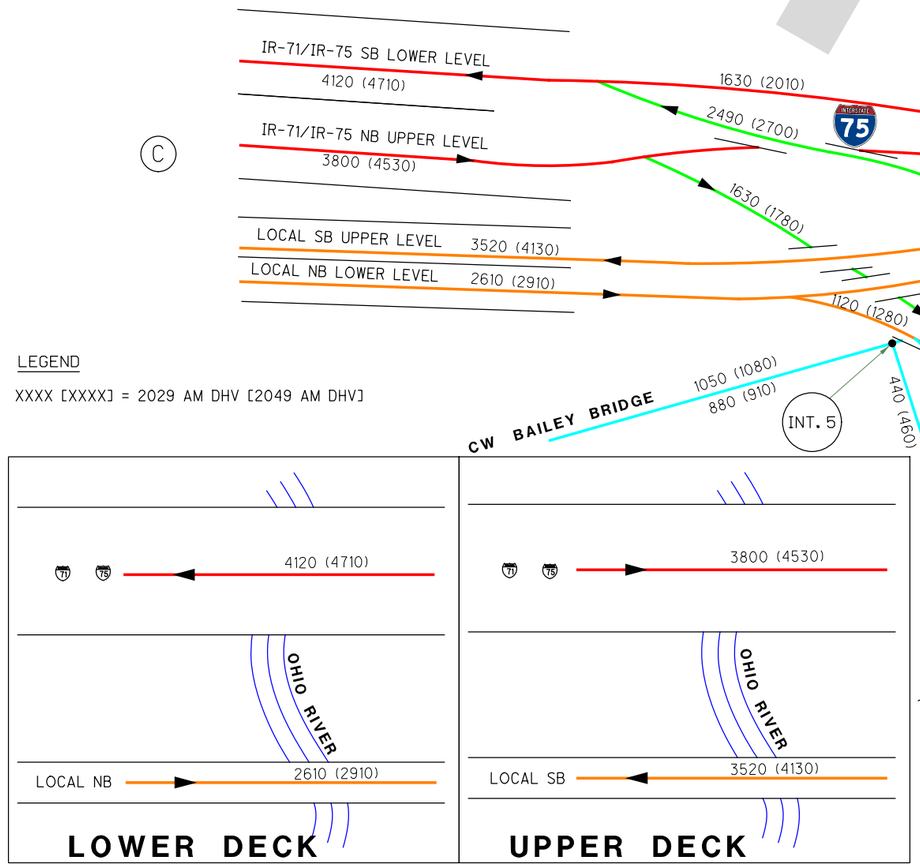
PLATE 4 OF 12 (KY) | ALTERNATIVE I-W

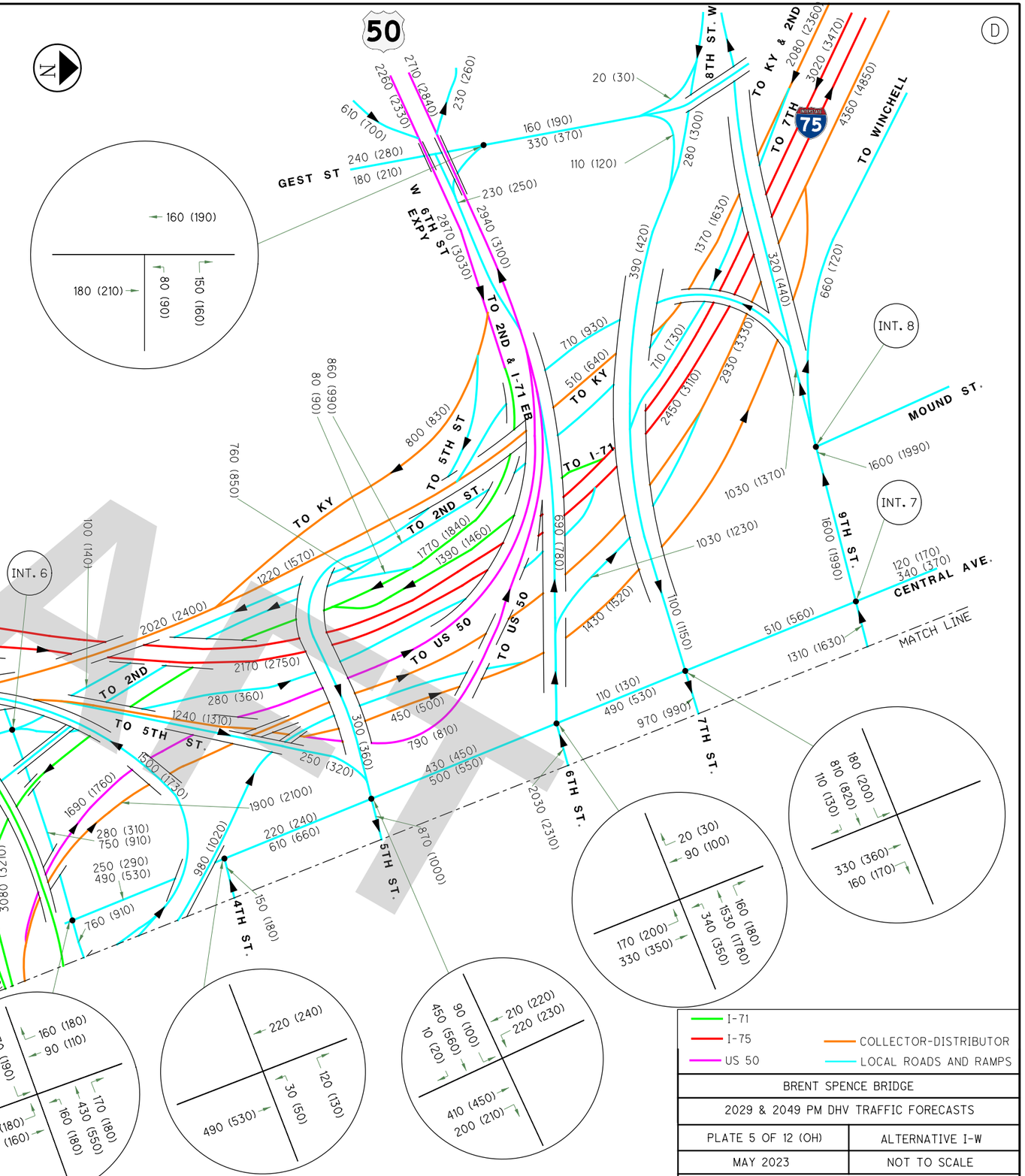
MAY 2023 | NOT TO SCALE

HNTB


I-75 NB
I-71 NB
14'
12'
12'
12'
12'
12'
14'
2.67'
2.67'
2%
2%
UPPER DECK
5 LANES
CABLES
CABLES
I-75 SB
I-71 SB
14'
12'
12'
12'
12'
12'
14'
2.67'
2.67'
2%
2%
LOWER DECK
5 LANES


SB LOCAL
8'
11'
11'
12'
4'
2.67'
2.67'
2%
2%
UPPER DECK
3 LANES
NB LOCAL
4'
12'
11'
11'
8'
2.67'
2.67'
2%
2%
LOWER DECK
3 LANES


IR-71/IR-75 SB LOWER LEVEL
4120 (4710)
IR-71/IR-75 NB UPPER LEVEL
3800 (4530)
LOCAL SB UPPER LEVEL 3520 (4130)
LOCAL NB LOWER LEVEL 2610 (2910)
LEGEND
XXXX [XXXX] = 2029 AM DHV [2049 AM DHV]
4120 (4710)
OHIO RIVER
LOCAL NB
2610 (2910)
LOWER DECK
3800 (4530)
OHIO RIVER
LOCAL SB
3520 (4130)
UPPER DECK


50
D
C
N
INT. 5
INT. 6
INT. 7
INT. 8
160 (190)
180 (210)
80 (90)
150 (160)
GEST ST
W 6TH EXPY ST
TO 2ND & I-71 EB
TO KY & 2ND
TO 7TH
TO WINCHELL
8TH ST. W
MOUND ST.
9TH ST.
CENTRAL AVE.
MATCH LINE
TO KY
TO I-71
TO 5TH ST.
TO 2ND ST.
TO US 50
TO US 50
3RD ST.
2ND ST.
CW BAILEY BRIDGE
4TH ST.
5TH ST.
6TH ST.
7TH ST.
2710 (2840)
2260 (2330)
230 (260)
610 (700)
240 (280)
180 (210)
160 (190)
330 (370)
20 (30)
110 (120)
280 (300)
2080 (2360)
3020 (3470)
4360 (4850)
230 (250)
2940 (3100)
2870 (3030)
390 (420)
1370 (1630)
320 (440)
660 (720)
710 (930)
510 (640)
710 (730)
2450 (3110)
2930 (3330)
860 (990)
80 (90)
800 (830)
760 (850)
1030 (1370)
1600 (1990)
1030 (1230)
1600 (1990)
120 (170)
340 (370)
1220 (1570)
1770 (1840)
1390 (1460)
690 (780)
1430 (1520)
1100 (1150)
510 (560)
1310 (1630)
450 (560)
770 (810)
100 (140)
1630 (2010)
2490 (2700)
1630 (1780)
2020 (2400)
2170 (2750)
280 (360)
1240 (1310)
300 (360)
450 (500)
790 (810)
110 (130)
490 (530)
970 (990)
1490 (1630)
1270 (1310)
660 (680)
1120 (1280)
840 (940)
1300 (1730)
250 (320)
430 (450)
500 (550)
1690 (1760)
1900 (2100)
280 (310)
750 (910)
220 (240)
610 (660)
250 (290)
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870 (1000)
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440 (460)
720 (790)
3080 (3210)
760 (910)
150 (180)
2350 (2510)
400 (490)
20 (30)
90 (100)
180 (200)
810 (820)
110 (130)
330 (360)
160 (170)
170 (200)
330 (350)
160 (180)
1530 (1780)
340 (350)
160 (180)
90 (110)
170 (190)
110 (120)
160 (180)
150 (160)
770 (180)
430 (550)
160 (180)
220 (240)
120 (130)
30 (50)
490 (530)
90 (100)
450 (560)
10 (20)
210 (220)
220 (230)
410 (450)
200 (210)
I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS
BRENT SPENCE BRIDGE
2029 & 2049 PM DHV TRAFFIC FORECASTS
PLATE 5 OF 12 (OH)
ALTERNATIVE I-W
MAY 2023
NOT TO SCALE
HNTB

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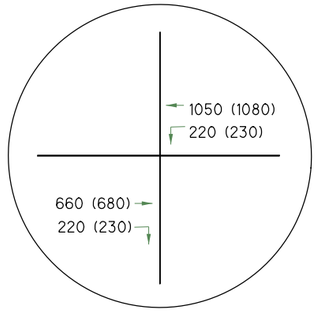
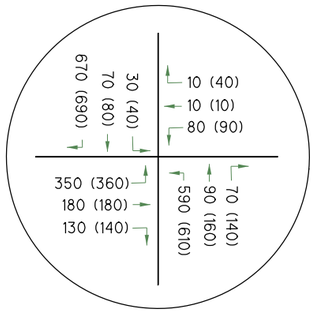


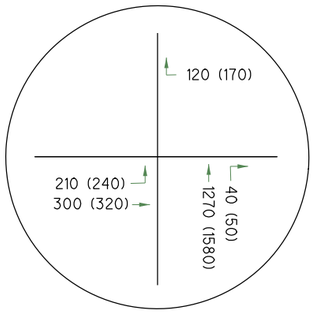
CW BAILEY BRIDGE & 2ND STREET

INT. 6



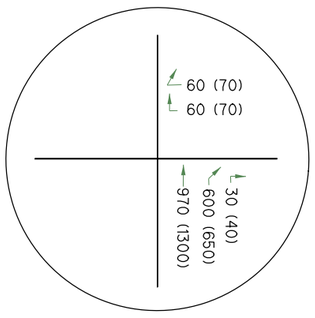
CW BAILEY BRIDGE & 3RD STREET

INT. 7



CENTRAL AVENUE & 9TH STREET

INT. 8



MOUND STREET & 9TH STREET

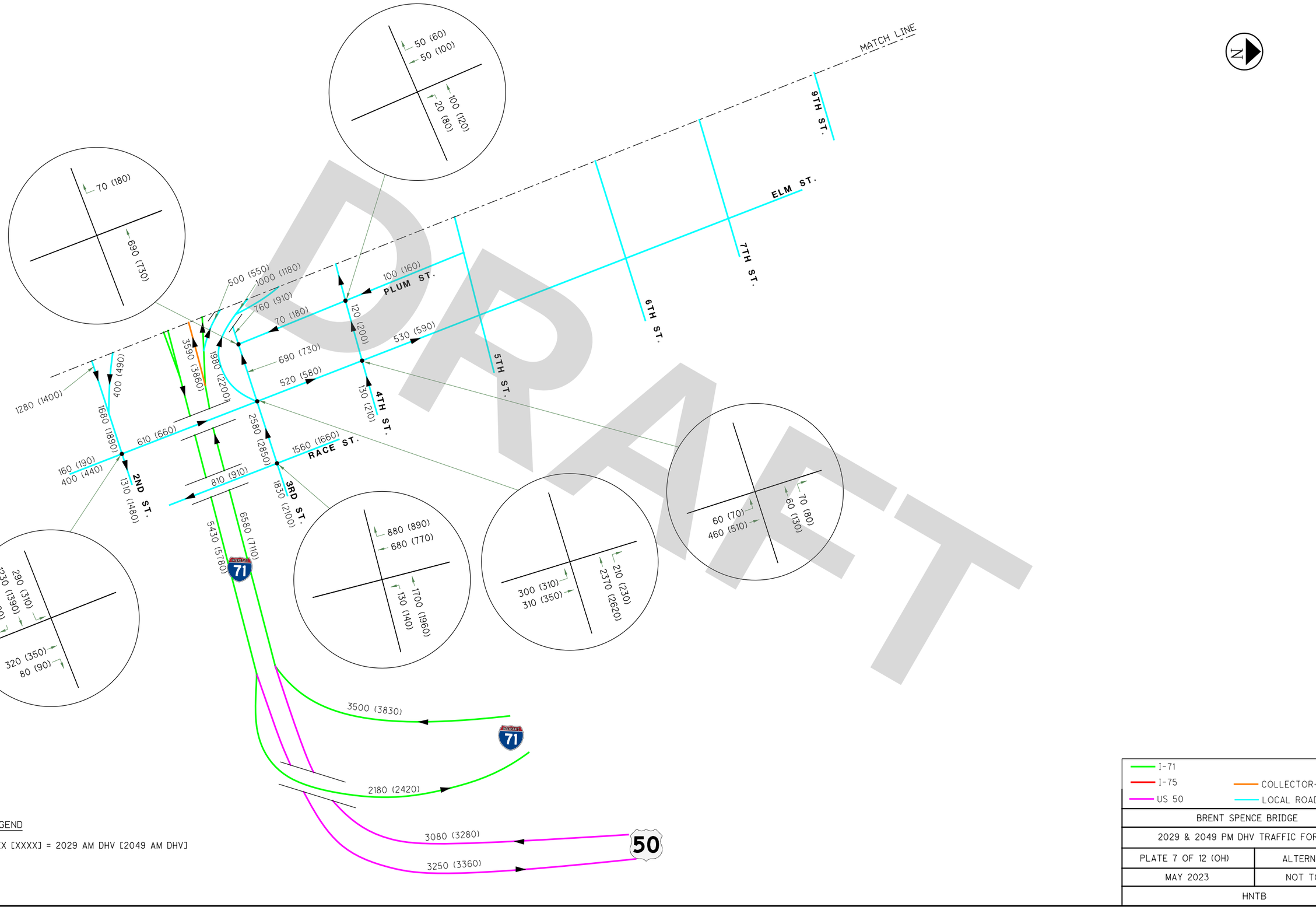
I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS

BRENT SPENCE BRIDGE

2029 & 2049 PM DHV TRAFFIC FORECASTS

PLATE 6 OF 12 (OH)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE

HNTB

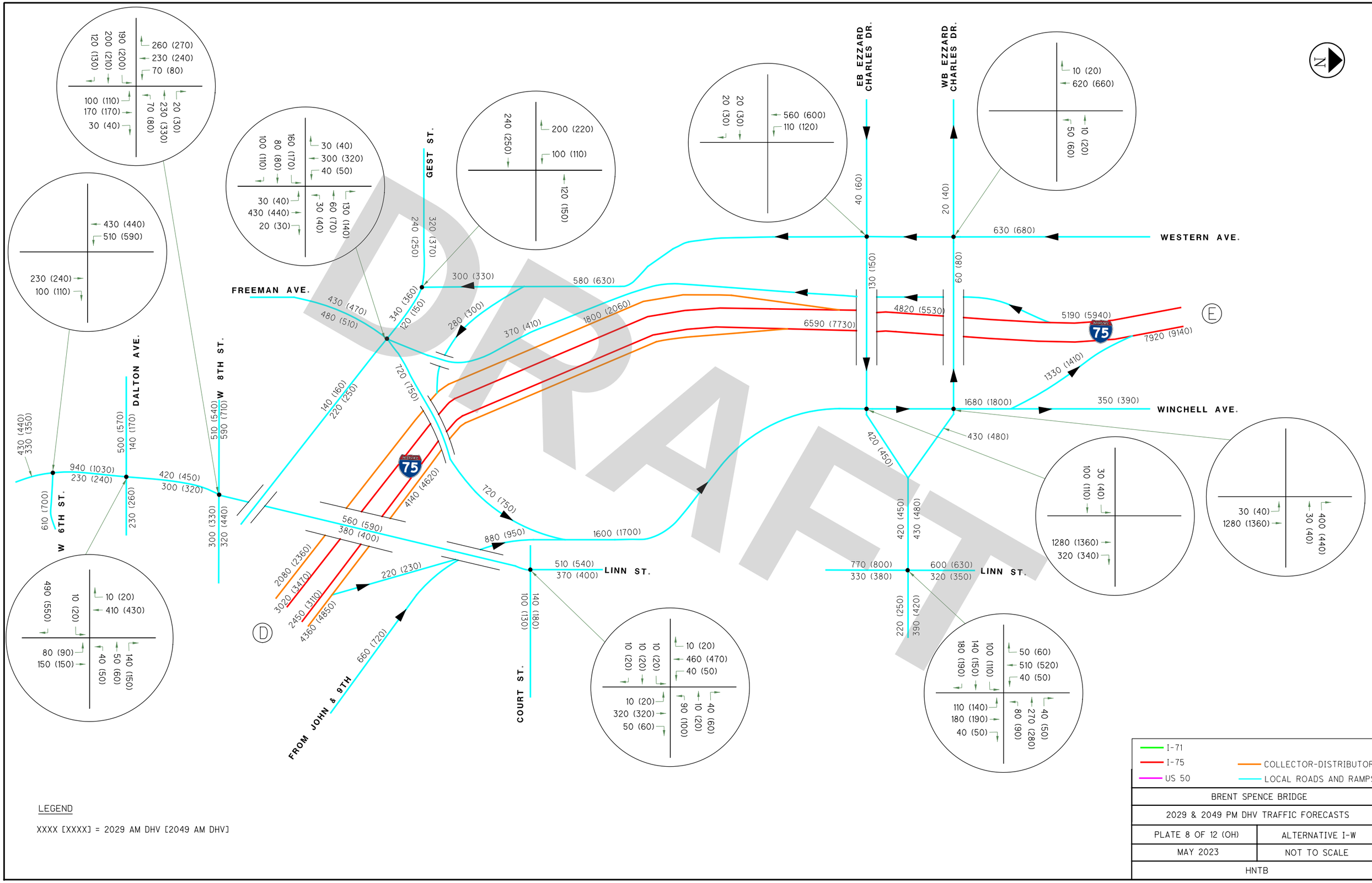


LEGEND

XXXX [XXXX] = 2029 AM DHV [2049 AM DHV]

I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS

BRENT SPENCE BRIDGE	
2029 & 2049 PM DHV TRAFFIC FORECASTS	
PLATE 7 OF 12 (OH)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE
HNTB	


N
EB EZZARD CHARLES DR.
WB EZZARD CHARLES DR.
GEST ST.
FREEMAN AVE.
WESTERN AVE.
WINCHELL AVE.
LINN ST.
COURT ST.
DALTON AVE.
W 8TH ST.
W 6TH ST.
FROM JOHN & 9TH
I-75
E
D
260 (270)
230 (240)
70 (80)
120 (130)
200 (210)
190 (200)
100 (110)
170 (170)
30 (40)
70 (80)
230 (330)
20 (30)
430 (440)
510 (590)
230 (240)
100 (110)
30 (40)
300 (320)
40 (50)
100 (110)
80 (80)
160 (170)
30 (40)
430 (440)
20 (30)
30 (40)
60 (70)
130 (140)
240 (250)
200 (220)
100 (110)
120 (150)
20 (30)
20 (30)
560 (600)
110 (120)
10 (20)
620 (660)
50 (60)
10 (20)
40 (60)
20 (40)
630 (680)
130 (150)
60 (80)
4820 (5530)
6590 (7730)
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7920 (9140)
1330 (1410)
1680 (1800)
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390 (420)
770 (800)
330 (380)
600 (630)
320 (350)
30 (40)
100 (110)
1280 (1360)
320 (340)
30 (40)
1280 (1360)
30 (40)
400 (440)
180 (190)
140 (150)
100 (110)
50 (60)
510 (520)
40 (50)
110 (140)
180 (190)
40 (50)
80 (90)
270 (280)
40 (50)
320 (340)
300 (330)
580 (630)
280 (300)
370 (410)
1800 (2060)
340 (360)
120 (150)
430 (470)
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720 (750)
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2080 (2360)
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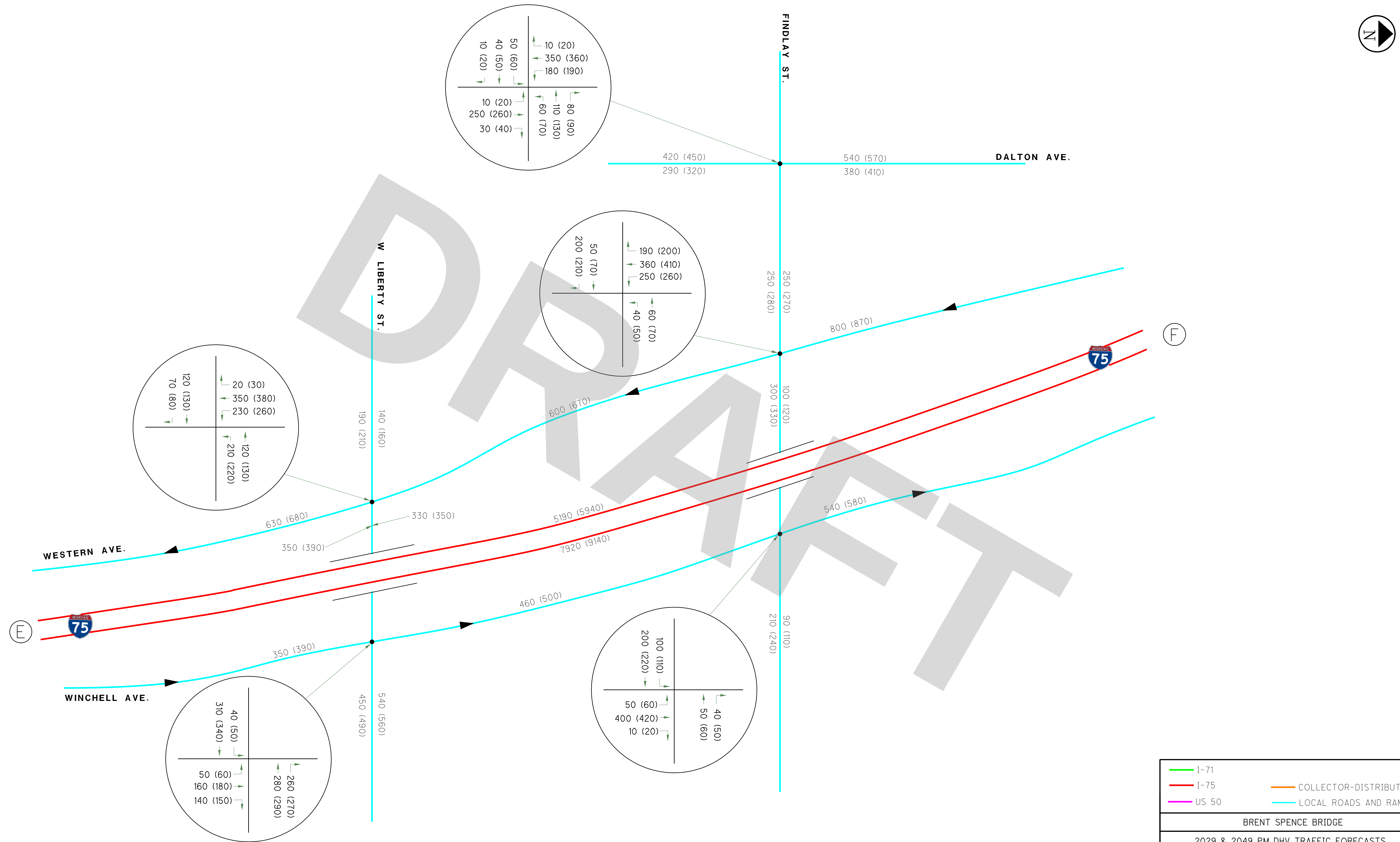
2450 (3110)
4360 (4850)
220 (230)
660 (720)
880 (950)
1600 (1700)
510 (540)
370 (400)
100 (130)
140 (180)
720 (750)
940 (1030)
230 (240)
420 (450)
300 (320)
610 (700)
230 (260)
300 (330)
320 (440)
500 (570)
140 (170)
510 (540)
590 (710)
430 (440)
330 (350)
490 (550)
10 (20)
10 (20)
410 (430)
80 (90)
150 (150)
40 (50)
50 (60)
140 (150)
10 (20)
10 (20)
10 (20)
10 (20)
460 (470)
40 (50)
10 (20)
320 (320)
50 (60)
90 (100)
10 (20)
40 (60)
I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS
LEGEND
XXXX [XXXX] = 2029 AM DHV [2049 AM DHV]
BRENT SPENCE BRIDGE
2029 & 2049 PM DHV TRAFFIC FORECASTS
PLATE 8 OF 12 (OH)
ALTERNATIVE I-W
MAY 2023
NOT TO SCALE
HNTB



FINDLAY ST.
DALTON AVE.
W LIBERTY ST.
WESTERN AVE.
WINCHELL AVE.
DRAFT
E
F
75
420 (450)
290 (320)
540 (570)
380 (410)
250 (280)
250 (270)
800 (870)
100 (120)
300 (330)
600 (670)
190 (210)
140 (160)
630 (680)
330 (350)
350 (390)
5190 (5940)
7920 (9140)
540 (580)
460 (500)
350 (390)
450 (490)
540 (560)
210 (240)
90 (110)
10 (20)
350 (360)
180 (190)
10 (20)
40 (50)
50 (60)
10 (20)
250 (260)
30 (40)
60 (70)
110 (130)
80 (90)
190 (200)
360 (410)
250 (260)
200 (210)
50 (70)
40 (50)
60 (70)
20 (30)
350 (380)
230 (260)
120 (130)
70 (80)
210 (220)
120 (130)
200 (220)
100 (110)
50 (60)
400 (420)
10 (20)
50 (60)
40 (50)
310 (340)
40 (50)
50 (60)
160 (180)
140 (150)
280 (290)
260 (270)

LEGEND

XXXX [XXXX] = 2029 AM DHV [2049 AM DHV]

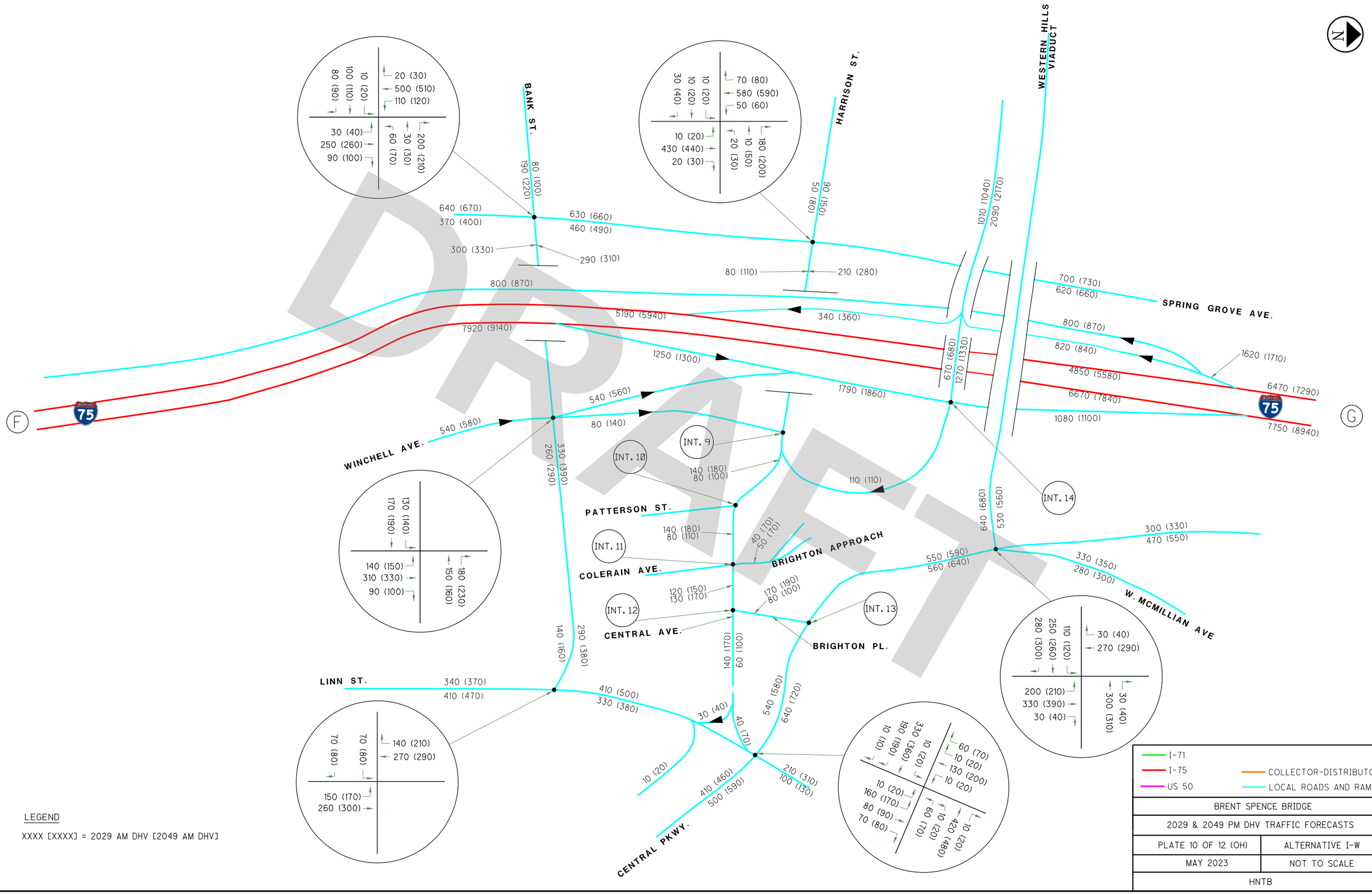
I-71	COLLECTOR-DISTRIBUTOR
I-75	LOCAL ROADS AND RAMPS
US 50	

BRENT SPENCE BRIDGE

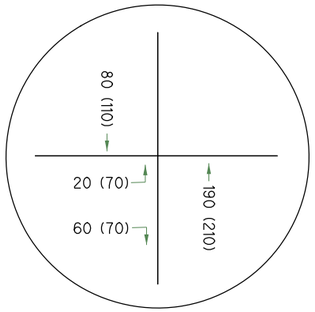
2029 & 2049 PM DHV TRAFFIC FORECASTS

PLATE 9 OF 12 (OH)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE

HNTB

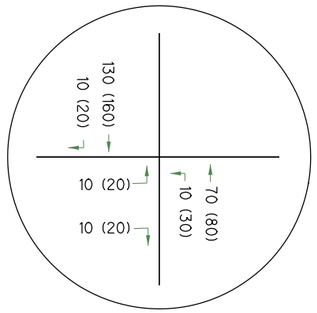

N
F
G
I-75
WESTERN HILLS VIADUCT
HARRISON ST.
BANK ST.
SPRING GROVE AVE.
WINCHELL AVE.
PATTERSON ST.
COLERAIN AVE.
CENTRAL AVE.
BRIGHTON APPROACH
BRIGHTON PL.
W. MCMILLIAN AVE
LINN ST.
CENTRAL PKWY.
INT. 9
INT. 10
INT. 11
INT. 12
INT. 13
INT. 14
640 (670)
370 (400)
630 (660)
460 (490)
300 (330)
290 (310)
80 (100)
190 (220)
80 (110)
210 (280)
90 (150)
50 (180)
1010 (1040)
2090 (2170)
800 (870)
5190 (5940)
7920 (9140)
340 (360)
700 (730)
620 (660)
800 (870)
820 (840)
1620 (1710)
4850 (5580)
6470 (7290)
6670 (7840)
7750 (8940)
1080 (1100)
670 (680)
1270 (1330)
1250 (1300)
1790 (1860)
540 (560)
540 (580)
80 (140)
330 (390)
260 (290)
140 (180)
80 (100)
110 (110)
640 (680)
530 (560)
140 (180)
80 (110)
40 (70)
50 (70)
550 (590)
560 (640)
300 (330)
470 (550)
330 (350)
280 (300)
120 (150)
130 (170)
170 (190)
80 (100)
140 (160)
290 (380)
140 (170)
60 (100)
340 (370)
410 (470)
410 (500)
330 (380)
30 (40)
40 (70)
540 (580)
640 (720)
10 (20)
410 (460)
500 (590)
210 (310)
100 (130)
20 (30)
500 (510)
110 (120)
10 (20)
100 (110)
80 (90)
30 (40)
250 (260)
90 (100)
60 (70)
30 (30)
200 (210)
70 (80)
580 (590)
50 (60)
30 (40)
10 (20)
430 (440)
20 (30)
10 (50)
180 (200)
140 (150)
310 (330)
90 (100)
150 (160)
180 (230)
280 (300)
250 (260)
110 (120)
30 (40)
270 (290)
200 (210)
330 (390)
30 (40)
300 (310)
70 (80)
140 (210)
270 (290)
150 (170)
260 (300)
330 (360)
190 (190)
10 (10)
60 (70)
10 (20)
130 (200)
160 (170)
420 (480)
60 (70)
I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS
BRENT SPENCE BRIDGE
2029 & 2049 PM DHV TRAFFIC FORECASTS
PLATE 10 OF 12 (OH)
ALTERNATIVE I-W
MAY 2023
NOT TO SCALE
HNTB
LEGEND
XXXX [XXXX] = 2029 AM DHV [2049 AM DHV]

INT. 9



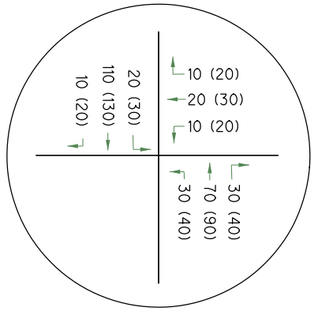
HARRISON STREET & WINCHELL AVENUE

INT. 10



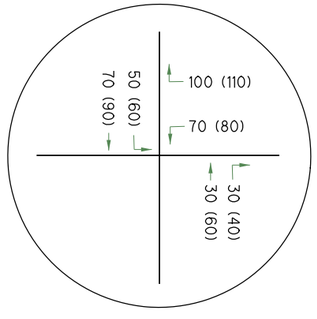
HARRISON STREET & PATTERSON STREET

INT. 11



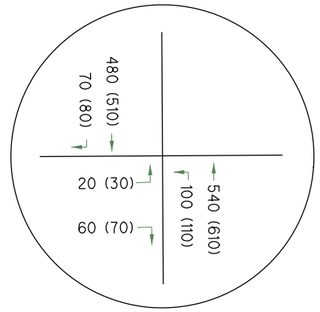
HARRISON STREET & COLERAIN AVENUE

INT. 12



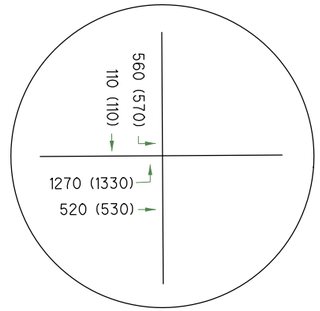
CENTRAL AVENUE & BRIGHTON PLACE

INT. 13



BRIGHTON PLACE & CENTRAL PARKWAY

INT. 14



WESTERN HILLS VIADUCT & WINCHELL RAMP

I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS

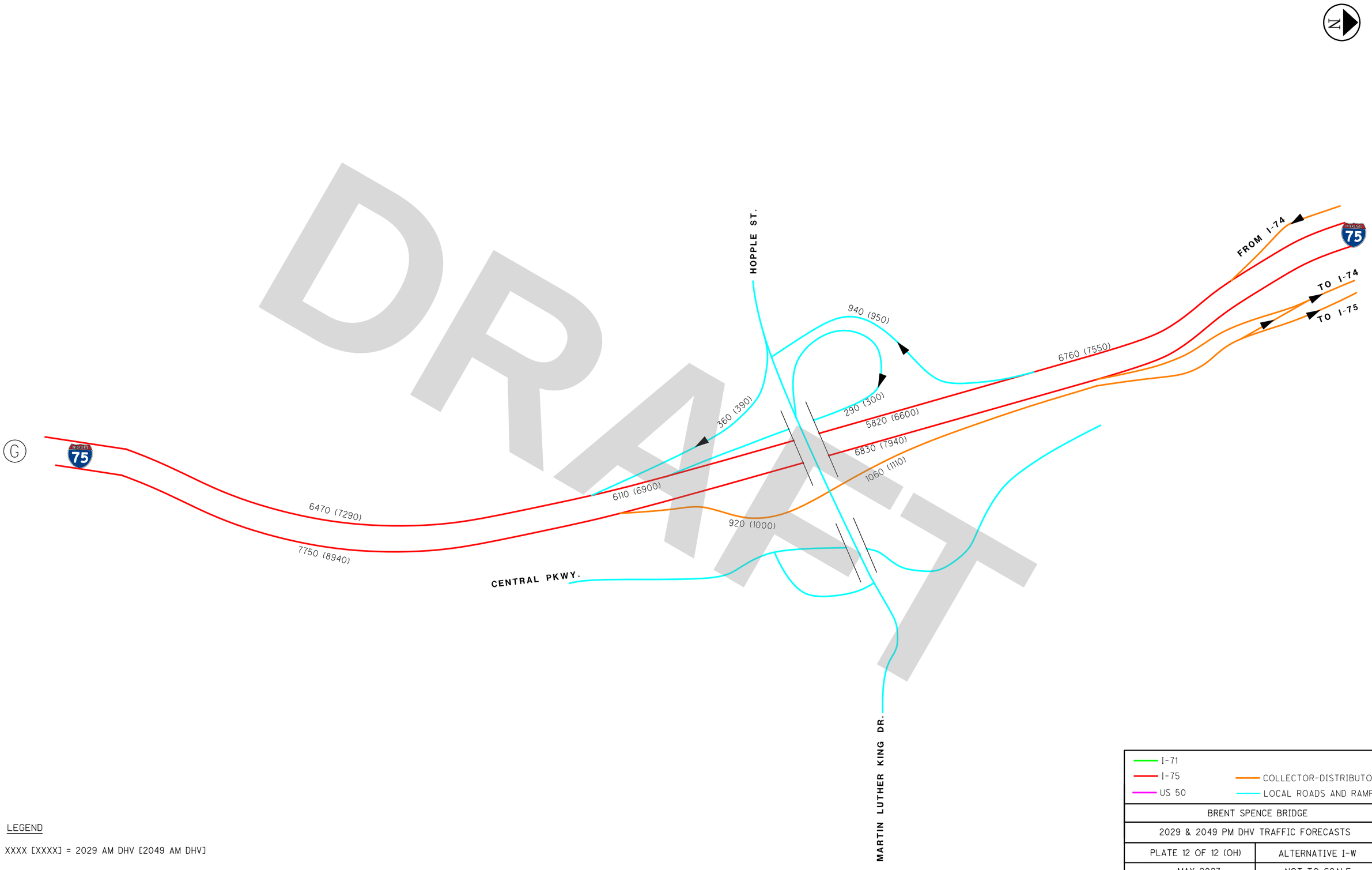
BRENT SPENCE BRIDGE

2029 & 2049 PM DHV TRAFFIC FORECASTS

PLATE 11 OF 12 (OH) | ALTERNATIVE I-W

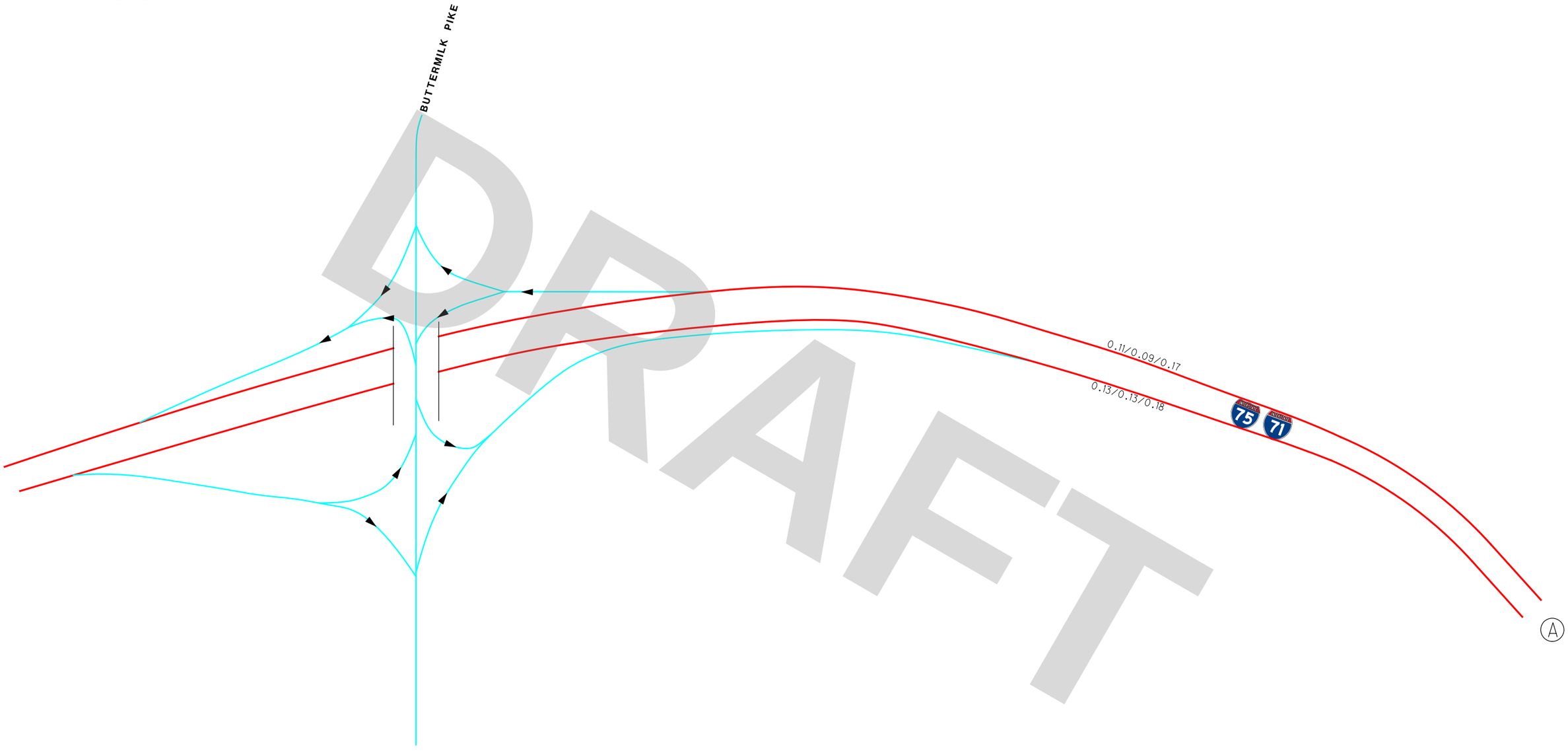
MAY 2023 | NOT TO SCALE

HNTB


N
HOPPLE ST.
FROM I-74
TO I-74
TO I-75
940 (950)
6760 (7550)
360 (390)
290 (300)
5820 (6600)
6830 (7940)
1060 (1110)
6110 (6900)
920 (1000)
G
6470 (7290)
7750 (8940)
CENTRAL PKWY.
MARTIN LUTHER KING DR.
I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS
BRENT SPENCE BRIDGE
2029 & 2049 PM DHV TRAFFIC FORECASTS
PLATE 12 OF 12 (OH)
ALTERNATIVE I-W
MAY 2023
NOT TO SCALE
HNTB
LEGEND
XXXX [XXXX] = 2029 AM DHV [2049 AM DHV]

NOTE

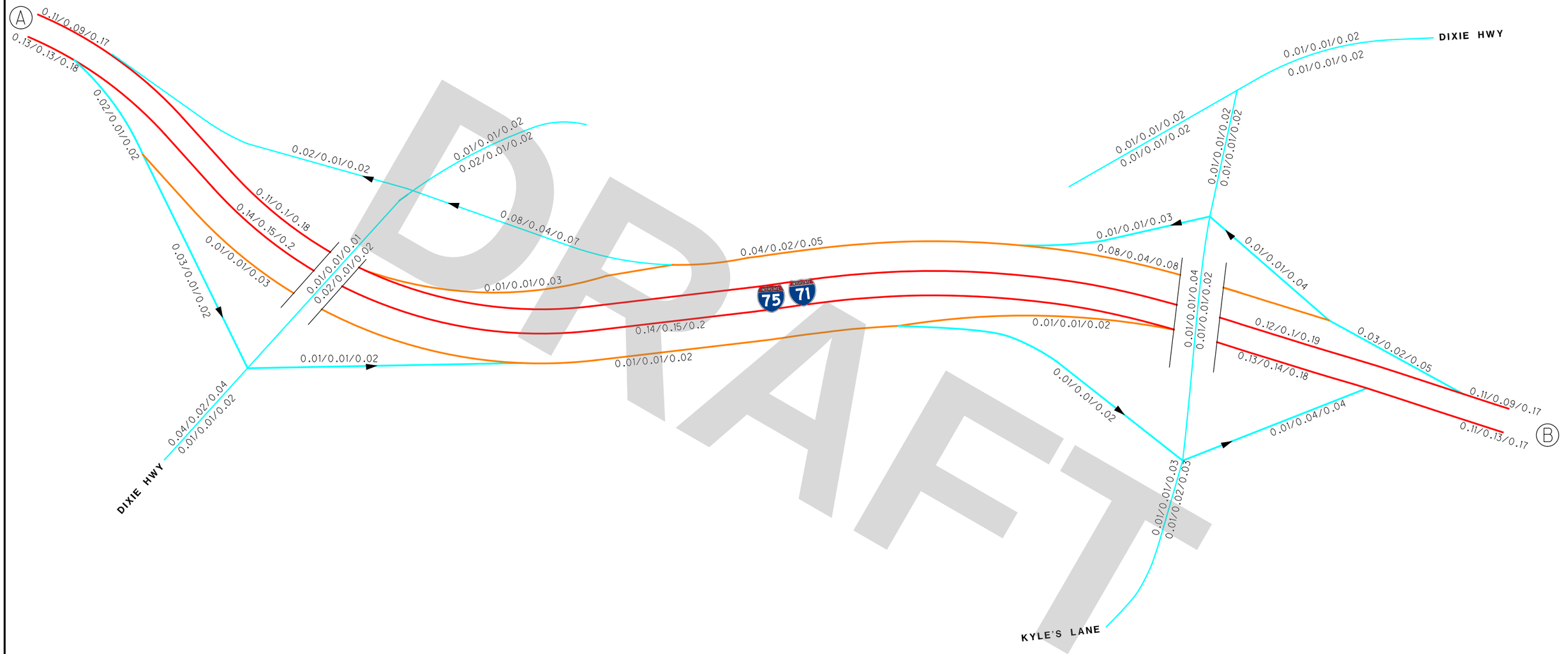
BUTTERMILK DDI CONFIGURATION IS NOT INCLUDED IN BRENT SPENCE BRIDGE PROJECT.



LEGEND

0.X/0.X/0.X = AM TD / PM TD / T24

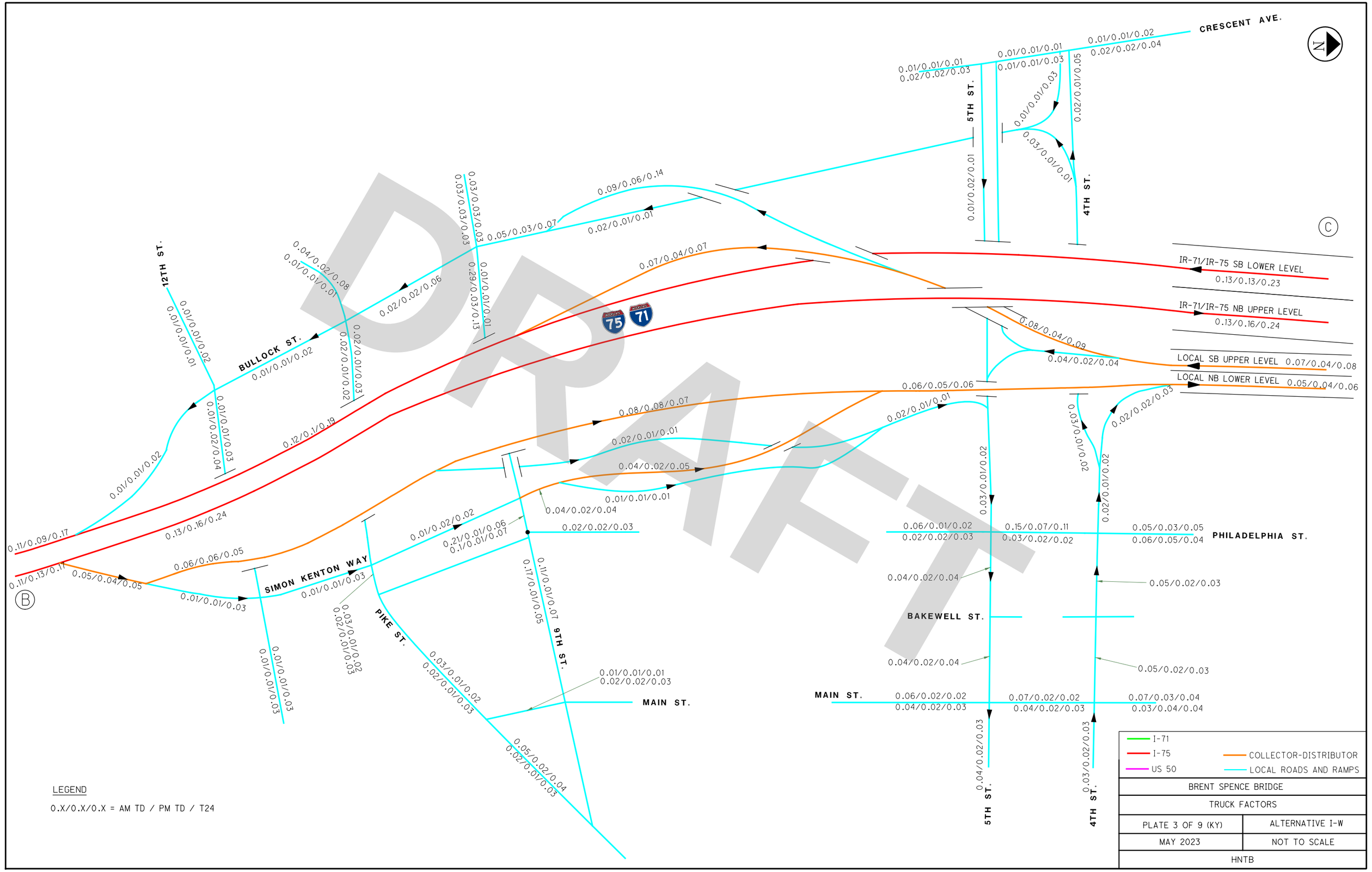
I-71	
I-75	COLLECTOR-DISTRIBUTOR
US 50	LOCAL ROADS AND RAMPS
BRENT SPENCE BRIDGE	
TRUCK FACTORS	
PLATE 1 OF 9 (KY)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE
HNTB	



LEGEND

0.X/0.X/0.X = AM TD / PM TD / T24

BRENT SPENCE BRIDGE	
TRUCK FACTORS	
PLATE 2 OF 9 (KY)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE
HNTB	

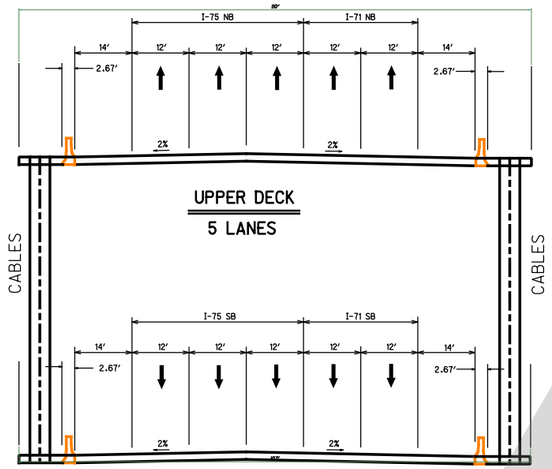


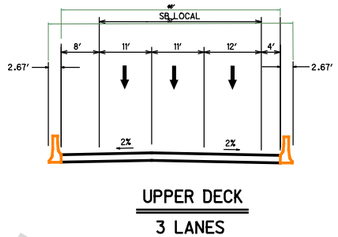
BRENT SPENCE BRIDGE

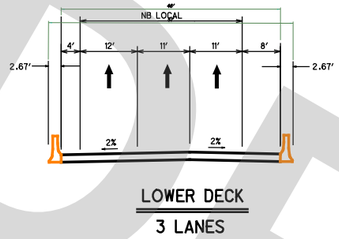
TRUCK FACTORS

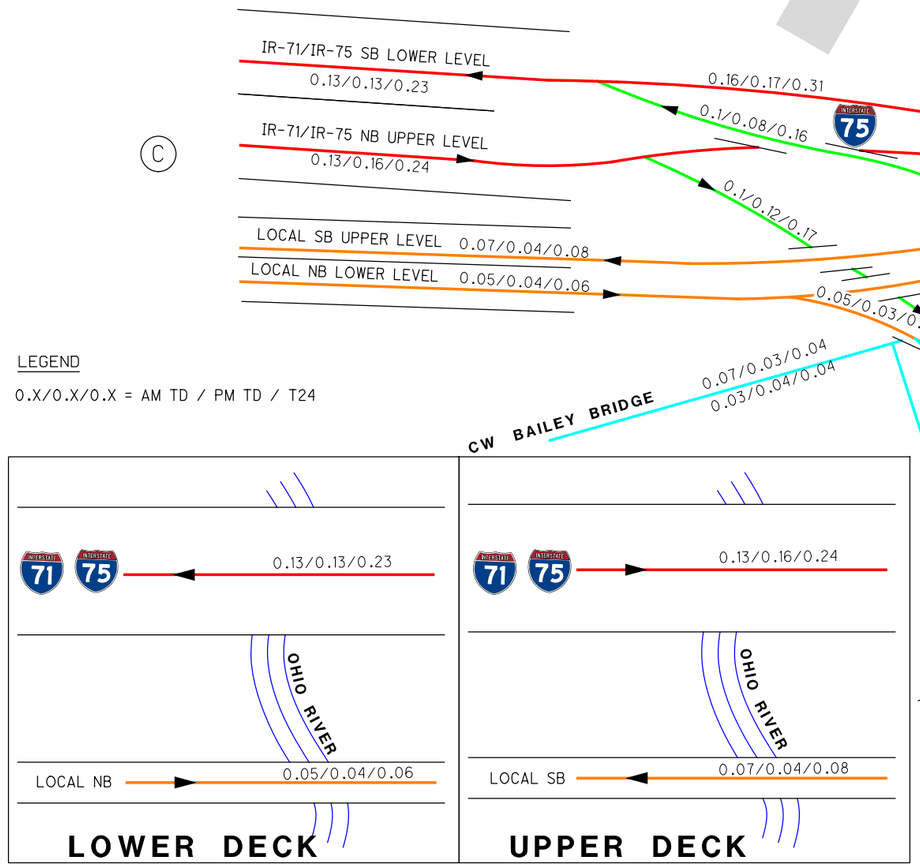
PLATE 3 OF 9 (KY)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE

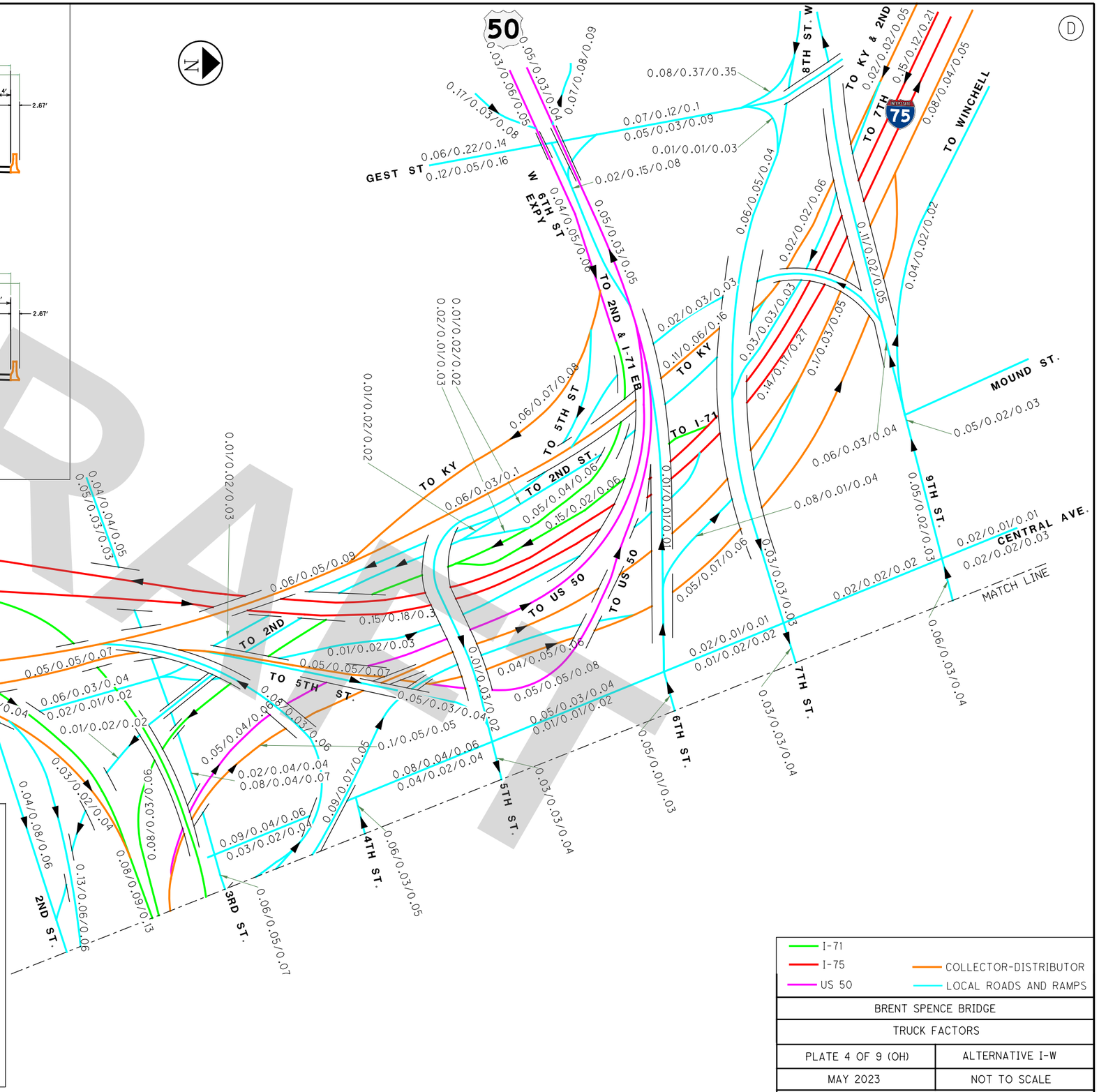
HNTB



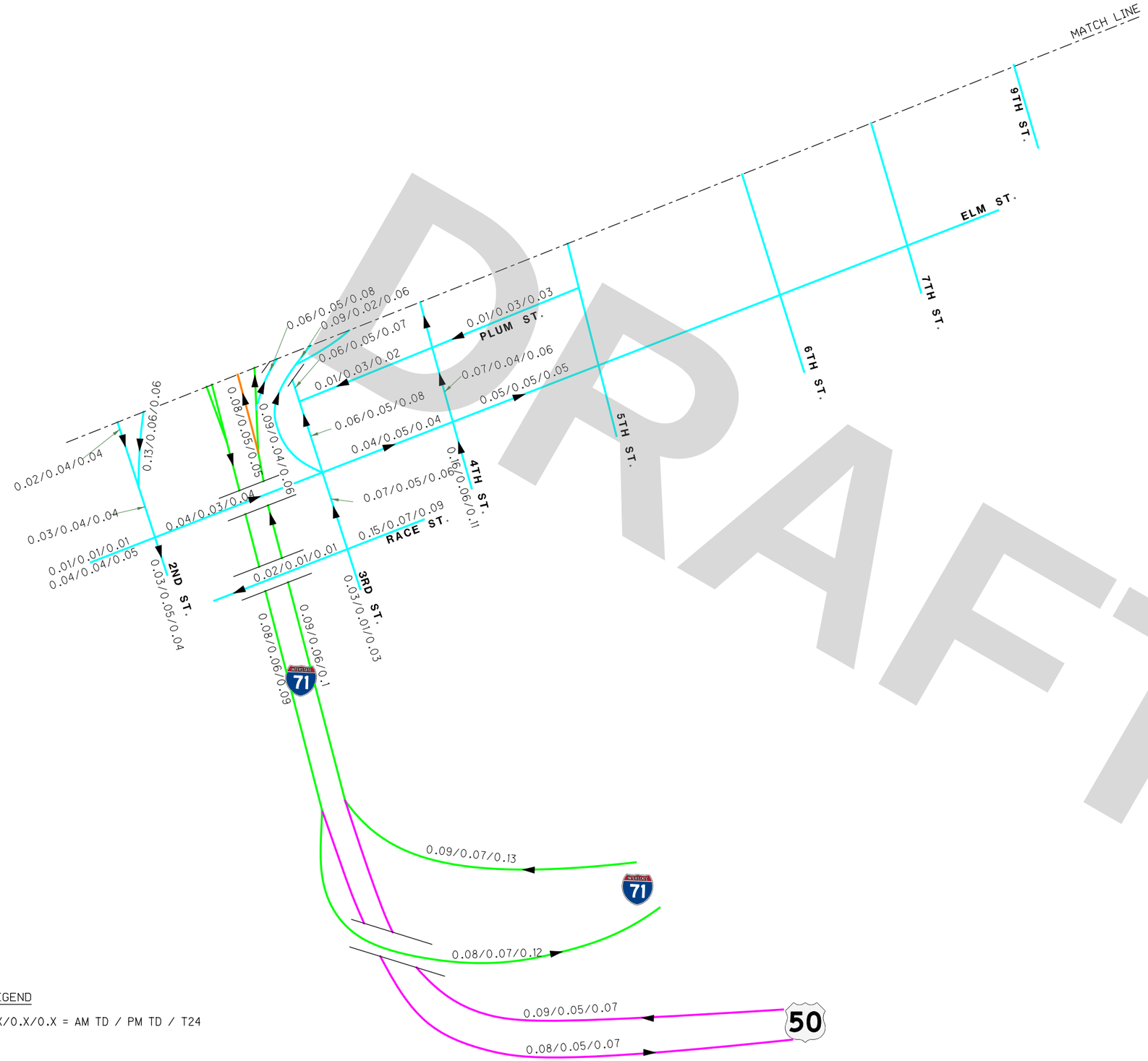








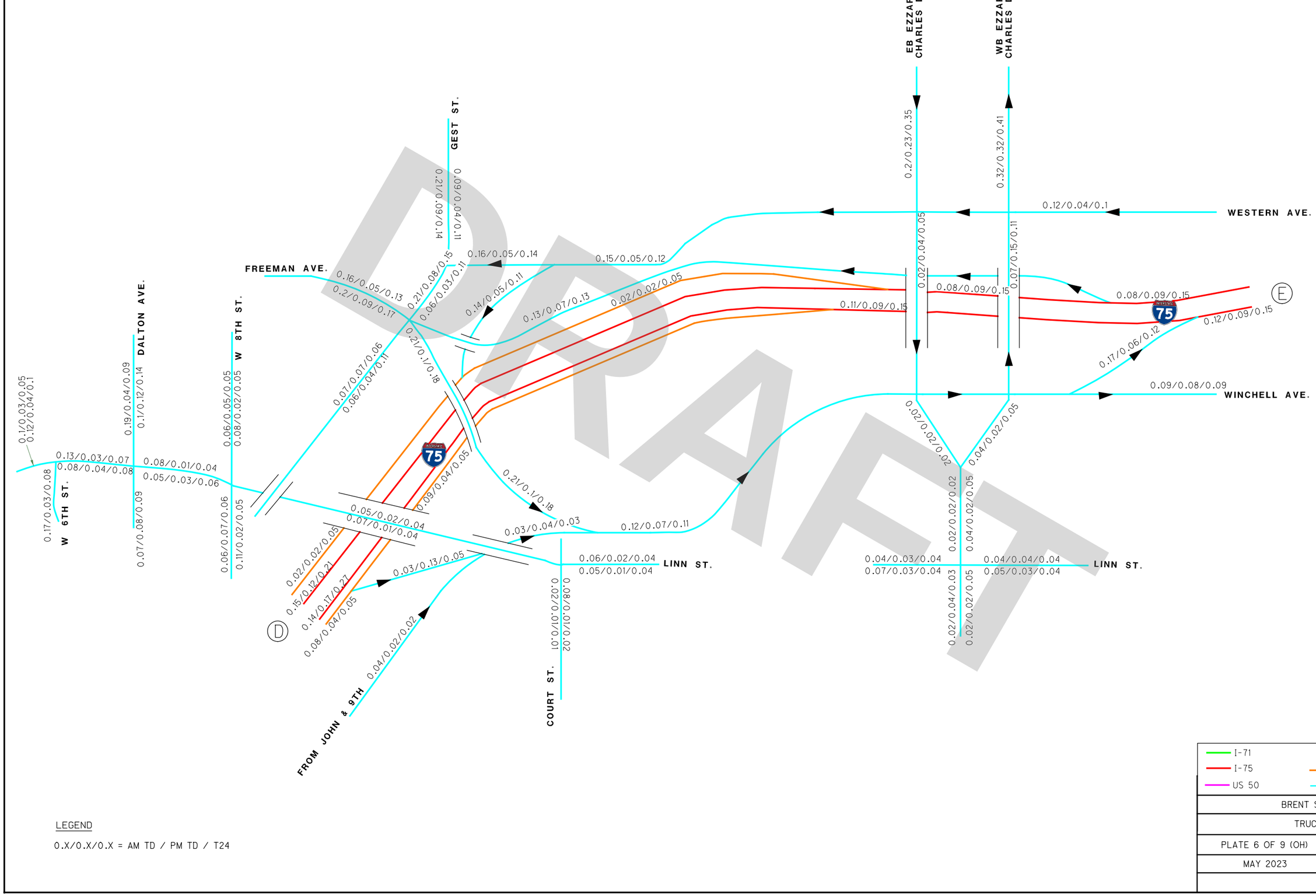
BRENT SPENCE BRIDGE	
TRUCK FACTORS	
PLATE 4 OF 9 (OH)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE
HNTB	

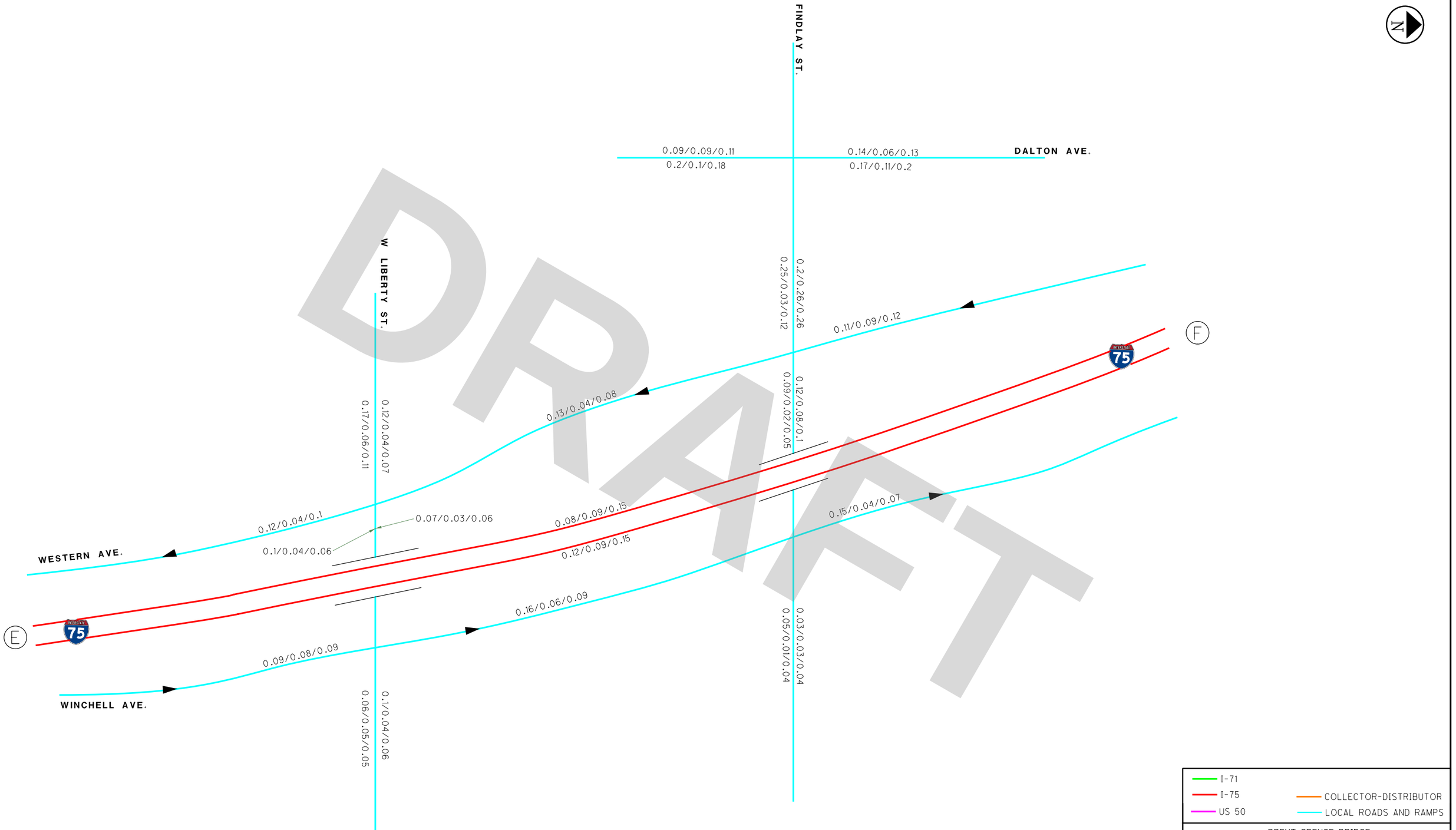


LEGEND

0.X/0.X/0.X = AM TD / PM TD / T24

I-71	
I-75	COLLECTOR-DISTRIBUTOR
US 50	LOCAL ROADS AND RAMPS
BRENT SPENCE BRIDGE	
TRUCK FACTORS	
PLATE 5 OF 9 (OH)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE
HNTB	


EB EZZARD CHARLES DR.
WB EZZARD CHARLES DR.
WESTERN AVE.
WINCHELL AVE.
LINN ST.
LINN ST.
FREEMAN AVE.
GEST ST.
DALTON AVE.
W 8TH ST.
W 6TH ST.
COURT ST.
FROM JOHN & 9TH
0.2/0.23/0.35
0.32/0.32/0.41
0.12/0.04/0.1
0.02/0.04/0.05
0.07/0.15/0.11
0.08/0.09/0.15
0.11/0.09/0.15
0.08/0.09/0.15
0.12/0.09/0.15
0.17/0.06/0.12
0.09/0.08/0.09
0.16/0.05/0.14
0.15/0.05/0.12
0.14/0.05/0.11
0.13/0.07/0.13
0.02/0.02/0.05
0.21/0.08/0.15
0.06/0.03/0.11
0.21/0.09/0.14
0.09/0.04/0.11
0.16/0.05/0.13
0.2/0.09/0.17
0.17/0.07/0.06
0.06/0.04/0.11
0.21/0.1/0.18
0.09/0.04/0.05
0.21/0.1/0.18
0.03/0.04/0.03
0.12/0.07/0.11
0.06/0.02/0.04
0.05/0.01/0.04
0.05/0.02/0.04
0.07/0.01/0.04
0.02/0.02/0.05
0.15/0.12/0.21
0.14/0.17/0.27
0.08/0.04/0.05
0.03/0.13/0.05
0.04/0.02/0.02
0.02/0.02/0.02
0.04/0.02/0.05
0.02/0.02/0.02
0.04/0.02/0.05
0.04/0.03/0.04
0.07/0.03/0.04
0.04/0.04/0.04
0.05/0.03/0.04
0.02/0.04/0.03
0.02/0.02/0.05
0.02/0.0/0.01
0.08/0.01/0.02
0.1/0.03/0.05
0.12/0.04/0.1
0.19/0.04/0.09
0.1/0.12/0.14
0.13/0.03/0.07
0.08/0.04/0.08
0.08/0.01/0.04
0.05/0.03/0.06
0.17/0.03/0.08
0.07/0.08/0.09
0.06/0.05/0.05
0.08/0.02/0.05
0.06/0.07/0.06
0.11/0.02/0.05
I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS
LEGEND
0.X/0.X/0.X = AM TD / PM TD / T24
BRENT SPENCE BRIDGE
TRUCK FACTORS
PLATE 6 OF 9 (OH)
ALTERNATIVE I-W
MAY 2023
NOT TO SCALE
HNTB
DRAFT

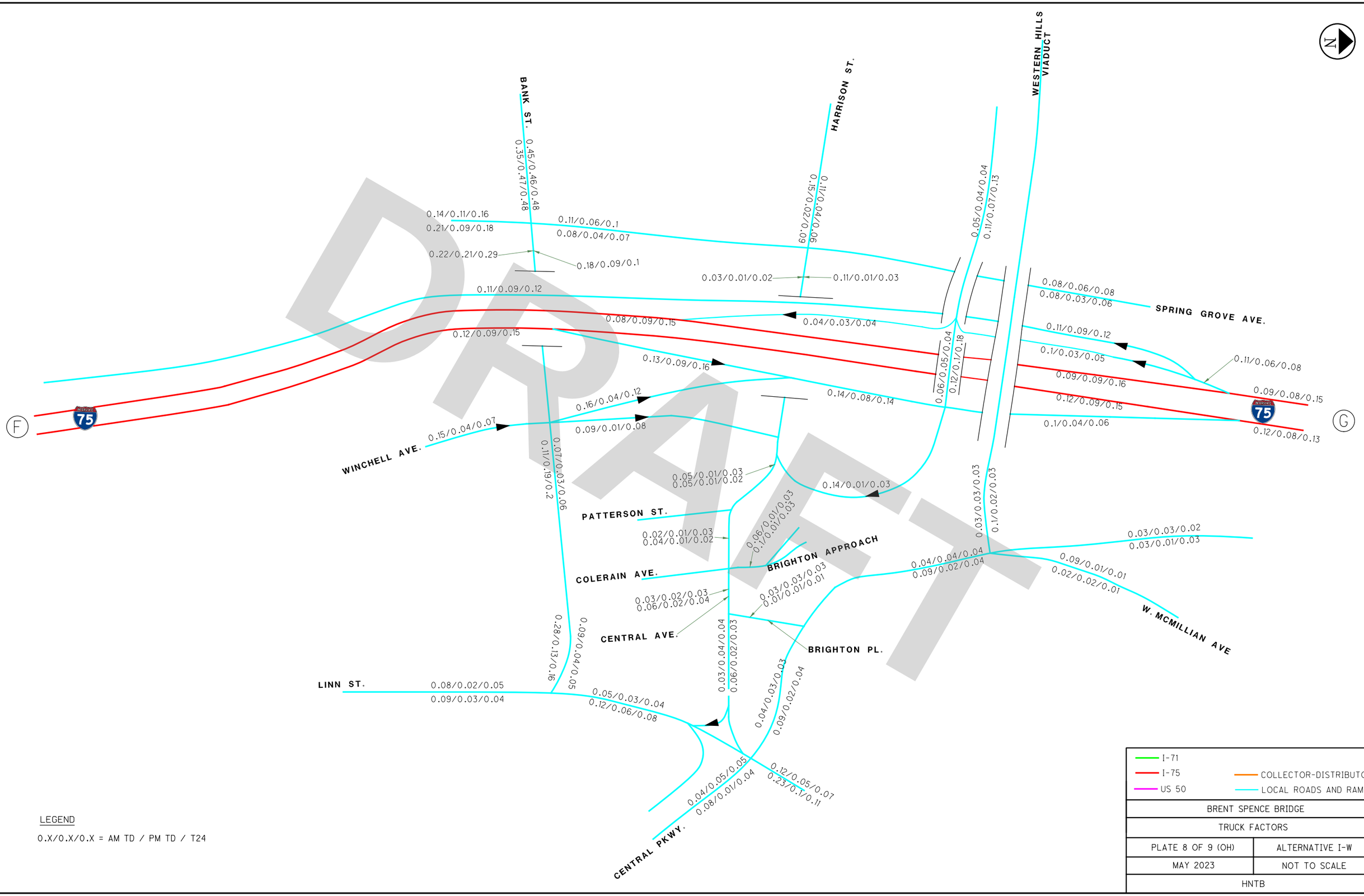


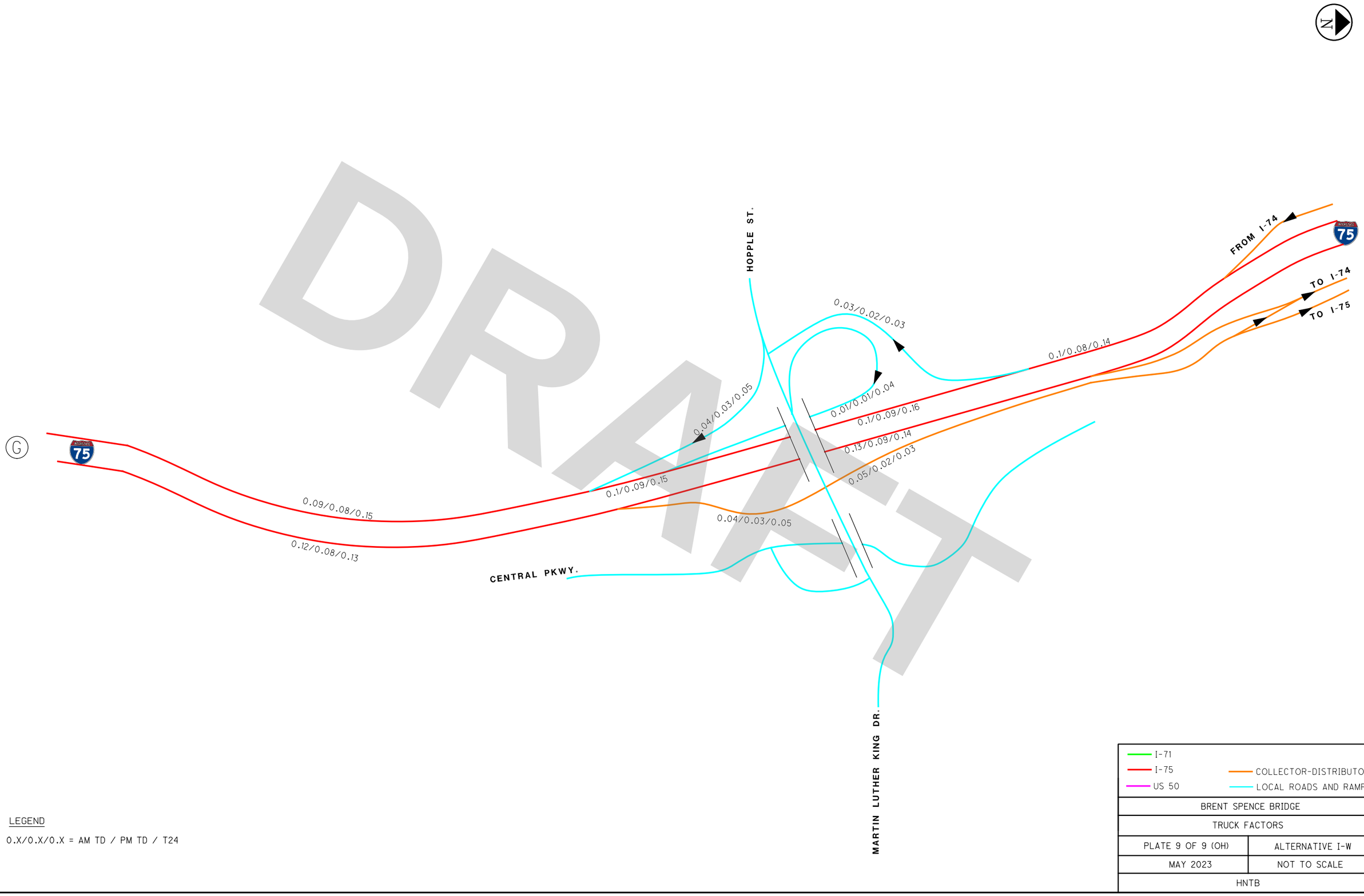
LEGEND

0.X/0.X/0.X = AM TD / PM TD / T24

I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS

BRENT SPENCE BRIDGE	
TRUCK FACTORS	
PLATE 7 OF 9 (OH)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE
HNTB	


BANK ST.
HARRISON ST.
WESTERN HILLS VIADUCT
SPRING GROVE AVE.
WINCHELL AVE.
PATTERSON ST.
COLERAIN AVE.
CENTRAL AVE.
LINN ST.
CENTRAL PKWY.
BRIGHTON APPROACH
BRIGHTON PL.
W. MCMILLIAN AVE
F
G
N
0.14/0.11/0.16
0.21/0.09/0.18
0.11/0.06/0.1
0.08/0.04/0.07
0.45/0.46/0.48
0.35/0.47/0.48
0.22/0.21/0.29
0.18/0.09/0.1
0.11/0.09/0.12
0.12/0.09/0.15
0.08/0.09/0.15
0.03/0.01/0.02
0.11/0.01/0.03
0.15/0.20/0.09
0.11/0.04/0.06
0.04/0.03/0.04
0.05/0.04/0.04
0.11/0.07/0.13
0.08/0.06/0.08
0.08/0.03/0.06
0.11/0.09/0.12
0.1/0.03/0.05
0.09/0.09/0.16
0.12/0.09/0.15
0.1/0.04/0.06
0.11/0.06/0.08
0.09/0.08/0.15
0.12/0.08/0.13
0.13/0.09/0.16
0.14/0.08/0.14
0.06/0.05/0.04
0.12/0.1/0.18
0.16/0.04/0.12
0.09/0.01/0.08
0.15/0.04/0.07
0.05/0.01/0.03
0.05/0.01/0.02
0.14/0.01/0.03
0.03/0.03/0.03
0.1/0.02/0.03
0.06/0.01/0.03
0.1/0.01/0.03
0.02/0.01/0.03
0.04/0.01/0.02
0.03/0.03/0.02
0.03/0.01/0.03
0.04/0.04/0.04
0.09/0.02/0.04
0.09/0.01/0.01
0.02/0.02/0.01
0.03/0.02/0.03
0.06/0.02/0.04
0.03/0.03/0.03
0.01/0.01/0.01
0.11/0.19/0.2
0.07/0.03/0.06
0.28/0.13/0.16
0.09/0.04/0.05
0.03/0.04/0.04
0.06/0.02/0.03
0.04/0.03/0.03
0.09/0.02/0.04
0.08/0.02/0.05
0.09/0.03/0.04
0.05/0.03/0.04
0.12/0.06/0.08
0.04/0.05/0.05
0.08/0.01/0.04
0.12/0.05/0.07
0.23/0.1/0.11
I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS
LEGEND
0.X/0.X/0.X = AM TD / PM TD / T24
BRENT SPENCE BRIDGE
TRUCK FACTORS
PLATE 8 OF 9 (OH)
ALTERNATIVE I-W
MAY 2023
NOT TO SCALE
HNTB



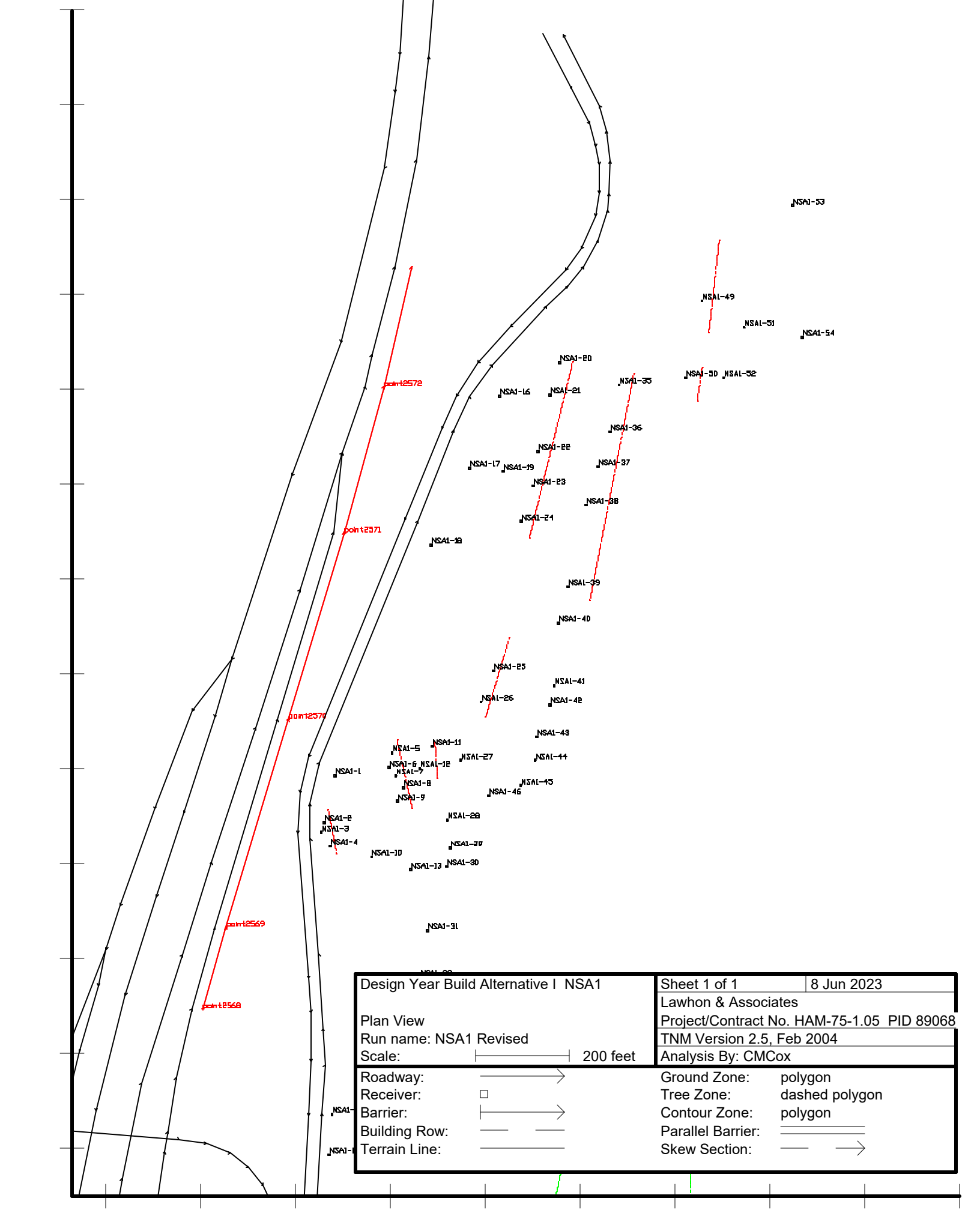
LEGEND

0.X/0.X/0.X = AM TD / PM TD / T24

I-71
I-75
US 50
COLLECTOR-DISTRIBUTOR
LOCAL ROADS AND RAMPS

BRENT SPENCE BRIDGE	
TRUCK FACTORS	
PLATE 9 OF 9 (OH)	ALTERNATIVE I-W
MAY 2023	NOT TO SCALE
HNTB	

APPENDIX B
TNM Input and Output Files


NSA1-53
NSA1-49
NSA1-51
NSA1-54
NSA1-20
NSA1-50
NSA1-52
NSA1-35
NSA1-16
NSA1-21
NSA1-36
NSA1-22
NSA1-17
NSA1-19
NSA1-37
NSA1-23
NSA1-38
NSA1-24
NSA1-18
NSA1-39
NSA1-40
NSA1-25
NSA1-41
NSA1-26
NSA1-42
NSA1-43
NSA1-5
NSA1-11
NSA1-27
NSA1-44
NSA1-6
NSA1-12
NSA1-1
NSA1-7
NSA1-8
NSA1-45
NSA1-46
NSA1-9
NSA1-28
NSA1-2
NSA1-3
NSA1-4
NSA1-29
NSA1-10
NSA1-13
NSA1-30
NSA1-31
point2572
point2571
point2570
point2569
point2568
Design Year Build Alternative I NSA1
Plan View
Run name: NSA1 Revised
Scale: 200 feet
Sheet 1 of 1
8 Jun 2023
Lawhon & Associates
Project/Contract No. HAM-75-1.05 PID 89068
TNM Version 2.5, Feb 2004
Analysis By: CMCox
Roadway:
Receiver:
Barrier:
Building Row:
Terrain Line:
Ground Zone: polygon
Tree Zone: dashed polygon
Contour Zone: polygon
Parallel Barrier:
Skew Section:
5400
5265600
5265800
5266000
5266200
5266400
5266600
5266800
5267000
5267200

Lawhon & Associates
CMCox

8 June 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: HAM-75-1.05 PID 113361
RUN: Design Year Build Alternative I NSA1
BARRIER DESIGN: NSA1 DY2049 20' Not Recommended
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
NSA1-1	2114	1	75.0	74.1	66	-0.9	10	Snd Lvl	69.4	4.7	5	-0.3
NSA1-2	2115	1	74.5	73.4	66	-1.1	10	Snd Lvl	68.6	4.8	5	-0.2
NSA1-3	2116	1	74.7	73.3	66	-1.4	10	Snd Lvl	68.9	4.4	5	-0.6
NSA1-4	2117	1	73.1	71.9	66	-1.2	10	Snd Lvl	67.6	4.3	5	-0.7
NSA1-5	2118	2	68.0	71.9	66	3.9	10	Snd Lvl	66.6	5.3	5	0.3
NSA1-6	2119	2	68.9	71.6	66	2.7	10	Snd Lvl	66.5	5.1	5	0.1
NSA1-7	2120	1	70.6	71.4	66	0.8	10	Snd Lvl	66.9	4.5	5	-0.5
NSA1-8	2121	1	70.7	71.0	66	0.3	10	Snd Lvl	67.0	4.0	5	-1.0
NSA1-9	2122	1	68.0	70.1	66	2.1	10	Snd Lvl	65.7	4.4	5	-0.6
NSA1-10	2123	1	65.3	67.4	66	2.1	10	Snd Lvl	65.1	2.3	5	-2.7
NSA1-11	2124	2	66.9	69.8	66	2.9	10	Snd Lvl	64.9	4.9	5	-0.1
NSA1-12	2125	2	68.4	69.5	66	1.1	10	Snd Lvl	66.1	3.4	5	-1.6
NSA1-13	2126	1	63.9	65.6	66	1.7	10	----	63.9	1.7	5	-3.3
NSA1-14	2127	3	70.1	70.7	66	0.6	10	Snd Lvl	70.5	0.2	5	-4.8
NSA1-15	2128	2	70.6	71.2	66	0.6	10	Snd Lvl	71.1	0.1	5	-4.9
NSA1-16	2129	1	72.9	73.6	66	0.7	10	Snd Lvl	68.4	5.2	5	0.2
NSA1-17	2130	2	73.2	73.6	66	0.4	10	Snd Lvl	66.8	6.8	5	1.8
NSA1-18	2131	1	74.0	74.3	66	0.3	10	Snd Lvl	67.0	7.3	5	2.3
NSA1-19	2132	2	71.6	72.1	66	0.5	10	Snd Lvl	65.9	6.2	5	1.2
NSA1-20	2133	2	68.8	71.5	66	2.7	10	Snd Lvl	67.9	3.6	5	-1.4
NSA1-21	2134	1	68.4	71.5	66	3.1	10	Snd Lvl	67.0	4.5	5	-0.5
NSA1-22	2135	3	66.8	71.0	66	4.2	10	Snd Lvl	65.5	5.5	5	0.5
NSA1-23	2136	1	68.7	70.9	66	2.2	10	Snd Lvl	65.3	5.6	5	0.6
NSA1-24	2137	2	70.0	71.0	66	1.0	10	Snd Lvl	65.2	5.8	5	0.8

NSA1-25	2138	3	69.4	69.9	66	0.5	10	Snd Lvl	65.3	4.6	5	-0.4
NSA1-26	2139	2	67.3	69.4	66	2.1	10	Snd Lvl	64.1	5.3	5	0.3
NSA1-27	2140	2	64.7	68.0	66	3.3	10	Snd Lvl	64.1	3.9	5	-1.1
NSA1-28	2141	2	64.9	66.9	66	2.0	10	Snd Lvl	64.3	2.6	5	-2.4
NSA1-29	2142	2	64.1	66.2	66	2.1	10	Snd Lvl	64.0	2.2	5	-2.8
NSA1-30	2143	3	63.9	66.2	66	2.3	10	Snd Lvl	64.1	2.1	5	-2.9
NSA1-31	2144	1	63.4	65.7	66	2.3	10	----	64.3	1.4	5	-3.6
NSA1-32	2145	2	63.5	65.7	66	2.2	10	----	64.8	0.9	5	-4.1
NSA1-33	2146	4	62.6	65.3	66	2.7	10	----	64.8	0.5	5	-4.5
NSA1-34	2147	2	62.3	65.6	66	3.3	10	----	65.2	0.4	5	-4.6
NSA1-35	2148	2	68.2	69.5	66	1.3	10	Snd Lvl	65.9	3.6	5	-1.4
NSA1-36	2149	2	67.3	69.1	66	1.8	10	Snd Lvl	65.0	4.1	5	-0.9
NSA1-37	2150	2	69.5	70.0	66	0.5	10	Snd Lvl	66.1	3.9	5	-1.1
NSA1-38	2151	2	68.5	69.4	66	0.9	10	Snd Lvl	64.5	4.9	5	-0.1
NSA1-39	2152	2	69.3	69.4	66	0.1	10	Snd Lvl	66.2	3.2	5	-1.8
NSA1-40	2153	2	69.0	69.2	66	0.2	10	Snd Lvl	65.8	3.4	5	-1.6
NSA1-41	2154	1	66.0	67.2	66	1.2	10	Snd Lvl	63.9	3.3	5	-1.7
NSA1-42	2155	6	63.7	65.4	66	1.7	10	----	62.9	2.5	5	-2.5
NSA1-43	2156	1	63.8	65.8	66	2.0	10	----	63.3	2.5	5	-2.5
NSA1-44	2157	1	63.0	65.5	66	2.5	10	----	62.9	2.6	5	-2.4
NSA1-45	2158	1	64.9	66.9	66	2.0	10	Snd Lvl	63.8	3.1	5	-1.9
NSA1-46	2159	1	65.4	67.2	66	1.8	10	Snd Lvl	64.3	2.9	5	-2.1
NSA1-49	2162	1	64.9	67.3	66	2.4	10	Snd Lvl	65.3	2.0	5	-3.0
NSA1-50	2163	3	65.3	66.4	66	1.1	10	Snd Lvl	64.6	1.8	5	-3.2
NSA1-51	2164	4	63.3	64.1	66	0.8	10	----	62.3	1.8	5	-3.2
NSA1-52	2165	1	50.3	62.7	66	12.4	10	Sub'l Inc	62.6	0.1	5	-4.9
NSA1-53	2166	4	62.0	64.9	66	2.9	10	----	63.7	1.2	5	-3.8
NSA1-54	2167	2	64.4	65.1	66	0.7	10	----	63.2	1.9	5	-3.1

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	98	0.1	3.4	7.3
All Impacted	70	0.1	3.9	7.3
All that meet NR Goal	18	5.1	5.8	7.3

Lawhon & Associates				**8 June 2023**						
CMCox				**TNM 2.5**						
RESULTS: BARRIER DESCRIPTIONS										
PROJECT/CONTRACT:	**HAM-75-1.05 PID 113361**									
RUN:	**Design Year Build Alternative I NSA1**									
BARRIER DESIGN:	**INPUT HEIGHTS**									
Barriers										
Name	**Type**	**Heights along Barrier**			**Length**	**If Wall**	**If Berm**			**Cost**
		Min	**Avg**	**Max**		**Area**	**Volume**	**Top Width**	**Run:Rise**	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
NSA 1 EOS	W	16.00	16.00	16.00	1626	26022				780648
									Total Cost:	780648

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CMCox TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: HAM-75-1.05 PID 113361
RUN: Design Year Build Alternative I NSA1

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per Unit Area	$ per Unit Vol.	Top Width	Run:Rise	$ per Unit Length			X	Y	Z	at Point	Seg Ht Incre-ment	#Up	#Dn	On Struct?	Important Reflec-tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
NSA 1 EOS	W	5.00	99.99	30.00				0.00	point2568	2568	5,265,602.0	4,299,696.0	536.80	16.00	1.00	4	2		
									point2569	2569	5,265,652.0	4,299,868.0	536.00	16.00	1.00	4	2		
									point2570	2570	5,265,783.5	4,300,307.0	535.70	16.00	1.00	4	2		
									point2571	2571	5,265,901.0	4,300,701.0	535.00	16.00	1.00	4	2		
									point2572	2572	5,265,984.0	4,301,008.0	536.00	16.00	1.00	4	2		
									point2573	2573	5,266,043.0	4,301,261.0	538.00	16.00					

Lawhon & Associates 8 June 2023
CMCox TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA1

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
NSA1-1	2114	1	5,265,881.5	4,300,188.0	569.00	4.92	75.00	66	10.0	5.0	Y
NSA1-2	2115	1	5,265,859.0	4,300,089.5	565.00	4.92	74.50	66	10.0	5.0	Y
NSA1-3	2116	1	5,265,852.0	4,300,068.0	563.00	4.92	74.70	66	10.0	5.0	Y
NSA1-4	2117	1	5,265,871.5	4,300,039.5	565.00	4.92	73.10	66	10.0	5.0	Y
NSA1-5	2118	2	5,266,001.5	4,300,236.0	580.00	4.92	68.00	66	10.0	5.0	Y
NSA1-6	2119	2	5,265,995.5	4,300,205.0	580.00	4.92	68.90	66	10.0	5.0	Y
NSA1-7	2120	1	5,266,009.5	4,300,187.5	586.00	4.92	70.60	66	10.0	5.0	Y
NSA1-8	2121	1	5,266,025.5	4,300,162.5	591.00	4.92	70.70	66	10.0	5.0	Y
NSA1-9	2122	1	5,266,013.0	4,300,134.0	583.00	4.92	68.00	66	10.0	5.0	Y
NSA1-10	2123	1	5,265,958.0	4,300,017.0	567.00	4.92	65.30	66	10.0	5.0	Y
NSA1-11	2124	2	5,266,086.0	4,300,250.0	589.00	4.92	66.90	66	10.0	5.0	Y
NSA1-12	2125	2	5,266,060.0	4,300,203.0	593.00	4.92	68.40	66	10.0	5.0	Y
NSA1-13	2126	1	5,266,041.5	4,299,989.5	573.00	4.92	63.90	66	10.0	5.0	Y
NSA1-14	2127	3	5,265,874.5	4,299,473.5	550.00	4.92	70.10	66	10.0	5.0	Y
NSA1-15	2128	2	5,265,868.5	4,299,389.0	553.00	4.92	70.60	66	10.0	5.0	Y
NSA1-16	2129	1	5,266,228.5	4,300,988.5	557.00	4.92	72.90	66	10.0	5.0	Y
NSA1-17	2130	2	5,266,165.0	4,300,836.5	558.00	4.92	73.20	66	10.0	5.0	Y
NSA1-18	2131	1	5,266,084.5	4,300,674.0	561.00	4.92	74.00	66	10.0	5.0	Y
NSA1-19	2132	2	5,266,236.5	4,300,829.5	567.00	4.92	71.60	66	10.0	5.0	Y
NSA1-20	2133	2	5,266,355.0	4,301,059.5	564.00	4.92	68.80	66	10.0	5.0	Y
NSA1-21	2134	1	5,266,334.0	4,300,991.0	566.00	4.92	68.40	66	10.0	5.0	Y
NSA1-22	2135	3	5,266,309.5	4,300,872.0	569.00	4.92	66.80	66	10.0	5.0	Y

NSA1-23	2136	1	5,266,299.5	4,300,799.0	576.00	4.92	68.70	66	10.0	5.0	Y
NSA1-24	2137	2	5,266,274.5	4,300,724.0	582.00	4.92	70.00	66	10.0	5.0	Y
NSA1-25	2138	3	5,266,215.5	4,300,409.5	601.00	4.92	69.40	66	10.0	5.0	Y
NSA1-26	2139	2	5,266,189.5	4,300,343.5	595.00	4.92	67.30	66	10.0	5.0	Y
NSA1-27	2140	2	5,266,146.0	4,300,220.0	593.00	4.92	64.70	66	10.0	5.0	Y
NSA1-28	2141	2	5,266,118.5	4,300,094.0	592.00	4.92	64.90	66	10.0	5.0	Y
NSA1-29	2142	2	5,266,125.0	4,300,035.5	589.00	4.92	64.10	66	10.0	5.0	Y
NSA1-30	2143	3	5,266,117.5	4,299,996.5	586.00	4.92	63.90	66	10.0	5.0	Y
NSA1-31	2144	1	5,266,076.5	4,299,861.5	575.00	4.92	63.40	66	10.0	5.0	Y
NSA1-32	2145	2	5,266,060.5	4,299,762.5	571.00	4.92	63.50	66	10.0	5.0	Y
NSA1-33	2146	4	5,266,044.5	4,299,713.5	566.00	4.92	62.60	66	10.0	5.0	Y
NSA1-34	2147	2	5,266,040.5	4,299,625.0	564.00	4.92	62.30	66	10.0	5.0	Y
NSA1-35	2148	2	5,266,480.0	4,301,012.5	584.00	4.92	68.20	66	10.0	5.0	Y
NSA1-36	2149	2	5,266,461.0	4,300,913.5	586.00	4.92	67.30	66	10.0	5.0	Y
NSA1-37	2150	2	5,266,436.0	4,300,839.5	613.00	4.92	69.50	66	10.0	5.0	Y
NSA1-38	2151	2	5,266,411.0	4,300,758.5	598.00	4.92	68.50	66	10.0	5.0	Y
NSA1-39	2152	2	5,266,372.0	4,300,586.5	624.00	4.92	69.30	66	10.0	5.0	Y
NSA1-40	2153	2	5,266,352.5	4,300,510.0	622.00	4.92	69.00	66	10.0	5.0	Y
NSA1-41	2154	1	5,266,343.5	4,300,378.0	616.00	4.92	66.00	66	10.0	5.0	Y
NSA1-42	2155	6	5,266,334.5	4,300,337.5	610.00	4.92	63.70	66	10.0	5.0	Y
NSA1-43	2156	1	5,266,307.5	4,300,269.5	611.00	4.92	63.80	66	10.0	5.0	Y
NSA1-44	2157	1	5,266,303.5	4,300,220.0	610.00	4.92	63.00	66	10.0	5.0	Y
NSA1-45	2158	1	5,266,273.0	4,300,167.0	611.00	4.92	64.90	66	10.0	5.0	Y
NSA1-46	2159	1	5,266,205.5	4,300,146.0	604.00	4.92	65.40	66	10.0	5.0	Y
NSA1-47	2160	2	5,266,000.0	4,298,942.5	593.00	4.92	69.00	66	10.0	5.0	Y
NSA1-48	2161	3	5,265,978.0	4,298,802.5	590.00	4.92	69.70	66	10.0	5.0	Y
NSA1-49	2162	1	5,266,655.0	4,301,189.5	583.00	4.92	64.90	66	10.0	5.0	Y
NSA1-50	2163	3	5,266,621.0	4,301,027.5	599.00	4.92	65.30	66	10.0	5.0	Y
NSA1-51	2164	4	5,266,744.0	4,301,133.5	604.00	4.92	63.30	66	10.0	5.0	Y
NSA1-52	2165	1	5,266,701.0	4,301,027.5	584.00	4.92	50.30	66	10.0	5.0	Y
NSA1-53	2166	4	5,266,846.0	4,301,390.5	584.00	4.92	62.00	66	10.0	5.0	Y
NSA1-54	2167	2	5,266,867.0	4,301,112.5	625.00	4.92	64.40	66	10.0	5.0	Y

Lawhon & Associates **8 June 2023**
CMCox **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **HAM-75-1.05 PID 89068**
RUN: **Design Year Build Alternative I NSA1**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Rd183 ; SB Spr Gr Alfred-(3)1/1	point431	431	686	35	13	35	31	35	0	0	0	0
	point432	432	686	35	13	35	31	35	0	0	0	0
	point433	433	686	35	13	35	31	35	0	0	0	0
	point434	434	686	35	13	35	31	35	0	0	0	0
	point435	435	686	35	13	35	31	35	0	0	0	0
	point436	436	686	35	13	35	31	35	0	0	0	0
	point437	437										
Rd184 ; SB Spr Gr loe Western(3)1/1	point438	438	686	35	13	35	31	35	0	0	0	0
	point439	439	686	35	13	35	31	35	0	0	0	0
	point440	440	686	35	13	35	31	35	0	0	0	0
	point441	441										
Rd197 ; NB Dalton findlay-bank(2)1/1	point481	481	513	35	9	35	18	35	0	0	0	0
	point482	482	513	35	9	35	18	35	0	0	0	0
	point483	483	513	35	9	35	18	35	0	0	0	0
	point484	484	513	35	9	35	18	35	0	0	0	0
	point485	485	513	35	9	35	18	35	0	0	0	0
	point486	486	513	35	9	35	18	35	0	0	0	0
	point487	487	513	35	9	35	18	35	0	0	0	0
	point488	488	513	35	9	35	18	35	0	0	0	0
	point489	489	513	35	9	35	18	35	0	0	0	0
	point490	490	513	35	9	35	18	35	0	0	0	0
	point491	491										
Rd198 ; NB Dalton @ bank(2)1/1	point492	492	1019	35	13	35	19	35	0	0	0	0

	point493	493										
Rd199 ; NB Spr Gr bank-Harrison(3)1/1	point494	494	598	35	13	35	19	35	0	0	0	0
	point495	495	598	35	13	35	19	35	0	0	0	0
	point496	496	598	35	13	35	19	35	0	0	0	0
	point497	497	598	35	13	35	19	35	0	0	0	0
	point498	498	598	35	13	35	19	35	0	0	0	0
	point499	499										
Rd200 ; NB Spr Gr Harrison-Lower W(2)1/1	point500	500	640	35	8	35	12	35	0	0	0	0
	point501	501	640	35	8	35	12	35	0	0	0	0
	point502	502	640	35	8	35	12	35	0	0	0	0
	point503	503										
Rd201 ; NB Spr Gr fr Western(2)1/1	point504	504	640	35	8	35	12	35	0	0	0	0
	point505	505	640	35	8	35	12	35	0	0	0	0
	point506	506	640	35	8	35	12	35	0	0	0	0
	point507	507	640	35	8	35	12	35	0	0	0	0
	point508	508	640	35	8	35	12	35	0	0	0	0
	point509	509										
Rd202 ; SB Spr Gr 2lane-western(3)1/1	point510	510	686	35	13	35	31	35	0	0	0	0
	point511	511										
Rd219 ; NB Winchell @ Bank(3)1/1	point548	548	514	35	6	35	10	35	0	0	0	0
	point549	549										
Rd226 ; WB Bank to Winchell(2)1/1	point560	560	368	35	10	35	22	35	0	0	0	0
	point561	561	225	35	2	35	3	35	0	0	0	0
	point562	562										
Rd227 ; WB Bank Winc-Dalton(2)1/1	point563	563	368	35	10	35	22	35	0	0	0	0
	point564	564	368	35	10	35	22	35	0	0	0	0
	point565	565	368	35	10	35	22	35	0	0	0	0
	point566	566										
Rd228 ; WB bank @ Dalton(2)1/1	point567	567	87	35	1	35	2	35	0	0	0	0
	point568	568										
Rd229 ; WB bank fr dalton(2)1/1	point569	569	368	35	10	35	22	35	0	0	0	0
	point570	570	368	35	10	35	22	35	0	0	0	0
	point571	571										
Rd298; SB Spr @ Low Western(2)1/1	point820	820	1009	35	12	35	19	35	0	0	0	0
	point821	821										
Rd337; NB 75 5lane-Western Off(6)1/1	point1169	1169	6713	55	85	55	202	55	0	0	0	0

	point1170	1170	6713	55	85	55	202	55	0	0	0	0
	point1171	1171	6713	55	85	55	202	55	0	0	0	0
	point1172	1172										
Rd338; NB 75 Western Off-Winc On(5)1/1	point1173	1173	7134	55	212	55	494	55	0	0	0	0
	point1174	1174	7134	55	212	55	494	55	0	0	0	0
	point1175	1175	7134	55	212	55	494	55	0	0	0	0
	point1176	1176	7134	55	212	55	494	55	0	0	0	0
	point1177	1177	7134	55	212	55	494	55	0	0	0	0
	point1178	1178	7134	55	212	55	494	55	0	0	0	0
	point1179	1179	7134	55	212	55	494	55	0	0	0	0
	point1180	1180	7134	55	212	55	494	55	0	0	0	0
	point1181	1181	7134	55	212	55	494	55	0	0	0	0
	point1182	1182										
Rd339; NB 75 Winc On-West On(5)1/1	point1183	1183	7134	55	212	55	494	55	0	0	0	0
	point1184	1184	7134	55	212	55	494	55	0	0	0	0
	point1185	1185	7134	55	212	55	494	55	0	0	0	0
	point1186	1186	7134	55	212	55	494	55	0	0	0	0
	point1187	1187	7134	55	212	55	494	55	0	0	0	0
	point1188	1188	7134	55	212	55	494	55	0	0	0	0
	point1189	1189	7134	55	212	55	494	55	0	0	0	0
	point1190	1190										
Rd340; NB 75 Fr Western On(5)1/1	point1191	1191	8225	55	215	55	500	55	0	0	0	0
	point1192	1192	8225	55	215	55	500	55	0	0	0	0
	point1193	1193	8225	55	215	55	500	55	0	0	0	0
	point1194	1194	8225	55	215	55	500	55	0	0	0	0
	point1195	1195	8225	55	215	55	500	55	0	0	0	0
	point1196	1196	8225	55	215	55	500	55	0	0	0	0
	point1197	1197										
Rd342; BN Off Fr 75 to WHV(1)1/1	point1216	1216	737	35	8	35	15	35	0	0	0	0
	point1217	1217	737	35	8	35	15	35	0	0	0	0
	point1218	1218	737	35	8	35	15	35	0	0	0	0
	point1219	1219	737	35	8	35	15	35	0	0	0	0
	point1220	1220	737	35	8	35	15	35	0	0	0	0
	point1221	1221	737	35	8	35	15	35	0	0	0	0
	point1222	1222	737	35	8	35	15	35	0	0	0	0
	point1223	1223	737	35	8	35	15	35	0	0	0	0

	point1224	1224	737	35	8	35	15	35	0	0	0	0
	point1225	1225	737	35	8	35	15	35	0	0	0	0
	point1226	1226	737	35	8	35	15	35	0	0	0	0
	point1227	1227										
Rd348 ; NB On Fr Western(1)1/1	point1228	1228	1056	35	14	35	31	35	0	0	0	0
	point1229	1229	1056	35	14	35	31	35	0	0	0	0
	point1230	1230	1056	35	14	35	31	35	0	0	0	0
	point1231	1231	1056	35	14	35	31	35	0	0	0	0
	point1232	1232	1056	35	14	35	31	35	0	0	0	0
	point1233	1233	1056	35	14	35	31	35	0	0	0	0
	point1234	1234	1056	35	14	35	31	35	0	0	0	0
	point1235	1235	1056	35	14	35	31	35	0	0	0	0
	point1236	1236	1056	35	14	35	31	35	0	0	0	0
	point1237	1237	1056	35	14	35	31	35	0	0	0	0
	point1238	1238										
SB 75 to Off ramp(6)1/1	point1239	1239	6706	55	176	55	428	55	0	0	0	0
	point1240	1240	6706	55	176	55	428	55	0	0	0	0
	point1241	1241	6706	55	176	55	428	55	0	0	0	0
	point1242	1242	6706	55	176	55	428	55	0	0	0	0
	point1244	1244	6706	55	176	55	428	55	0	0	0	0
	point1245	1245	6706	55	176	55	428	55	0	0	0	0
	point1246	1246										
SB 75 fr Off-On fr western(5)1/1	point1247	1247	5078	55	151	55	351	55	0	0	0	0
	point1248	1248	5078	55	151	55	351	55	0	0	0	0
	point1249	1249	5078	55	151	55	351	55	0	0	0	0
	point1250	1250	5078	55	151	55	351	55	0	0	0	0
	point1251	1251	5078	55	151	55	351	55	0	0	0	0
	point1252	1252	5078	55	151	55	351	55	0	0	0	0
	point1253	1253	5078	55	151	55	351	55	0	0	0	0
	point1254	1254	5078	55	151	55	351	55	0	0	0	0
	point1255	1255	5078	55	151	55	351	55	0	0	0	0
	point1256	1256	5078	55	151	55	351	55	0	0	0	0
	point1257	1257	5078	55	151	55	351	55	0	0	0	0
	point1258	1258	5078	55	151	55	351	55	0	0	0	0
	point1259	1259	5078	55	151	55	351	55	0	0	0	0
	point1260	1260	5078	55	151	55	351	55	0	0	0	0

	point1261	1261	5078	55	151	55	351	55	0	0	0	0
	point1262	1262	5078	55	151	55	351	55	0	0	0	0
	point1263	1263	5078	55	151	55	351	55	0	0	0	0
	point1264	1264	5078	55	151	55	351	55	0	0	0	0
	point1265	1265										
SB Off to Western +(1)1/1	point1329	1329	1607	35	18	35	65	35	0	0	0	0
	point1330	1330	1607	35	18	35	65	35	0	0	0	0
	point1331	1331	1607	35	18	35	65	35	0	0	0	0
	point1332	1332	1607	35	18	35	65	35	0	0	0	0
	point1333	1333										
Rd357; SB Off to Western(1)1/1	point1334	1334	814	35	8	35	18	35	0	0	0	0
	point1335	1335	814	35	8	35	18	35	0	0	0	0
	point1336	1336	814	35	8	35	18	35	0	0	0	0
	point1337	1337	814	35	8	35	18	35	0	0	0	0
	point1338	1338	814	35	8	35	18	35	0	0	0	0
	point1339	1339	814	35	8	35	18	35	0	0	0	0
	point1340	1340	814	35	8	35	18	35	0	0	0	0
	point1341	1341	814	35	8	35	18	35	0	0	0	0
	point1342	1342	814	35	8	35	18	35	0	0	0	0
	point1343	1343										
Rd361; SB Off to Findlay(1)1/1	point1344	1344	792	35	24	35	54	35	0	0	0	0
	point1345	1345	792	35	24	35	54	35	0	0	0	0
	point1346	1346	792	35	24	35	54	35	0	0	0	0
	point1347	1347	792	35	24	35	54	35	0	0	0	0
	point1348	1348	792	35	24	35	54	35	0	0	0	0
	point1349	1349	792	35	24	35	54	35	0	0	0	0
	point1350	1350	792	35	24	35	54	35	0	0	0	0
	point1351	1351	792	35	24	35	54	35	0	0	0	0
	point1352	1352	792	35	24	35	54	35	0	0	0	0
	point1353	1353	792	35	24	35	54	35	0	0	0	0
	point1354	1354	792	35	24	35	54	35	0	0	0	0
	point1355	1355	792	35	24	35	54	35	0	0	0	0
	point1356	1356	792	35	24	35	54	35	0	0	0	0
	point1357	1357	792	35	24	35	54	35	0	0	0	0
	point1358	1358	792	35	24	35	54	35	0	0	0	0
	point1359	1359	792	35	24	35	54	35	0	0	0	0

	point1360	1360	792	35	24	35	54	35	0	0	0	0
	point1361	1361	792	35	24	35	54	35	0	0	0	0
	point1362	1362	792	35	24	35	54	35	0	0	0	0
	point1363	1363	792	35	24	35	54	35	0	0	0	0
	point1364	1364	792	35	24	35	54	35	0	0	0	0
	point1365	1365										
Rd365; SB On Fr Western(1)1/1	point1366	1366	1160	35	24	35	46	35	0	0	0	0
	point1367	1367	1160	35	24	35	46	35	0	0	0	0
	point1368	1368	1160	35	24	35	46	35	0	0	0	0
	point1369	1369	1160	35	24	35	46	35	0	0	0	0
	point1370	1370	1160	35	24	35	46	35	0	0	0	0
	point1371	1371	1160	35	24	35	46	35	0	0	0	0
	point1372	1372	1160	35	24	35	46	35	0	0	0	0
	point1373	1373	1160	35	24	35	46	35	0	0	0	0
	point1374	1374	1160	35	24	35	46	35	0	0	0	0
	point1375	1375	1160	35	24	35	46	35	0	0	0	0
	point1376	1376	1160	35	24	35	46	35	0	0	0	0
	point1377	1377	1160	35	24	35	46	35	0	0	0	0
	point1378	1378	1160	35	24	35	46	35	0	0	0	0
	point1379	1379	1160	35	24	35	46	35	0	0	0	0
	point1380	1380	1160	35	24	35	46	35	0	0	0	0
	point1381	1381	685	35	24	35	46	35	0	0	0	0
	point1382	1382										
Rd 446; NB Spr Gr fr Western to 75 (2)1/1	point1813	1813	640	35	8	35	12	35	0	0	0	0
	point1814	1814	640	35	8	35	12	35	0	0	0	0
	point1815	1815										
Rd 439; WB W H Via Fr On(2)1/1	point1816	1816	1316	35	5	35	8	35	0	0	0	0
	point1817	1817	2040	35	39	35	91	35	0	0	0	0
	point1818	1818	2040	35	39	35	91	35	0	0	0	0
	point1819	1819	2040	35	39	35	91	35	0	0	0	0
	point1820	1820										
Rd203 ; WB Low Western fr Spr Gr(1)1/1	point1821	1821	0	0	0	0	0	0	0	0	0	0
	point1822	1822										
Rd204 ; WB low Western fr SB On(1)1/1	point1823	1823	670	35	20	35	30	35	0	0	0	0
	point1824	1824	670	35	20	35	30	35	0	0	0	0
	point1825	1825	2040	35	39	35	91	35	0	0	0	0

	point1826	1826										
Rd 459; WB ramp to WHV Low(1)1/1	point1827	1827	388	35	5	35	7	35	0	0	0	0
	point1828	1828	388	35	5	35	7	35	0	0	0	0
	point1829	1829										
Rd206 ; EB Low Western fr Off(2)1/1	point1830	1830	0	0	0	0	0	0	0	0	0	0
	point1831	1831	0	0	0	0	0	0	0	0	0	0
	point1832	1832	0	0	0	0	0	0	0	0	0	0
	point1833	1833	0	0	0	0	0	0	0	0	0	0
	point1834	1834	0	0	0	0	0	0	0	0	0	0
	point1835	1835										
Rd 453; EB ramp fr WHV Lowto SB(21/1	point1836	1836	1188	35	19	35	43	35	0	0	0	0
	point1837	1837	1188	35	19	35	43	35	0	0	0	0
	point1838	1838	1188	35	19	35	43	35	0	0	0	0
	point1839	1839	1188	35	19	35	43	35	0	0	0	0
	point1840	1840	1188	35	19	35	43	35	0	0	0	0
	point1841	1841	1188	35	19	35	43	35	0	0	0	0
	point1842	1842	1188	35	19	35	43	35	0	0	0	0
	point1843	1843	1188	35	19	35	43	35	0	0	0	0
	point1844	1844	1188	35	19	35	43	35	0	0	0	0
	point1845	1845	1188	35	19	35	43	35	0	0	0	0
	point1846	1846	1188	35	19	35	43	35	0	0	0	0
	point1847	1847	1188	35	19	35	43	35	0	0	0	0
	point1848	1848	1188	35	19	35	43	35	0	0	0	0
	point1849	1849	1188	35	19	35	43	35	0	0	0	0
	point1850	1850	1188	35	19	35	43	35	0	0	0	0
	point1851	1851										
Rd 436; EB W H Via (2)1/1	point1852	1852	998	35	14	35	28	35	0	0	0	0
	point1853	1853	998	35	14	35	28	35	0	0	0	0
	point1854	1854	998	35	14	35	28	35	0	0	0	0
	point1855	1855	1090	35	18	35	42	35	0	0	0	0
	point1856	1856										
Rd 458; WB ramp to WHV Low(1)1/1	point1857	1857	1520	35	24	35	56	35	0	0	0	0
	point1858	1858	1520	35	24	35	56	35	0	0	0	0
	point1859	1859	1520	35	24	35	56	35	0	0	0	0
	point1860	1860										
Rd 457; WB Ramp to WHV low(2)1/1	point1861	1861	1730	35	27	35	63	35	0	0	0	0

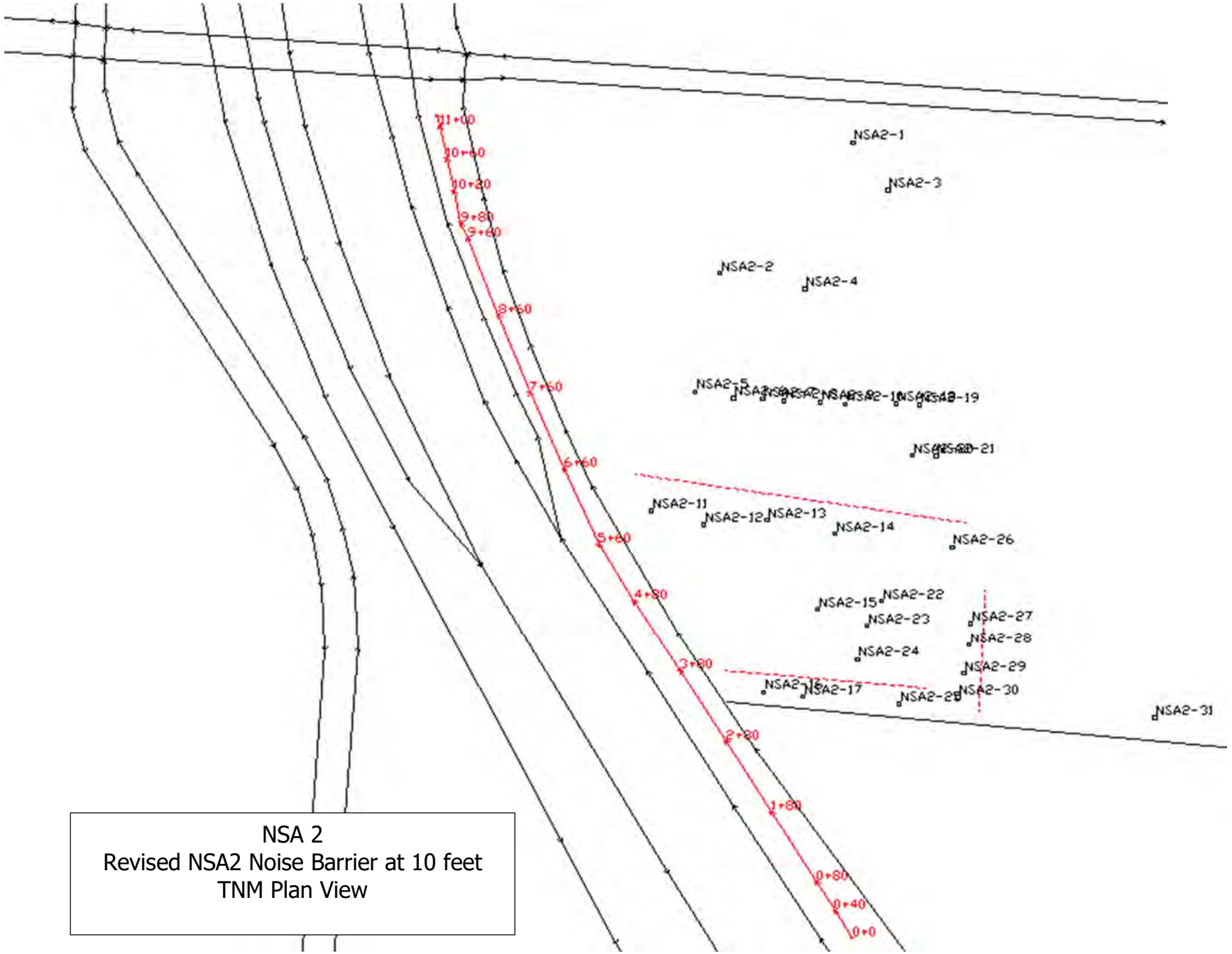
	point1862	1862	1730	35	27	35	63	35	0	0	0	0
	point1863	1863	1730	35	27	35	63	35	0	0	0	0
	point1864	1864	1730	35	27	35	63	35	0	0	0	0
	point1865	1865	1730	35	27	35	63	35	0	0	0	0
	point1866	1866	1730	35	27	35	63	35	0	0	0	0
	point1867	1867	1730	35	27	35	63	35	0	0	0	0
	point1868	1868										
Rd221 ; NB Winch Fr Bank(1)1/1	point1869	1869	790	35	15	35	35	35	0	0	0	0
	point1870	1870	790	35	15	35	35	35	0	0	0	0
	point1871	1871	790	35	15	35	35	35	0	0	0	0
	point1872	1872	790	35	15	35	35	35	0	0	0	0
	point1873	1873	790	35	15	35	35	35	0	0	0	0
	point1874	1874	790	35	15	35	35	35	0	0	0	0
	point1875	1875										
Rd 452; NB Winch Fr Bank(3)1/1	point1876	1876	514	35	6	35	10	35	0	0	0	0
	point1877	1877										
Rd 456; WB fr Wench to SB off(2)1/1	point1878	1878	1520	35	24	35	56	35	0	0	0	0
	point1879	1879										
Rd 454; EB ramp fr WHV low-Wench(1)1/1	point1880	1880	388	35	5	35	7	35	0	0	0	0
	point1881	1881	836	35	13	35	31	35	0	0	0	0
	point1882	1882										
Rd 455; WB to WHV fr Wench(2)1/1	point1883	1883	218	35	3	35	9	35	0	0	0	0
	point1884	1884										
Rd 451; NB Spr Gr @ Harrison(3))1/1	point1885	1885	1019	35	13	35	19	35	0	0	0	0
	point1886	1886										
Rd 449; WB Harrison to Spr Gr(2)1/1	point1887	1887	403	35	5	35	12	35	0	0	0	0
	point1888	1888	403	35	5	35	12	35	0	0	0	0
	point1889	1889	403	35	5	35	12	35	0	0	0	0
	point1890	1890										
Rd 447; EB Harrison Fr Spr Gr(2)1/1	point1891	1891	163	35	2	35	5	35	0	0	0	0
	point1892	1892	163	35	2	35	5	35	0	0	0	0
	point1893	1893	163	35	2	35	5	35	0	0	0	0
	point1894	1894	163	35	2	35	5	35	0	0	0	0
	point1895	1895	163	35	2	35	5	35	0	0	0	0
	point1896	1896	163	35	2	35	5	35	0	0	0	0
	point1897	1897										

Rd 448; WB Harrison to WHV UP off(2)1/1	point1898	1898	106	35	1	35	4	35	0	0	0	0
	point1899	1899	106	35	1	35	4	35	0	0	0	0
	point1900	1900	106	35	1	35	4	35	0	0	0	0
	point1901	1901	106	35	1	35	4	35	0	0	0	0
	point1902	1902										
Rd 450; Ramp fr EB WHV(1)1/1	point1903	1903	107	35	1	35	2	35	0	0	0	0
	point1904	1904	107	35	1	35	2	35	0	0	0	0
	point1905	1905	107	35	1	35	2	35	0	0	0	0
	point1906	1906	107	35	1	35	2	35	0	0	0	0
	point1907	1907	107	35	1	35	2	35	0	0	0	0
	point1908	1908	107	35	1	35	2	35	0	0	0	0
	point1909	1909	107	35	1	35	2	35	0	0	0	0
	point1910	1910	107	35	1	35	2	35	0	0	0	0
	point1911	1911	107	35	1	35	2	35	0	0	0	0
	point1912	1912	107	35	1	35	2	35	0	0	0	0
	point1913	1913	107	35	1	35	2	35	0	0	0	0
	point1914	1914										
Rd 450; Ramp fr EB WHV(1)2/1	point1915	1915	314	35	6	35	10	35	0	0	0	0
	point1916	1916										
Rd 437; EB W H Via (2)1/1	point1917	1917	780	35	12	35	28	35	0	0	0	0
	point1918	1918	780	35	12	35	28	35	0	0	0	0
	point1919	1919										
Rd 438; WB W H Via to 75 On(2)1/1	point1920	1920	568	35	4	35	8	35	0	0	0	0
	point1921	1921	568	35	4	35	8	35	0	0	0	0
	point1922	1922										
Rd 445; Ramp Spr Gr to WB W H Via1/1	point1923	1923	342	35	6	35	12	35	0	0	0	0
	point1924	1924	342	35	6	35	12	35	0	0	0	0
	point1925	1925	342	35	6	35	12	35	0	0	0	0
	point1926	1926	342	35	6	35	12	35	0	0	0	0
	point1927	1927	342	35	6	35	12	35	0	0	0	0
	point1928	1928	342	35	6	35	12	35	0	0	0	0
	point1929	1929	342	35	6	35	12	35	0	0	0	0
	point1930	1930	342	35	6	35	12	35	0	0	0	0
	point1931	1931	342	35	6	35	12	35	0	0	0	0
	point1932	1932	342	35	6	35	12	35	0	0	0	0
	point1933	1933	342	35	6	35	12	35	0	0	0	0

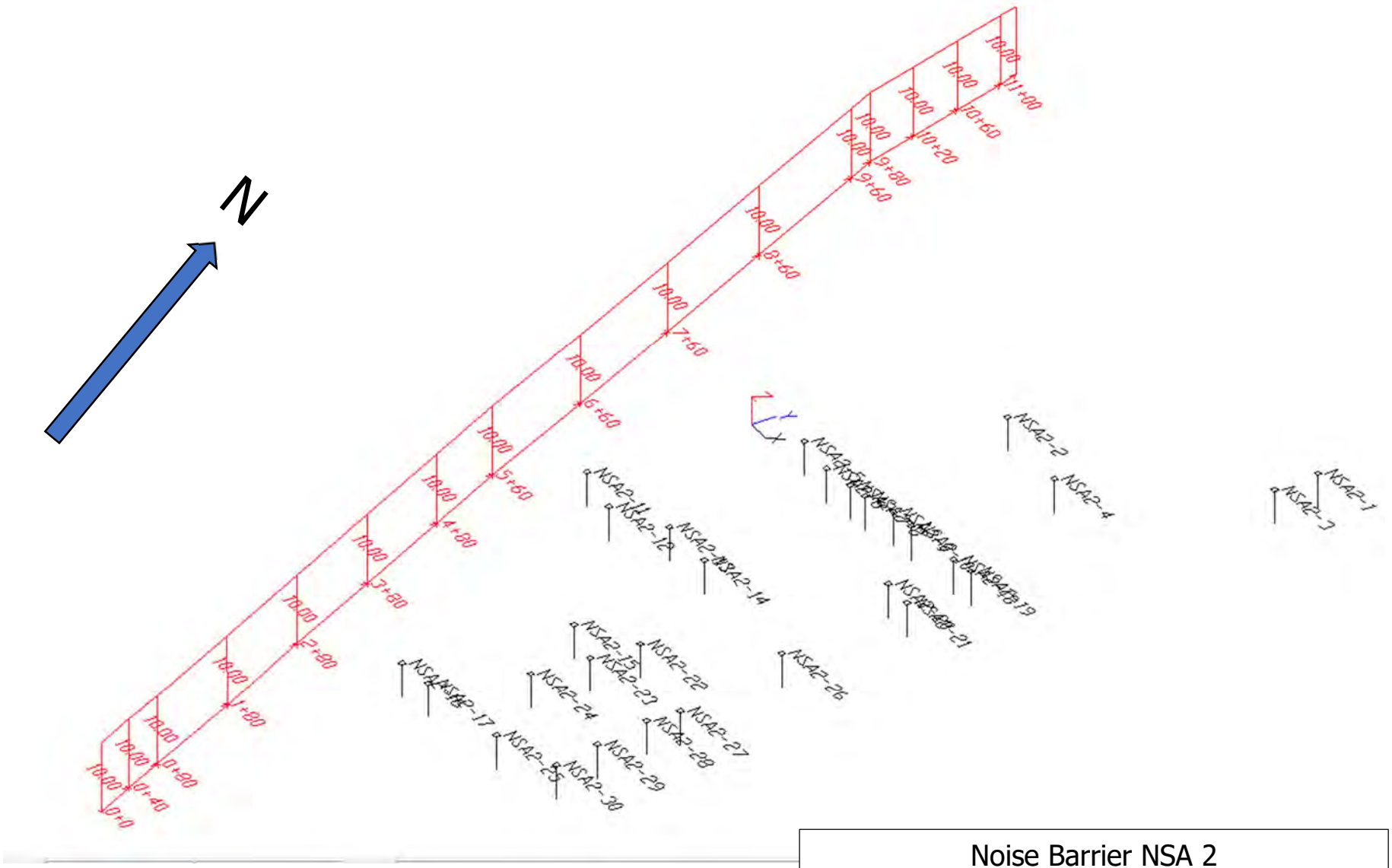
	point1934	1934	342	35	6	35	12	35	0	0	0	0
	point1935	1935	342	35	6	35	12	35	0	0	0	0
	point1936	1936	342	35	6	35	12	35	0	0	0	0
	point1937	1937	342	35	6	35	12	35	0	0	0	0
	point1938	1938										
Rd 442; SB Cen P'wy fr W H Via(2)1/1	point1939	1939	566	35	8	35	16	35	0	0	0	0
	point1940	1940	566	35	8	35	16	35	0	0	0	0
	point1941	1941	566	35	8	35	16	35	0	0	0	0
	point1942	1942	566	35	8	35	16	35	0	0	0	0
	point1943	1943	566	35	8	35	16	35	0	0	0	0
	point1944	1944	566	35	8	35	16	35	0	0	0	0
	point1945	1945	566	35	8	35	16	35	0	0	0	0
	point1946	1946	566	35	8	35	16	35	0	0	0	0
	point1947	1947	566	35	8	35	16	35	0	0	0	0
	point1948	1948	566	35	8	35	16	35	0	0	0	0
	point1949	1949	566	35	8	35	16	35	0	0	0	0
	point1950	1950										
Rd441; SB Cen P'wy @ W H V(2)1/1	point1951	1951	1256	35	38	35	57	35	0	0	0	0
	point1952	1952										
Rd440; SB Cen P'wy to W H Via(2)1/1	point1953	1953	320	35	3	35	7	35	0	0	0	0
	point1954	1954	320	35	3	35	7	35	0	0	0	0
	point1955	1955	320	35	3	35	7	35	0	0	0	0
	point1956	1956	320	35	3	35	7	35	0	0	0	0
	point1957	1957	320	35	3	35	7	35	0	0	0	0
	point1958	1958	320	35	3	35	7	35	0	0	0	0
	point1959	1959	320	35	3	35	7	35	0	0	0	0
	point1960	1960	320	35	3	35	7	35	0	0	0	0
	point1961	1961	320	35	3	35	7	35	0	0	0	0
	point1962	1962	320	35	3	35	7	35	0	0	0	0
	point1963	1963	320	35	3	35	7	35	0	0	0	0
	point1964	1964	320	35	3	35	7	35	0	0	0	0
	point1965	1965	320	35	3	35	7	35	0	0	0	0
	point1966	1966	320	35	3	35	7	35	0	0	0	0
	point1967	1967	320	35	3	35	7	35	0	0	0	0
	point1968	1968	320	35	3	35	7	35	0	0	0	0
	point1969	1969	320	35	3	35	7	35	0	0	0	0

	point1970	1970	320	35	3	35	7	35	0	0	0	0
	point1971	1971	320	35	3	35	7	35	0	0	0	0
	point1972	1972	320	35	3	35	7	35	0	0	0	0
	point1973	1973	320	35	3	35	7	35	0	0	0	0
	point1974	1974	320	35	3	35	7	35	0	0	0	0
	point1975	1975	320	35	3	35	7	35	0	0	0	0
	point1976	1976	320	35	3	35	7	35	0	0	0	0
	point1977	1977										
Rd 443;NB Central P'way to W H Via(3)1/1	point1978	1978	627	35	4	35	9	35	0	0	0	0
	point1979	1979	627	35	4	35	9	35	0	0	0	0
	point1980	1980	627	35	4	35	9	35	0	0	0	0
	point1981	1981	627	35	4	35	9	35	0	0	0	0
	point1982	1982	627	35	4	35	9	35	0	0	0	0
	point1983	1983	627	35	4	35	9	35	0	0	0	0
	point1984	1984	627	35	4	35	9	35	0	0	0	0
	point1985	1985	627	35	4	35	9	35	0	0	0	0
	point1986	1986	627	35	4	35	9	35	0	0	0	0
	point1987	1987										
Rd 444; NB Cent P'way fr W H V(3)1/1	point1988	1988	544	35	2	35	4	35	0	0	0	0
	point1989	1989	544	35	2	35	4	35	0	0	0	0
	point1990	1990	544	35	2	35	4	35	0	0	0	0
	point1991	1991	544	35	2	35	4	35	0	0	0	0
	point1992	1992	544	35	2	35	4	35	0	0	0	0
	point1993	1993	544	35	2	35	4	35	0	0	0	0
	point1994	1994	544	35	2	35	4	35	0	0	0	0
	point1995	1995	544	35	2	35	4	35	0	0	0	0
	point1996	1996	544	35	2	35	4	35	0	0	0	0
	point1997	1997	544	35	2	35	4	35	0	0	0	0
	point1998	1998	544	35	2	35	4	35	0	0	0	0
	point1999	1999	544	35	2	35	4	35	0	0	0	0
	point2000	2000	544	35	2	35	4	35	0	0	0	0
	point2001	2001	544	35	2	35	4	35	0	0	0	0
	point2002	2002	544	35	2	35	4	35	0	0	0	0
	point2003	2003	544	35	2	35	4	35	0	0	0	0
	point2004	2004	544	35	2	35	4	35	0	0	0	0
	point2005	2005	544	35	2	35	4	35	0	0	0	0

	point2006	2006	544	35	2	35	4	35	0	0	0	0
	point2007	2007	544	35	2	35	4	35	0	0	0	0
	point2008	2008	544	35	2	35	4	35	0	0	0	0
	point2009	2009	544	35	2	35	4	35	0	0	0	0
	point2010	2010	544	35	2	35	4	35	0	0	0	0
	point2011	2011	544	35	2	35	4	35	0	0	0	0
	point2012	2012										



NSA 2
Revised NSA2 Noise Barrier at 10 feet
TNM Plan View



Noise Barrier NSA 2
Revised NSA2 at 10 feet in Height

Lawhon & Associates
CMCox

9 June 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA 2
BARRIER DESIGN: Revised NSA2 10' barrier
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
NSA2-1	2114	2	67.2	68.3	66	1.1	10	Snd Lvl	67.0	1.3	5	-3.7
NSA2-2	2115	1	71.5	71.4	66	-0.1	10	Snd Lvl	66.7	4.7	5	-0.3
NSA2-3	2116	2	67.4	68.9	66	1.5	10	Snd Lvl	66.3	2.6	5	-2.4
NSA2-4	2117	1	69.6	70.4	66	0.8	10	Snd Lvl	66.1	4.3	5	-0.7
NSA2-5	2118	1	73.0	73.9	66	0.9	10	Snd Lvl	67.7	6.2	5	1.2
NSA2-6	2119	2	71.9	72.8	66	0.9	10	Snd Lvl	67.4	5.4	5	0.4
NSA2-7	2120	3	71.2	72.2	66	1.0	10	Snd Lvl	67.2	5.0	5	0.0
NSA2-8	2121	2	70.7	71.8	66	1.1	10	Snd Lvl	67.2	4.6	5	-0.4
NSA2-9	2122	2	70.0	71.2	66	1.2	10	Snd Lvl	67.1	4.1	5	-0.9
NSA2-10	2123	2	69.4	70.8	66	1.4	10	Snd Lvl	66.9	3.9	5	-1.1
NSA2-11	2124	1	77.0	78.8	66	1.8	10	Snd Lvl	69.9	8.9	5	3.9
NSA2-12	2125	3	75.3	76.9	66	1.6	10	Snd Lvl	70.2	6.7	5	1.7
NSA2-13	2126	3	0.0	75.0	66	75.0	10	Snd Lvl	69.3	5.7	5	0.7
NSA2-14	2127	2	72.6	74.1	66	1.5	10	Snd Lvl	69.0	5.1	5	0.1
NSA2-15	2128	4	73.1	74.7	66	1.6	10	Snd Lvl	69.1	5.6	5	0.6
NSA2-16	2129	2	76.4	76.5	66	0.1	10	Snd Lvl	69.2	7.3	5	2.3
NSA2-17	2130	2	75.1	76.0	66	0.9	10	Snd Lvl	68.8	7.2	5	2.2
NSA2-18	2131	2	68.2	69.8	66	1.6	10	Snd Lvl	66.2	3.6	5	-1.4
NSA2-19	2132	2	67.8	69.5	66	1.7	10	Snd Lvl	66.1	3.4	5	-1.6
NSA2-20	2133	4	68.1	69.7	66	1.6	10	Snd Lvl	66.0	3.7	5	-1.3
NSA2-21	2134	4	67.4	69.1	66	1.7	10	Snd Lvl	65.6	3.5	5	-1.5
NSA2-22	2135	2	72.5	73.9	66	1.4	10	Snd Lvl	69.0	4.9	5	-0.1
NSA2-23	2136	3	72.0	73.6	66	1.6	10	Snd Lvl	68.6	5.0	5	0.0
NSA2-24	2137	4	71.8	73.3	66	1.5	10	Snd Lvl	68.2	5.1	5	0.1

NSA2-25	2138	4	72.8	74.1	66	1.3	10	Snd Lvl	69.3	4.8	5	-0.2
NSA2-26	2139	2	70.0	71.8	66	1.8	10	Snd Lvl	67.7	4.1	5	-0.9
NSA2-27	2140	2	70.9	72.4	66	1.5	10	Snd Lvl	68.5	3.9	5	-1.1
NSA2-28	2141	2	71.0	72.5	66	1.5	10	Snd Lvl	68.9	3.6	5	-1.4
NSA2-29	2142	4	71.4	72.8	66	1.4	10	Snd Lvl	69.2	3.6	5	-1.4
NSA2-30	2143	4	71.9	73.1	66	1.2	10	Snd Lvl	69.1	4.0	5	-1.0
NSA2-31	2144	2	68.4	69.8	66	1.4	10	Snd Lvl	68.3	1.5	5	-3.5

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	76	1.3	4.6	8.9
All Impacted	76	1.3	4.6	8.9
All that meet NR Goal	30	5.0	6.1	8.9

Lawhon & Associates				**9 June 2023**						
CMCox				**TNM 2.5**						
RESULTS: BARRIER DESCRIPTIONS										
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**									
RUN:	**Design Year Build Alternative I NSA 2**									
BARRIER DESIGN:	**Revised NSA2 10' barrier**									
Barriers										
Name	**Type**	**Heights along Barrier**			**Length**	**If Wall**	**If Berm**			**Cost**
		Min	**Avg**	**Max**		**Area**	**Volume**	**Top Width**	**Run:Rise**	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Noise Barrier NSA2 along EOS	W	10.00	10.00	10.00	1115	11146				1671975
									Total Cost:	1671975

Lawhon & Associates 9 June 2023
CMCox TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA 2

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per Unit Area	$ per Unit Vol.	Top Width	Run:Rise	$ per Unit Length			X	Y	Z	at Point	Seg Ht Incre-ment	#Up	#Dn	On Struct?	Important Reflec-tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Noise Barrier NSA2 along EOS	W	5.00	99.99	150.00				0.00	0+0	2568	5,265,887.5	4,296,206.0	517.00	10.00	1.00	3	2		
									0+40	2577	5,265,866.5	4,296,240.0	516.37	10.00	1.00	3	2		
									0+80	2578	5,265,846.0	4,296,274.5	515.74	10.00	1.00	3	2		
									1+80	2579	5,265,794.0	4,296,359.5	514.14	10.00	1.00	3	2		
									2+80	2580	5,265,742.0	4,296,445.0	512.81	10.00	1.00	3	2		
									3+80	2581	5,265,690.0	4,296,530.5	511.32	10.00	1.00	3	2		
									4+80	2582	5,265,638.0	4,296,615.5	509.82	10.00	1.00	3	2		
									5+60	2583	5,265,596.5	4,296,684.0	508.63	10.00	1.00	3	2		
									6+60	2584	5,265,557.5	4,296,776.0	509.76	10.00	1.00	3	2		
									7+60	2585	5,265,518.5	4,296,868.0	510.89	10.00	1.00	3	2		
									8+60	2586	5,265,483.0	4,296,961.5	513.07	10.00	1.00	3	2		
									9+60	2587	5,265,447.5	4,297,055.0	515.25	10.00	1.00	3	2		
									9+80	2574	5,265,440.0	4,297,074.0	515.70	10.00	1.00	3	2		
									10+20	2588	5,265,432.0	4,297,113.0	516.35	10.00	1.00	3	2		
									10+60	2589	5,265,424.0	4,297,152.5	517.01	10.00	1.00	3	2		
									11+00	2590	5,265,416.0	4,297,191.5	517.66	10.00	1.00	3	2		
									11+15	2575	5,265,413.0	4,297,206.0	517.90	10.00					

Lawhon & Associates 9 June 2023
CMCox TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA 2

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
NSA2-1	2114	2	5,265,888.0	4,297,171.0	505.00	4.92	67.20	66	10.0	5.0	Y
NSA2-2	2115	1	5,265,735.5	4,297,012.5	507.00	4.92	71.50	66	10.0	5.0	Y
NSA2-3	2116	2	5,265,927.5	4,297,113.5	510.00	4.92	67.40	66	10.0	5.0	Y
NSA2-4	2117	1	5,265,833.0	4,296,993.5	509.00	4.92	69.60	66	10.0	5.0	Y
NSA2-5	2118	1	5,265,707.0	4,296,868.0	509.00	4.92	73.00	66	10.0	5.0	Y
NSA2-6	2119	2	5,265,751.0	4,296,860.0	510.00	4.92	71.90	66	10.0	5.0	Y
NSA2-7	2120	3	5,265,784.5	4,296,859.5	511.00	4.92	71.20	66	10.0	5.0	Y
NSA2-8	2121	2	5,265,808.5	4,296,857.0	512.00	4.92	70.70	66	10.0	5.0	Y
NSA2-9	2122	2	5,265,850.0	4,296,855.5	514.00	4.92	70.00	66	10.0	5.0	Y
NSA2-10	2123	2	5,265,879.0	4,296,853.0	515.00	4.92	69.40	66	10.0	5.0	Y
NSA2-11	2124	1	5,265,657.5	4,296,724.0	508.00	4.92	77.00	66	10.0	5.0	Y
NSA2-12	2125	3	5,265,717.0	4,296,707.0	510.00	4.92	75.30	66	10.0	5.0	Y
NSA2-13	2126	3	5,265,789.5	4,296,713.0	514.00	4.92	0.00	66	10.0	5.0	Y
NSA2-14	2127	2	5,265,867.0	4,296,696.0	518.00	4.92	72.60	66	10.0	5.0	Y
NSA2-15	2128	4	5,265,847.0	4,296,604.5	512.00	4.92	73.10	66	10.0	5.0	Y
NSA2-16	2129	2	5,265,785.0	4,296,503.5	506.00	4.92	76.40	66	10.0	5.0	Y
NSA2-17	2130	2	5,265,830.5	4,296,498.0	508.00	4.92	75.10	66	10.0	5.0	Y
NSA2-18	2131	2	5,265,937.0	4,296,853.5	516.00	4.92	68.20	66	10.0	5.0	Y
NSA2-19	2132	2	5,265,963.0	4,296,852.0	517.00	4.92	67.80	66	10.0	5.0	Y
NSA2-20	2133	4	5,265,955.5	4,296,791.0	518.00	4.92	68.10	66	10.0	5.0	Y
NSA2-21	2134	4	5,265,982.5	4,296,790.0	518.00	4.92	67.40	66	10.0	5.0	Y
NSA2-22	2135	2	5,265,920.0	4,296,614.5	516.00	4.92	72.50	66	10.0	5.0	Y

NSA2-23	2136	3	5,265,903.5	4,296,584.5	514.00	4.92	72.00	66	10.0	5.0	Y
NSA2-24	2137	4	5,265,892.5	4,296,543.5	513.00	4.92	71.80	66	10.0	5.0	Y
NSA2-25	2138	4	5,265,940.0	4,296,489.0	512.00	4.92	72.80	66	10.0	5.0	Y
NSA2-26	2139	2	5,266,001.0	4,296,680.0	519.00	4.92	70.00	66	10.0	5.0	Y
NSA2-27	2140	2	5,266,021.5	4,296,587.5	518.00	4.92	70.90	66	10.0	5.0	Y
NSA2-28	2141	2	5,266,020.5	4,296,561.5	518.00	4.92	71.00	66	10.0	5.0	Y
NSA2-29	2142	4	5,266,014.0	4,296,526.0	516.00	4.92	71.40	66	10.0	5.0	Y
NSA2-30	2143	4	5,266,007.5	4,296,497.5	514.00	4.92	71.90	66	10.0	5.0	Y
NSA2-31	2144	2	5,266,232.5	4,296,472.5	521.00	4.92	68.40	66	10.0	5.0	Y

Lawhon & Associates **9 June 2023**
CMCox **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **HAM-75-1.05 PID 89068**
RUN: **Design Year Build Alternative I NSA 2**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Rd184 ; SB Spr Gr loe Western(3)1/1	point438	438	646	35	9	35	25	35	0	0	0	0
	point439	439	646	35	9	35	25	35	0	0	0	0
	point440	440	646	35	9	35	25	35	0	0	0	0
	point441	441										
Rd185 ; SB Spr Gr Harrison-Bank(3)1/1	point442	442	620	35	10	35	20	35	0	0	0	0
	point443	443	620	35	10	35	20	35	0	0	0	0
	point444	444	620	35	10	35	20	35	0	0	0	0
	point445	445										
Rd186 ; SB Spr Gr @ bank(3)1/1	point446	446	834	35	10	35	15	35	0	0	0	0
	point447	447										
Rd187 ; SB Dalton bank-findlay(2)1/1	point448	448	791	35	24	35	55	35	0	0	0	0
	point449	449	791	35	24	35	55	35	0	0	0	0
	point450	450	791	35	24	35	55	35	0	0	0	0
	point451	451	791	35	24	35	55	35	0	0	0	0
	point452	452	791	35	24	35	55	35	0	0	0	0
	point453	453	791	35	24	35	55	35	0	0	0	0
	point454	454	791	35	24	35	55	35	0	0	0	0
	point455	455	791	35	24	35	55	35	0	0	0	0
	point456	456	791	35	24	35	55	35	0	0	0	0
	point457	457										
Rd188 ; SB Dalton @ findlay(2)1/1	point458	458	834	35	10	35	15	35	0	0	0	0
	point459	459										
Rd189 ; SB Dalton Finlay-liberty(2)1/1	point460	460	951	35	12	35	18	35	0	0	0	0

	point461	461										
Rd190 ; SB Dalton @ liberty(2)1/1	point462	462	951	35	12	35	18	35	0	0	0	0
	point463	463										
Rd191 ; SB Dalton findlay-kenner(2)1/1	point464	464	941	35	12	35	17	35	0	0	0	0
	point465	465										
Rd193 ; NB Dalton Court-Liberty(2)1/1	point471	471	446	35	6	35	8	35	0	0	0	0
	point472	472	446	35	6	35	8	35	0	0	0	0
	point473	473										
Rd194 ; NB Dalton @ liberty(2)1/1	point474	474	669	35	8	35	12	35	0	0	0	0
	point475	475										
Rd195 ; NB Dalton liberty-findlay(2)1/1	point476	476	669	35	8	35	12	35	0	0	0	0
	point477	477	669	35	8	35	12	35	0	0	0	0
	point478	478										
Rd196 ; NB Dalton @ findlay(2)1/1	point479	479	640	35	8	35	12	35	0	0	0	0
	point480	480										
Rd197 ; NB Dalton findlay-bank(2)1/1	point481	481	0	0	0	0	0	0	0	0	0	0
	point482	482	0	0	0	0	0	0	0	0	0	0
	point483	483	0	0	0	0	0	0	0	0	0	0
	point484	484	0	0	0	0	0	0	0	0	0	0
	point485	485	0	0	0	0	0	0	0	0	0	0
	point486	486	0	0	0	0	0	0	0	0	0	0
	point487	487	0	0	0	0	0	0	0	0	0	0
	point488	488	0	0	0	0	0	0	0	0	0	0
	point489	489	0	0	0	0	0	0	0	0	0	0
	point490	490	0	0	0	0	0	0	0	0	0	0
	point491	491										
Rd198 ; NB Dalton @ bank(2)1/1	point492	492	1019	35	13	35	19	35	0	0	0	0
	point493	493										
Rd199 ; NB Spr Gr bank-Harrison(3)1/1	point494	494	598	35	13	35	19	35	0	0	0	0
	point495	495	598	35	13	35	19	35	0	0	0	0
	point496	496	598	35	13	35	19	35	0	0	0	0
	point497	497	598	35	13	35	19	35	0	0	0	0
	point498	498	598	35	13	35	19	35	0	0	0	0
	point499	499										
Rd200 ; NB Spr Gr Harrison-Lower W(2)1/1	point500	500	640	35	8	35	12	35	0	0	0	0
	point501	501	640	35	8	35	12	35	0	0	0	0

	point502	502	640	35	8	35	12	35	0	0	0	0
	point503	503										
Rd211 ; NB Winchell to EB Ezzard(3)1/1	point512	512	420	35	12	35	28	35	0	0	0	0
	point513	513	420	35	12	35	28	35	0	0	0	0
	point514	514	420	35	12	35	28	35	0	0	0	0
	point515	515										
Rd212 ; NB Winhell EB Ezz-WB Ezz(3)1/1	point516	516	530	35	15	35	35	35	0	0	0	0
	point517	517										
Rd213 ; NB Winch Ezz-Off to 75(3)1/1	point518	518	530	35	15	35	35	35	0	0	0	0
	point519	519										
Rd214 ; NB Winch Off-liberty(3)1/1	point520	520	359	35	13	35	29	35	0	0	0	0
	point521	521	359	35	13	35	29	35	0	0	0	0
	point522	522	359	35	13	35	29	35	0	0	0	0
	point523	523	359	35	13	35	29	35	0	0	0	0
	point524	524	359	35	13	35	29	35	0	0	0	0
	point525	525	359	35	13	35	29	35	0	0	0	0
	point526	526										
Rd215 ; NB Winchell @ liderty(3)1/1	point527	527	200	35	5	35	12	35	0	0	0	0
	point528	528										
Rd216 ; NB Wich Liberty-findlay(3)1/1	point529	529	470	35	9	35	21	35	0	0	0	0
	point530	530	470	35	9	35	21	35	0	0	0	0
	point531	531	470	35	9	35	21	35	0	0	0	0
	point532	532	470	35	9	35	21	35	0	0	0	0
	point533	533	470	35	9	35	21	35	0	0	0	0
	point534	534										
Rd217 ; NB Winchel @ Findlay(3)1/1	point535	535	669	35	8	35	12	35	0	0	0	0
	point536	536										
Rd218 ; NB Winch Findlay-Bank(3)1/1	point537	537	556	35	9	35	15	35	0	0	0	0
	point538	538	556	35	9	35	15	35	0	0	0	0
	point539	539	556	35	9	35	15	35	0	0	0	0
	point540	540	556	35	9	35	15	35	0	0	0	0
	point541	541	556	35	9	35	15	35	0	0	0	0
	point542	542	556	35	9	35	15	35	0	0	0	0
	point543	543	556	35	9	35	15	35	0	0	0	0
	point544	544	556	35	9	35	15	35	0	0	0	0
	point545	545	556	35	9	35	15	35	0	0	0	0

	point546	546	556	35	9	35	15	35	0	0	0	0
	point547	547										
Rd219 ; NB Winchell @ Bank(3)1/1	point548	548	514	35	6	35	10	35	0	0	0	0
	point549	549										
Rd222 ; EB Bank to Dalton(3)1/1	point550	550	116	35	33	35	71	35	0	0	0	0
	point551	551										
Rd 223 ; EB Bank @ Dalton (3)1/1	point552	552	272	35	3	35	5	35	0	0	0	0
	point553	553										
Rd224 ; EB Bank Dalt-Winch(3)1/1	point554	554	260	35	21	35	49	35	0	0	0	0
	point555	555	260	35	21	35	49	35	0	0	0	0
	point556	556										
Rd225 ; EB Bank Fr Winchell(2)1/1	point557	557	118	35	1	35	1	35	0	0	0	0
	point558	558	235	35	17	35	38	35	0	0	0	0
	point559	559										
Rd226 ; WB Bank to Winchell(2)1/1	point560	560	378	35	4	35	8	35	0	0	0	0
	point561	561	378	35	4	35	8	35	0	0	0	0
	point562	562										
Rd227 ; WB Bank Winc-Dalton(2)1/1	point563	563	282	35	6	35	12	35	0	0	0	0
	point564	564	282	35	6	35	12	35	0	0	0	0
	point565	565	282	35	6	35	12	35	0	0	0	0
	point566	566										
Rd228 ; WB bank @ Dalton(2)1/1	point567	567	87	35	1	35	2	35	0	0	0	0
	point568	568										
Rd229 ; WB bank fr dalton(2)1/1	point569	569	54	35	14	35	32	35	0	0	0	0
	point570	570	54	35	14	35	32	35	0	0	0	0
	point571	571										
Rd230 ; EB Finlay to Dalton(2)1/1	point572	572	97	35	1	35	2	35	0	0	0	0
	point573	573	97	35	1	35	2	35	0	0	0	0
	point574	574										
Rd231 ; EB Findlay @ dalton1/1	point575	575	97	35	1	35	2	35	0	0	0	0
	point576	576										
Rd232 ; EB Findlay Dalton-Western(2)1/1	point577	577	192	35	2	35	6	35	0	0	0	0
	point578	578	192	35	2	35	6	35	0	0	0	0
	point579	579	192	35	2	35	6	35	0	0	0	0
	point580	580	192	35	2	35	6	35	0	0	0	0
	point581	581										

Rd233 ; EB Findlay Under 75(2)1/1	point582	582	323	35	2	35	5	35	0	0	0	0
	point583	583										
Rd234 ; EB Findlay fr Winchell(2)1/1	point584	584	238	35	1	35	1	35	0	0	0	0
	point585	585	238	35	1	35	1	35	0	0	0	0
	point586	586	238	35	1	35	1	35	0	0	0	0
	point587	587	238	35	1	35	1	35	0	0	0	0
	point588	588										
Rd235 ; WB Findlay to Winchell(2)1/1	point589	589	107	35	1	35	2	35	0	0	0	0
	point590	590	107	35	1	35	2	35	0	0	0	0
	point591	591	107	35	1	35	2	35	0	0	0	0
	point592	592	107	35	1	35	2	35	0	0	0	0
	point593	593										
Rd236 ; WB Findlay Winch-Western(2)1/1	point594	594	110	35	3	35	7	35	0	0	0	0
	point595	595										
Rd237 ; WB Findlay Western-On Ramp(21/	point596	596	110	35	3	35	7	35	0	0	0	0
	point597	597	110	35	3	35	7	35	0	0	0	0
	point598	598										
Rd238 ; WB Findlay Western-Dalton(2)1/1	point599	599	328	35	6	35	11	35	0	0	0	0
	point600	600	328	35	6	35	11	35	0	0	0	0
	point601	601										
Rd239 ; WB Findlay @ Dalton(2)1/1	point602	602	29	35	0	0	1	35	0	0	0	0
	point603	603										
Rd240 ; WB Findlay fr Dalton(2)1/1	point604	604	29	35	0	0	1	35	0	0	0	0
	point605	605	29	35	0	0	1	35	0	0	0	0
	point606	606	29	35	0	0	1	35	0	0	0	0
	point607	607										
Rd241 ; SB Rt fr Western(1)1/1	point608	608	218	35	3	35	4	35	0	0	0	0
	point609	609	218	35	3	35	4	35	0	0	0	0
	point610	610	218	35	3	35	4	35	0	0	0	0
	point611	611										
Rd242 ; SB Western to Findlay(3)1/1	point612	612	574	35	21	35	50	35	0	0	0	0
	point613	613										
Rd243 ; SB Western @ Findlay(2)1/1	point614	614	320	35	4	35	6	35	0	0	0	0
	point615	615										
Rd244 ; SB Western Findlay-liberty(3)1/1	point616	616	320	35	4	35	6	35	0	0	0	0
	point617	617	320	35	4	35	6	35	0	0	0	0

	point618	618										
Rd245 ; SB Western @ liberty(3)1/1	point619	619	330	35	4	35	6	35	0	0	0	0
	point620	620										
Rd246 ; Western Liberty-On fr 75(3)1/1	point621	621	330	35	4	35	6	35	0	0	0	0
	point622	622	330	35	4	35	6	35	0	0	0	0
	point623	623	330	35	4	35	6	35	0	0	0	0
	point624	624	330	35	4	35	6	35	0	0	0	0
	point625	625	330	35	4	35	6	35	0	0	0	0
	point626	626										
Rd247 ; Western On ramp-EB Ezz(3)1/1	point627	627	330	35	4	35	6	35	0	0	0	0
	point628	628	330	35	4	35	6	35	0	0	0	0
	point629	629	330	35	4	35	6	35	0	0	0	0
	point630	630										
Rd248 ; Western Wb Ezz-Eb Ezz(3)1/1	point631	631	330	35	4	35	6	35	0	0	0	0
	point632	632										
Rd249 ; Western EB Ezz-Off to 75(3)1/1	point633	633	563	35	7	35	10	35	0	0	0	0
	point634	634										
Rd252 ; EB liberty @ dalton(2)1/1	point641	641	233	35	3	35	4	35	0	0	0	0
	point642	642										
Rd253 ; EB Liberty Dalton-Western(2)1/1	point643	643	197	35	4	35	9	35	0	0	0	0
	point644	644	197	35	4	35	9	35	0	0	0	0
	point645	645	197	35	4	35	9	35	0	0	0	0
	point646	646										
Rd254 ; EB Liberty western-winchell(3)1/1	point647	647	197	35	4	35	9	35	0	0	0	0
	point648	648	197	35	4	35	9	35	0	0	0	0
	point649	649										
Rd255 ; EB liberty fr winchell(2)1/1	point650	650	456	35	8	35	16	35	0	0	0	0
	point651	651										
Rd256 ; WB Liberty to Winchell(2)1/1	point652	652	537	35	9	35	14	35	0	0	0	0
	point653	653	537	35	9	35	14	35	0	0	0	0
	point654	654										
Rd257 ; WB liberty Winch-Western(2)1/1	point655	655	427	35	3	35	8	35	0	0	0	0
	point656	656	427	35	3	35	8	35	0	0	0	0
	point657	657	427	35	3	35	8	35	0	0	0	0
	point658	658										
Rd258 ; WB liberty western-dalton(2)1/1	point659	659	152	35	2	35	6	35	0	0	0	0

	point660	660	152	35	2	35	6	35	0	0	0	0
	point661	661										
Rd259 ; WB liberty @ Dalton(2)1/1	point662	662	291	35	4	35	5	35	0	0	0	0
	point663	663										
Rd298; SB Spr @ Low Western(2)1/1	point820	820	1009	35	12	35	19	35	0	0	0	0
	point821	821										
Rd318; Ramp Free-WB Ezz Ch(1)1/1	point984	984	710	35	9	35	21	35	0	0	0	0
	point985	985	710	35	9	35	21	35	0	0	0	0
	point986	986	710	35	9	35	21	35	0	0	0	0
	point987	987	710	35	9	35	21	35	0	0	0	0
	point988	988	710	35	9	35	21	35	0	0	0	0
	point989	989	710	35	9	35	21	35	0	0	0	0
	point990	990										
Rd324; NB Winch 6th on-Free On(2)1/1	point1040	1040	364	35	11	35	25	35	0	0	0	0
	point1041	1041										
Rd337; NB 75 5lane-Western Off(6)1/1	point1169	1169	7261	55	233	55	545	55	0	0	0	0
	point1170	1170	7261	55	233	55	545	55	0	0	0	0
	point1171	1171	7261	55	233	55	545	55	0	0	0	0
	point1172	1172										
Rd338; NB 75 Western Off-Winc On(5)1/1	point1173	1173	6713	55	85	55	202	55	0	0	0	0
	point1174	1174	6713	55	85	55	202	55	0	0	0	0
	point1175	1175	6713	55	85	55	202	55	0	0	0	0
	point1176	1176	6713	55	85	55	202	55	0	0	0	0
	point1177	1177	6713	55	85	55	202	55	0	0	0	0
	point1178	1178	6713	55	85	55	202	55	0	0	0	0
	point1179	1179	6713	55	85	55	202	55	0	0	0	0
	point1180	1180	6713	55	85	55	202	55	0	0	0	0
	point1181	1181	6713	55	85	55	202	55	0	0	0	0
	point1182	1182										
Rd342; BN Off Fr 75 to WHV(1)1/1	point1216	1216	1056	35	14	35	31	35	0	0	0	0
	point1217	1217	1056	35	14	35	31	35	0	0	0	0
	point1218	1218	1056	35	14	35	31	35	0	0	0	0
	point1219	1219	1056	35	14	35	31	35	0	0	0	0
	point1220	1220	1056	35	14	35	31	35	0	0	0	0
	point1221	1221	1056	35	14	35	31	35	0	0	0	0
	point1222	1222	1056	35	14	35	31	35	0	0	0	0

	point1223	1223	1056	35	14	35	31	35	0	0	0	0
	point1224	1224	1056	35	14	35	31	35	0	0	0	0
	point1225	1225	1056	35	14	35	31	35	0	0	0	0
	point1226	1226	1056	35	14	35	31	35	0	0	0	0
	point1227	1227										
Rd350 ; SB 75 fr Off-On fr western(5)1/1	point1251	1251	5078	55	151	55	351	55	0	0	0	0
	point1252	1252	5078	55	151	55	351	55	0	0	0	0
	point1253	1253	5078	55	151	55	351	55	0	0	0	0
	point1254	1254	5078	55	151	55	351	55	0	0	0	0
	point1255	1255	5078	55	151	55	351	55	0	0	0	0
	point1256	1256	5078	55	151	55	351	55	0	0	0	0
	point1257	1257	5078	55	151	55	351	55	0	0	0	0
	point1258	1258	5078	55	151	55	351	55	0	0	0	0
	point1259	1259	5078	55	151	55	351	55	0	0	0	0
	point1260	1260	5078	55	151	55	351	55	0	0	0	0
	point1261	1261	5078	55	151	55	351	55	0	0	0	0
	point1262	1262	5078	55	151	55	351	55	0	0	0	0
	point1263	1263	5078	55	151	55	351	55	0	0	0	0
	point1264	1264	5078	55	151	55	351	55	0	0	0	0
	point1265	1265										
Rd351; SB 75 West On-Free Of(6)1/1	point1266	1266	5405	55	161	55	374	55	0	0	0	0
	point1267	1267	5405	55	161	55	374	55	0	0	0	0
	point1268	1268	5405	55	161	55	374	55	0	0	0	0
	point1269	1269	5405	55	161	55	374	55	0	0	0	0
	point1270	1270	5405	55	161	55	374	55	0	0	0	0
	point1271	1271	5405	55	161	55	374	55	0	0	0	0
	point1272	1272	5405	55	161	55	374	55	0	0	0	0
	point1273	1273	5405	55	161	55	374	55	0	0	0	0
	point1274	1274	5405	55	161	55	374	55	0	0	0	0
	point1275	1275	5405	55	161	55	374	55	0	0	0	0
	point1276	1276	5405	55	161	55	374	55	0	0	0	0
	point1277	1277	5405	55	161	55	374	55	0	0	0	0
	point1278	1278										
Rd357; SB Off to Western(1)1/1	point1334	1334	814	35	8	35	18	35	0	0	0	0
	point1335	1335	814	35	8	35	18	35	0	0	0	0
	point1336	1336	814	35	8	35	18	35	0	0	0	0

	point1337	1337	814	35	8	35	18	35	0	0	0	0
	point1338	1338	814	35	8	35	18	35	0	0	0	0
	point1339	1339	814	35	8	35	18	35	0	0	0	0
	point1340	1340	814	35	8	35	18	35	0	0	0	0
	point1341	1341	814	35	8	35	18	35	0	0	0	0
	point1342	1342	814	35	8	35	18	35	0	0	0	0
	point1343	1343										
Rd361; SB Off to Findlay(1)1/1	point1344	1344	792	35	24	35	54	35	0	0	0	0
	point1345	1345	792	35	24	35	54	35	0	0	0	0
	point1346	1346	792	35	24	35	54	35	0	0	0	0
	point1347	1347	792	35	24	35	54	35	0	0	0	0
	point1348	1348	792	35	24	35	54	35	0	0	0	0
	point1349	1349	792	35	24	35	54	35	0	0	0	0
	point1350	1350	792	35	24	35	54	35	0	0	0	0
	point1351	1351	792	35	24	35	54	35	0	0	0	0
	point1352	1352	792	35	24	35	54	35	0	0	0	0
	point1353	1353	792	35	24	35	54	35	0	0	0	0
	point1354	1354	792	35	24	35	54	35	0	0	0	0
	point1355	1355	792	35	24	35	54	35	0	0	0	0
	point1356	1356	792	35	24	35	54	35	0	0	0	0
	point1357	1357	792	35	24	35	54	35	0	0	0	0
	point1358	1358	792	35	24	35	54	35	0	0	0	0
	point1359	1359	792	35	24	35	54	35	0	0	0	0
	point1360	1360	792	35	24	35	54	35	0	0	0	0
	point1361	1361	792	35	24	35	54	35	0	0	0	0
	point1362	1362	792	35	24	35	54	35	0	0	0	0
	point1363	1363	792	35	24	35	54	35	0	0	0	0
	point1364	1364	792	35	24	35	54	35	0	0	0	0
	point1365	1365										
Rd365; SB On Fr Western(1)1/1	point1366	1366	327	35	10	35	23	35	0	0	0	0
	point1367	1367	327	35	10	35	23	35	0	0	0	0
	point1368	1368	327	35	10	35	23	35	0	0	0	0
	point1369	1369	327	35	10	35	23	35	0	0	0	0
	point1370	1370	327	35	10	35	23	35	0	0	0	0
	point1371	1371	327	35	10	35	23	35	0	0	0	0
	point1372	1372	327	35	10	35	23	35	0	0	0	0

	point1373	1373	327	35	10	35	23	35	0	0	0	0
	point1374	1374	327	35	10	35	23	35	0	0	0	0
	point1375	1375	327	35	10	35	23	35	0	0	0	0
	point1376	1376	327	35	10	35	23	35	0	0	0	0
	point1377	1377	327	35	10	35	23	35	0	0	0	0
	point1378	1378	327	35	10	35	23	35	0	0	0	0
	point1379	1379	327	35	10	35	23	35	0	0	0	0
	point1380	1380	327	35	10	35	23	35	0	0	0	0
	point1381	1381	327	35	10	35	23	35	0	0	0	0
	point1382	1382										
Rd366; SB Off to Freeman(1)1/1	point1383	1383	592	35	7	35	11	35	0	0	0	0
	point1384	1384	592	35	7	35	11	35	0	0	0	0
	point1385	1385	592	35	7	35	11	35	0	0	0	0
	point1386	1386	592	35	7	35	11	35	0	0	0	0
	point1387	1387										
Rd434; NB 75 On Fr CD - 6 lane(5)1/1	point1791	1791	7607	55	238	55	555	55	0	0	0	0
	point1792	1792	7607	55	238	55	555	55	0	0	0	0
	point1793	1793	7607	55	238	55	555	55	0	0	0	0
	point1794	1794	7607	55	238	55	555	55	0	0	0	0
	point1795	1795	7607	55	238	55	555	55	0	0	0	0
	point1796	1796										
Rd435; NB 75 On Fr CD - 6 lane(5)1/1	point1797	1797	8317	55	247	55	576	55	0	0	0	0
	point1798	1798	8317	55	247	55	576	55	0	0	0	0
	point1799	1799	8317	55	247	55	576	55	0	0	0	0
	point1800	1800	8317	55	247	55	576	55	0	0	0	0
	point1801	1801	8317	55	247	55	576	55	0	0	0	0
	point1802	1802	8317	55	247	55	576	55	0	0	0	0
	point1803	1803	8317	55	247	55	576	55	0	0	0	0
	point1804	1804	8317	55	247	55	576	55	0	0	0	0
	point1805	1805	8317	55	247	55	576	55	0	0	0	0
	point1806	1806	8317	55	247	55	576	55	0	0	0	0
	point1807	1807	8317	55	247	55	576	55	0	0	0	0
	point1808	1808	8317	55	247	55	576	55	0	0	0	0
	point1809	1809	8317	55	247	55	576	55	0	0	0	0
	point2030	2030	8317	55	247	55	576	55	0	0	0	0
	point2029	2029	8317	55	247	55	576	55	0	0	0	0

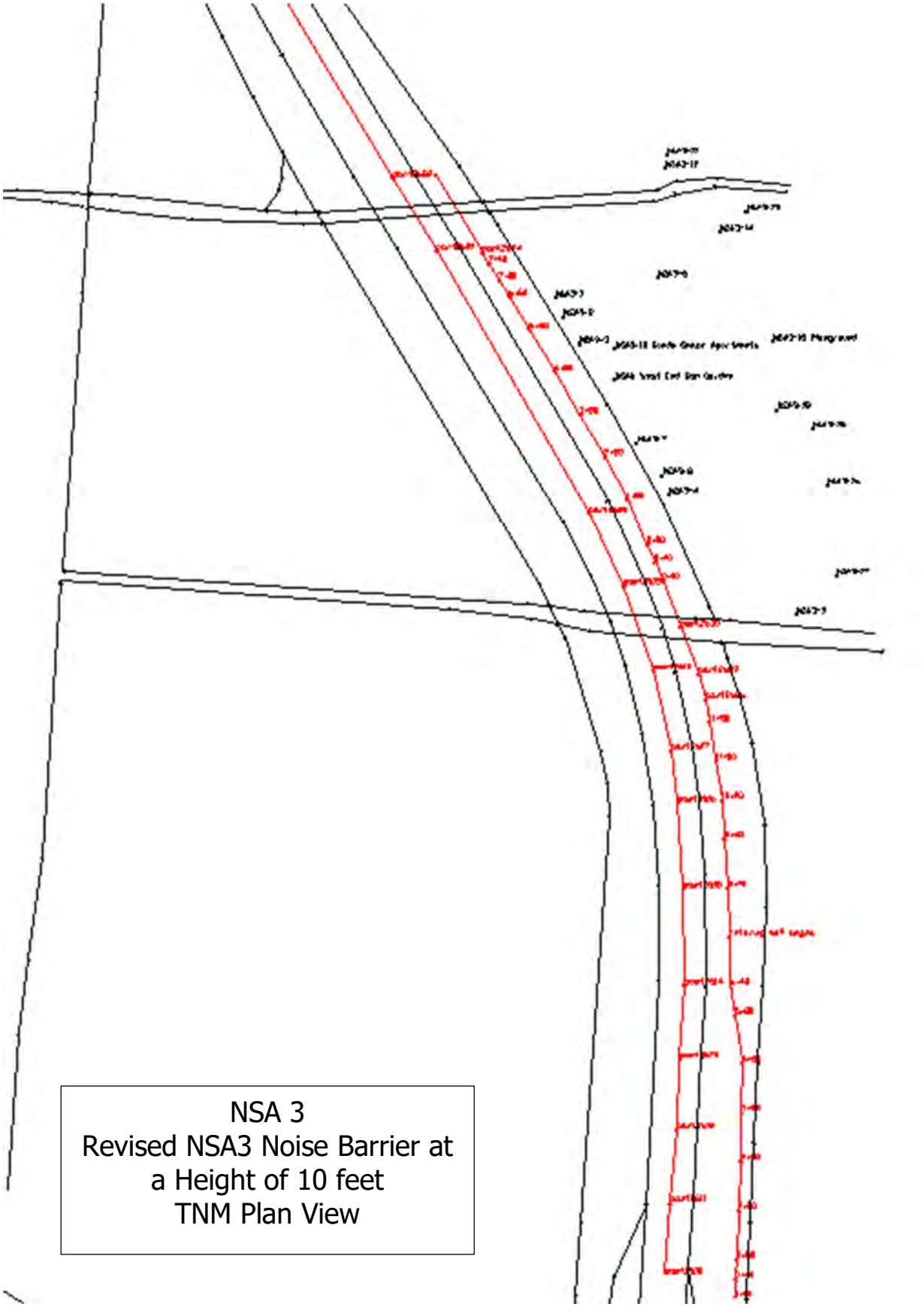
	point2031	2031	8317	55	247	55	576	55	0	0	0	0
	point1810	1810	7261	55	233	55	545	55	0	0	0	0
	point1811	1811	7261	55	233	55	545	55	0	0	0	0
	point1812	1812										
Rd 446; NB Spr Gr fr Western to 75 (2)1/1	point1813	1813	640	35	8	35	12	35	0	0	0	0
	point1814	1814	640	35	8	35	12	35	0	0	0	0
	point1815	1815										
Rd 439; WB W H Via Fr On(2)1/1	point1816	1816	1340	35	21	35	49	35	0	0	0	0
	point1817	1817	1340	35	21	35	49	35	0	0	0	0
	point1818	1818	1340	35	21	35	49	35	0	0	0	0
	point1819	1819	1340	35	21	35	49	35	0	0	0	0
	point1820	1820										
Rd203 ; WB Low Western fr Spr Gr(1)1/1	point1821	1821	0	0	0	0	0	0	0	0	0	0
	point1822	1822										
Rd204 ; WB low Western fr SB On(1)1/1	point1823	1823	670	35	20	35	30	35	0	0	0	0
	point1824	1824	670	35	20	35	30	35	0	0	0	0
	point1825	1825	670	35	20	35	30	35	0	0	0	0
	point1826	1826										
Rd 459; WB ramp to WHV Low(1)1/1	point1827	1827	388	35	5	35	7	35	0	0	0	0
	point1828	1828	388	35	5	35	7	35	0	0	0	0
	point1829	1829										
Rd206 ; EB Low Western fr Off(2)1/1	point1830	1830	0	0	0	0	0	0	0	0	0	0
	point1831	1831	0	0	0	0	0	0	0	0	0	0
	point1832	1832	0	0	0	0	0	0	0	0	0	0
	point1833	1833	0	0	0	0	0	0	0	0	0	0
	point1834	1834	0	0	0	0	0	0	0	0	0	0
	point1835	1835										
Rd 453; EB ramp fr WHV Lowto SB(21/1	point1836	1836	1188	35	19	35	43	35	0	0	0	0
	point1837	1837	1188	35	19	35	43	35	0	0	0	0
	point1838	1838	1188	35	19	35	43	35	0	0	0	0
	point1839	1839	1188	35	19	35	43	35	0	0	0	0
	point1840	1840	1188	35	19	35	43	35	0	0	0	0
	point1841	1841	1188	35	19	35	43	35	0	0	0	0
	point1842	1842	1188	35	19	35	43	35	0	0	0	0
	point1843	1843	1188	35	19	35	43	35	0	0	0	0
	point1844	1844	1188	35	19	35	43	35	0	0	0	0

	point1845	1845	1188	35	19	35	43	35	0	0	0	0
	point1846	1846	1188	35	19	35	43	35	0	0	0	0
	point1847	1847	1188	35	19	35	43	35	0	0	0	0
	point1848	1848	1188	35	19	35	43	35	0	0	0	0
	point1849	1849	1188	35	19	35	43	35	0	0	0	0
	point1850	1850	1188	35	19	35	43	35	0	0	0	0
	point1851	1851										
Rd 436; EB W H Via (2)1/1	point1852	1852	1090	35	18	35	42	35	0	0	0	0
	point1853	1853	1090	35	18	35	42	35	0	0	0	0
	point1854	1854	1090	35	18	35	42	35	0	0	0	0
	point1855	1855	1090	35	18	35	42	35	0	0	0	0
	point1856	1856										
Rd 458; WB ramp to WHV Low(1)1/1	point1857	1857	1730	35	27	35	63	35	0	0	0	0
	point1858	1858	1730	35	27	35	63	35	0	0	0	0
	point1859	1859	1730	35	27	35	63	35	0	0	0	0
	point1860	1860										
Rd 457; WB Ramp to WHV low(2)1/1	point1861	1861	1730	35	27	35	63	35	0	0	0	0
	point1862	1862	1730	35	27	35	63	35	0	0	0	0
	point1863	1863	1730	35	27	35	63	35	0	0	0	0
	point1864	1864	1730	35	27	35	63	35	0	0	0	0
	point1865	1865	1730	35	27	35	63	35	0	0	0	0
	point1866	1866	1730	35	27	35	63	35	0	0	0	0
	point1867	1867	1730	35	27	35	63	35	0	0	0	0
	point1868	1868										
Rd221 ; NB Winch Fr Bank(1)1/1	point1869	1869	790	35	15	35	35	35	0	0	0	0
	point1870	1870	790	35	15	35	35	35	0	0	0	0
	point1871	1871	790	35	15	35	35	35	0	0	0	0
	point1872	1872	790	35	15	35	35	35	0	0	0	0
	point1873	1873	790	35	15	35	35	35	0	0	0	0
	point1874	1874	790	35	15	35	35	35	0	0	0	0
	point1875	1875										
Rd 452; NB Winch Fr Bank(3)1/1	point1876	1876	514	35	6	35	10	35	0	0	0	0
	point1877	1877										
Rd 456; WB fr Wench to SB off(2)1/1	point1878	1878	1520	35	24	35	56	35	0	0	0	0
	point1879	1879										
Rd 454; EB ramp fr WHV low-Wench(1)1/1	point1880	1880	388	35	5	35	7	35	0	0	0	0

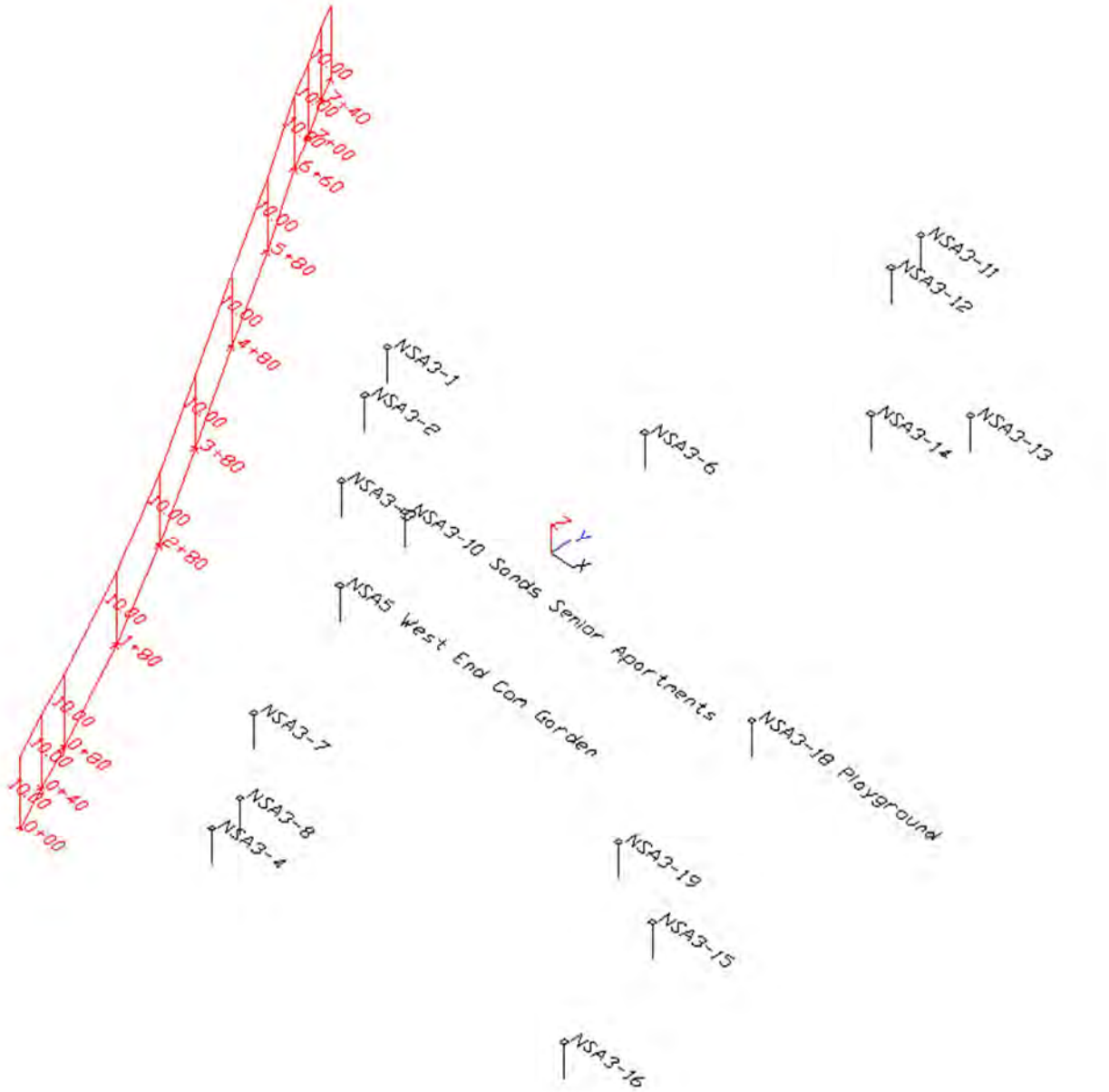
	point1881	1881	836	35	13	35	31	35	0	0	0	0
	point1882	1882										
Rd 455; WB to WHV fr Wench(2)1/1	point1883	1883	218	35	3	35	9	35	0	0	0	0
	point1884	1884										
Rd 451; NB Spr Gr @ Harrison(3))1/1	point1885	1885	1019	35	13	35	19	35	0	0	0	0
	point1886	1886										
Rd 449; WB Harrison to Spr Gr(2)1/1	point1887	1887	403	35	5	35	12	35	0	0	0	0
	point1888	1888	403	35	5	35	12	35	0	0	0	0
	point1889	1889	403	35	5	35	12	35	0	0	0	0
	point1890	1890										
Rd 447; EB Harrison Fr Spr Gr(2)1/1	point1891	1891	163	35	2	35	5	35	0	0	0	0
	point1892	1892	163	35	2	35	5	35	0	0	0	0
	point1893	1893	163	35	2	35	5	35	0	0	0	0
	point1894	1894	163	35	2	35	5	35	0	0	0	0
	point1895	1895	163	35	2	35	5	35	0	0	0	0
	point1896	1896	163	35	2	35	5	35	0	0	0	0
	point1897	1897										
Rd 448; WB Harrison to WHV UP off(2)1/1	point1898	1898	106	35	1	35	4	35	0	0	0	0
	point1899	1899	106	35	1	35	4	35	0	0	0	0
	point1900	1900	106	35	1	35	4	35	0	0	0	0
	point1901	1901	106	35	1	35	4	35	0	0	0	0
	point1902	1902										
Rd 450; Ramp fr EB WHV(1)1/1	point1903	1903	107	35	1	35	2	35	0	0	0	0
	point1904	1904	107	35	1	35	2	35	0	0	0	0
	point1905	1905	107	35	1	35	2	35	0	0	0	0
	point1906	1906	107	35	1	35	2	35	0	0	0	0
	point1907	1907	107	35	1	35	2	35	0	0	0	0
	point1908	1908	107	35	1	35	2	35	0	0	0	0
	point1909	1909	107	35	1	35	2	35	0	0	0	0
	point1910	1910	107	35	1	35	2	35	0	0	0	0
	point1911	1911	107	35	1	35	2	35	0	0	0	0
	point1912	1912	107	35	1	35	2	35	0	0	0	0
	point1913	1913	107	35	1	35	2	35	0	0	0	0
	point1914	1914										
Rd 450; Ramp fr EB WHV(1)2/1	point1915	1915	314	35	6	35	10	35	0	0	0	0
	point1916	1916										

Rd 437; EB W H Via (2)1/1	point1917	1917	780	35	12	35	28	35	0	0	0	0
	point1918	1918	780	35	12	35	28	35	0	0	0	0
	point1919	1919										
Rd 438; WB W H Via to 75 On(2)1/1	point1920	1920	1000	35	15	35	35	35	0	0	0	0
	point1921	1921	1000	35	15	35	35	35	0	0	0	0
	point1922	1922										
Rd 445; Ramp Spr Gr to WB W H Via1/1	point1923	1923	342	35	6	35	12	35	0	0	0	0
	point1924	1924	342	35	6	35	12	35	0	0	0	0
	point1925	1925	342	35	6	35	12	35	0	0	0	0
	point1926	1926	342	35	6	35	12	35	0	0	0	0
	point1927	1927	342	35	6	35	12	35	0	0	0	0
	point1928	1928	342	35	6	35	12	35	0	0	0	0
	point1929	1929	342	35	6	35	12	35	0	0	0	0
	point1930	1930	342	35	6	35	12	35	0	0	0	0
	point1931	1931	342	35	6	35	12	35	0	0	0	0
	point1932	1932	342	35	6	35	12	35	0	0	0	0
	point1933	1933	342	35	6	35	12	35	0	0	0	0
	point1934	1934	342	35	6	35	12	35	0	0	0	0
	point1935	1935	342	35	6	35	12	35	0	0	0	0
	point1936	1936	342	35	6	35	12	35	0	0	0	0
	point1937	1937	342	35	6	35	12	35	0	0	0	0
	point1938	1938										
Rd 442; SB Cen P'wy fr W H Via(2)1/1	point1939	1939	566	35	8	35	16	35	0	0	0	0
	point1940	1940	566	35	8	35	16	35	0	0	0	0
	point1941	1941	566	35	8	35	16	35	0	0	0	0
	point1942	1942	566	35	8	35	16	35	0	0	0	0
	point1943	1943	566	35	8	35	16	35	0	0	0	0
	point1944	1944	566	35	8	35	16	35	0	0	0	0
	point1945	1945	566	35	8	35	16	35	0	0	0	0
	point1946	1946	566	35	8	35	16	35	0	0	0	0
	point1947	1947	566	35	8	35	16	35	0	0	0	0
	point1948	1948	566	35	8	35	16	35	0	0	0	0
	point1949	1949	566	35	8	35	16	35	0	0	0	0
	point1950	1950										
Rd441; SB Cen P'wy @ W H V(2)1/1	point1951	1951	1256	35	38	35	57	35	0	0	0	0
	point1952	1952										

Rd 443;NB Central P'way to W H Via(3)1/1	point1978	1978	627	35	4	35	9	35	0	0	0	0
	point1979	1979	627	35	4	35	9	35	0	0	0	0
	point1980	1980	627	35	4	35	9	35	0	0	0	0
	point1981	1981	627	35	4	35	9	35	0	0	0	0
	point1982	1982	627	35	4	35	9	35	0	0	0	0
	point1983	1983	627	35	4	35	9	35	0	0	0	0
	point1984	1984	627	35	4	35	9	35	0	0	0	0
	point1985	1985	627	35	4	35	9	35	0	0	0	0
	point1986	1986	627	35	4	35	9	35	0	0	0	0
	point1987	1987										
Rd 444; NB Cent P'way fr W H V(3)1/1	point1988	1988	522	35	12	35	16	35	0	0	0	0
	point1989	1989	522	35	12	35	16	35	0	0	0	0
	point1990	1990	522	35	12	35	16	35	0	0	0	0
	point1991	1991	544	35	2	35	4	35	0	0	0	0
	point1992	1992	522	35	12	35	16	35	0	0	0	0
	point1993	1993	522	35	12	35	16	35	0	0	0	0
	point1994	1994	522	35	12	35	16	35	0	0	0	0
	point1995	1995	522	35	12	35	16	35	0	0	0	0
	point1996	1996	522	35	12	35	16	35	0	0	0	0
	point1997	1997	522	35	12	35	16	35	0	0	0	0
	point1998	1998										
Rd440; SB Cen P'wy to W H Via(2)1/1-2	point1967	1967	320	35	3	35	7	35	0	0	0	0
	point1968	1968	320	35	3	35	7	35	0	0	0	0
	point1969	1969	320	35	3	35	7	35	0	0	0	0
	point1970	1970	320	35	3	35	7	35	0	0	0	0
	point1971	1971	320	35	3	35	7	35	0	0	0	0
	point1972	1972	320	35	3	35	7	35	0	0	0	0
	point1973	1973	320	35	3	35	7	35	0	0	0	0
	point1974	1974	320	35	3	35	7	35	0	0	0	0
	point1975	1975	320	35	3	35	7	35	0	0	0	0
	point1976	1976	320	35	3	35	7	35	0	0	0	0
	point1977	1977										
York Street	point2027	2027	0	0	0	0	0	0	0	0	0	0
	point2028	2028										



NSA 3
Revised NSA3 Noise Barrier at
a Height of 10 feet
TNM Plan View



NSA3
Revised Noise Barrier NSA3 at a Height of 10 feet
Noise Barrier Plan View

Lawhon & Associates
CMCox

9 June 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA3
BARRIER DESIGN: Revised NSA 3 at 10'
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
NSA3-11	2155	2	69.2	67.9	66	-1.3	10	Snd Lvl	66.6	1.3	5	-3.7
NSA3-12	2156	4	69.1	68.0	66	-1.1	10	Snd Lvl	66.8	1.2	5	-3.8
NSA3-7	2151	6	69.3	69.7	66	0.4	10	Snd Lvl	63.1	6.6	5	1.6
NSA3-8	2152	6	69.6	69.3	66	-0.3	10	Snd Lvl	64.0	5.3	5	0.3
NSA3-18 Playground	2162	1	66.5	66.8	66	0.3	10	Snd Lvl	63.6	3.2	5	-1.8
NSA3-19	2163	4	67.3	67.1	66	-0.2	10	Snd Lvl	63.7	3.4	5	-1.6
NSA5 West End Com Garden	2149	3	69.9	69.3	66	-0.6	10	Snd Lvl	64.0	5.3	5	0.3
NSA3-6	2150	4	69.5	69.1	66	-0.4	10	Snd Lvl	65.9	3.2	5	-1.8
NSA3-13	2157	3	67.6	67.3	66	-0.3	10	Snd Lvl	65.4	1.9	5	-3.1
NSA3-15	2159	4	67.8	66.5	66	-1.3	10	Snd Lvl	63.6	2.9	5	-2.1
NSA3-17	2161	4	68.1	66.5	66	-1.6	10	Snd Lvl	65.1	1.4	5	-3.6
NSA3-9	2153	8	69.0	68.2	66	-0.8	10	Snd Lvl	67.4	0.8	5	-4.2
NSA3-10 Sands Senior Apartments	2154	65	69.8	69.8	66	0.0	10	Snd Lvl	64.8	5.0	5	0.0
NSA3-14	2158	1	67.0	67.8	66	0.8	10	Snd Lvl	65.6	2.2	5	-2.8
NSA3-3	2147	3	70.0	70.5	66	0.5	10	Snd Lvl	64.6	5.9	5	0.9
NSA3-1	2145	1	71.0	70.9	66	-0.1	10	Snd Lvl	66.9	4.0	5	-1.0
NSA3-2	2146	4	70.0	70.7	66	0.7	10	Snd Lvl	65.2	5.5	5	0.5
NSA3-4	2148	6	70.1	69.6	66	-0.5	10	Snd Lvl	64.4	5.2	5	0.2
NSA3-16	2160	6	67.1	66.4	66	-0.7	10	Snd Lvl	63.9	2.5	5	-2.5

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	135	0.8	3.5	6.6

All Impacted		135	0.8	3.5	6.6							
All that meet NR Goal		93	5.0	5.5	6.6							

Lawhon & Associates				**9 June 2023**						
CMCox				**TNM 2.5**						
RESULTS: BARRIER DESCRIPTIONS										
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**									
RUN:	**Design Year Build Alternative I NSA3**									
BARRIER DESIGN:	**Revised NSA 3 at 10'**									
Barriers										
Name	**Type**	**Heights along Barrier**			**Length**	**If Wall**	**If Berm**			**Cost**
		Min	**Avg**	**Max**		**Area**	**Volume**	**Top Width**	**Run:Rise**	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Noise barrier NSA3 along EOS	W	10.00	10.00	10.00	767	7669				1150391
									Total Cost:	1150391

Lawhon & Associates 9 June 2023
CMCox TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA3

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per Unit Area	$ per Unit Vol.	Top Width	Run:Rise	$ per Unit Length			X	Y	Z	at Point	Seg Ht Increment	#Up	#Dn	On Struct?	Important Reflections?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Noise barrier NSA4 along EOS	W	5.00	99.99	30.00				0.00	0+00	2568	5,266,600.0	4,293,750.0	503.00	12.00	1.00	4	2		
									0+40	2598	5,266,602.5	4,293,790.0	503.00	12.00	1.00	4	2		
									0+80	2597	5,266,605.0	4,293,830.0	503.00	12.00	1.00	4	2		
									1+80	2599	5,266,609.0	4,293,930.0	502.79	12.00	1.00	4	2		
									2+80	2600	5,266,612.5	4,294,030.0	502.58	12.00	1.00	4	2		
									3+80	2601	5,266,614.0	4,294,130.0	502.29	12.00	1.00	4	2		
									4+80	2571	5,266,615.0	4,294,229.5	502.00	12.00	1.00	4	2		
									5+80	2602	5,266,600.5	4,294,328.5	501.38	12.00	1.00	4	2		
									6+40	2573	5,266,592.0	4,294,389.0	501.00	12.00	1.00	4	2		
									7+40	2603	5,266,589.0	4,294,489.0	503.81	12.00					
Noise barrier NSA3 along EOS	W	5.00	99.99	150.00				0.00	0+00	2579	5,266,452.5	4,295,216.0	524.00	11.00	1.00	2	3		
									0+40	2586	5,266,436.5	4,295,253.0	524.38	11.00	1.00	2	3		
									0+80	2588	5,266,421.0	4,295,290.0	524.75	11.00	1.00	2	3		
									1+80	2589	5,266,380.5	4,295,381.5	525.66	11.00	1.00	2	3		
									2+80	2590	5,266,334.0	4,295,470.0	525.92	11.00	1.00	2	3		
									3+80	2591	5,266,283.0	4,295,556.0	525.69	11.00	1.00	2	3		
									4+80	2592	5,266,232.0	4,295,642.0	525.99	11.00	1.00	2	3		
									5+80	2593	5,266,180.5	4,295,728.0	525.29	11.00	1.00	2	3		
									6+60	2594	5,266,139.0	4,295,796.5	525.73	11.00	1.00	2	3		
									7+00	2596	5,266,118.0	4,295,830.5	524.46	11.00	1.00	2	3		
									7+40	2595	5,266,097.0	4,295,864.5	524.18	11.00	1.00	2	3		
									7+67	2585	5,266,083.5	4,295,887.0	523.50	11.00					
Noise barrier NSA4 on retaining wall	W	5.00	99.99	150.00				0.00	retaining wall be	2609	5,266,589.0	4,294,489.0	503.81	8.00	1.00	5	0		
									8+40	2604	5,266,586.0	4,294,589.0	506.62	8.00	1.00	5	0		
									9+40	2605	5,266,579.5	4,294,688.5	510.10	8.00	1.00	5	0		
									10+20	2606	5,266,574.0	4,294,768.5	512.87	8.00	1.00	5	0		
									11+00	2607	5,266,562.5	4,294,847.5	515.88	8.00	1.00	5	0		
									11+80	2608	5,266,548.5	4,294,926.5	517.83	8.00	1.00	5	0		
									12+29	2578	5,266,540.5	4,294,973.5	519.00	8.00					
57" median barrier	W	0.00	99.99	0.00				0.00	point2610	2610	5,266,458.0	4,293,798.0	487.00	5.00	0.00	0	0		
									point2611	2611	5,266,468.5	4,293,945.5	490.00	5.00	0.00	0	0		
									point2612	2612	5,266,481.0	4,294,093.5	494.00	5.00	0.00	0	0		
									point2613	2613	5,266,487.5	4,294,238.0	497.00	5.00	0.00	0	0		
									point2614	2614	5,266,498.0	4,294,390.0	500.00	5.00	0.00	0	0		
									point2615	2615	5,266,495.0	4,294,587.0	507.00	5.00	0.00	0	0		

									point2616	2616	5,266,484.0	4,294,762.0	513.00	5.00	0.00	0	0		
									point2617	2617	5,266,470.0	4,294,869.0	517.00	5.00	0.00	0	0		
									point2618	2618	5,266,434.5	4,295,031.5	521.00	5.00	0.00	0	0	Y	
									point2619	2619	5,266,372.5	4,295,205.5	523.00	5.00	0.00	0	0		
									point2620	2620	5,266,302.5	4,295,352.5	523.00	5.00	0.00	0	0		
									point2621	2621	5,265,990.5	4,295,890.0	523.00	5.00	0.00	0	0	Y	
									point2622	2622	5,265,901.5	4,296,038.0	520.00	5.00	0.00	0	0		
									point2623	2623	5,265,516.5	4,296,675.0	508.00	5.00					
57 inch barrier on structure over Findlay	W	0.00	99.99	0.00				0.00	point2624	2624	5,266,083.5	4,295,887.0	523.50	5.00	0.00	0	0	Y	
									point2625	2625	5,265,987.0	4,296,047.0	520.00	5.00					
57 inch barrier on structure over W. Libe-	W	0.00	99.99	0.00				0.00	point2626	2626	5,266,540.5	4,294,973.5	519.00	5.00	0.00	0	0		
									point2629	2629	5,266,526.0	4,295,025.0	521.00	5.00	0.00	0	0	Y	
									point2630	2630	5,266,489.0	4,295,120.5	523.00	5.00	0.00	0	0	Y	
									point2628	2628	5,266,452.5	4,295,216.0	524.00	5.00					

Lawhon & Associates						**9 June 2023**					
CMCox						**TNM 2.5**					
INPUT: RECEIVERS											
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**										
RUN:	**Design Year Build Alternative I NSA3**										
Receiver											
Name	**No.**	**#DUs**	**Coordinates (ground)**			**Height**	**Input Sound Levels and Criteria**				**Active**
			X	**Y**	**Z**	**above**	**Existing**	**Impact Criteria**		**NR**	**in**
						Ground	**LAeq1h**	**LAeq1h**	**Sub'l**	**Goal**	**Calc.**
			ft	ft	ft	ft	dBA	dBA	dB	dB	
NSA3-1	2145	1	5,266,233.5	4,295,792.0	506.00	4.92	71.00	66	10.0	5.0	Y
NSA3-2	2146	4	5,266,250.5	4,295,753.0	505.00	4.92	70.00	66	10.0	5.0	Y
NSA3-3	2147	3	5,266,282.5	4,295,698.0	502.00	4.92	70.00	66	10.0	5.0	Y
NSA3-4	2148	6	5,266,465.0	4,295,389.5	503.00	4.92	70.10	66	10.0	5.0	Y
NSA5 West End Com Garden	2149	3	5,266,355.0	4,295,624.0	502.00	4.92	69.90	66	10.0	5.0	Y
NSA3-6	2150	4	5,266,442.5	4,295,833.0	511.00	4.92	69.50	66	10.0	5.0	Y
NSA3-7	2151	6	5,266,400.5	4,295,495.0	502.00	4.92	69.30	66	10.0	5.0	Y
NSA3-8	2152	6	5,266,452.5	4,295,429.5	502.00	4.92	69.60	66	10.0	5.0	Y
NSA3-9	2153	8	5,266,726.0	4,295,144.5	500.00	4.92	69.00	66	10.0	5.0	Y
NSA3-10 Sands Senior Apartments	2154	65	5,266,355.0	4,295,687.0	506.00	4.92	69.80	66	10.0	5.0	Y
NSA3-11	2155	2	5,266,461.0	4,296,083.5	515.00	4.92	69.20	66	10.0	5.0	Y
NSA3-12	2156	4	5,266,459.0	4,296,056.5	513.00	4.92	69.10	66	10.0	5.0	Y
NSA3-13	2157	3	5,266,624.0	4,295,968.5	518.00	4.92	67.60	66	10.0	5.0	Y
NSA3-14	2158	1	5,266,569.5	4,295,926.0	517.00	4.92	67.00	66	10.0	5.0	Y
NSA3-15	2159	4	5,266,758.5	4,295,524.5	506.00	4.92	67.80	66	10.0	5.0	Y
NSA3-16	2160	6	5,266,788.5	4,295,409.0	504.00	4.92	67.10	66	10.0	5.0	Y
NSA3-17	2161	4	5,266,807.5	4,295,223.5	502.00	4.92	68.10	66	10.0	5.0	Y
NSA3-18 Playground	2162	1	5,266,678.0	4,295,702.0	508.00	4.92	66.50	66	10.0	5.0	Y
NSA3-19	2163	4	5,266,687.0	4,295,563.0	506.00	4.92	67.30	66	10.0	5.0	Y

Lawhon & Associates			**9 June 2023**									
CMCox			**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**											
RUN:	**Design Year Build Alternative I NSA3**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Rd45 ; SB Ramp western-SB 75(1)1/1	point1	1	315	35	14	35	21	35	0	0	0	0
	point2	2	315	35	14	35	21	35	0	0	0	0
	point3	3	315	35	14	35	21	35	0	0	0	0
	point4	4	315	35	14	35	21	35	0	0	0	0
	point5	5	315	35	14	35	21	35	0	0	0	0
	point6	6	315	35	14	35	21	35	0	0	0	0
	point7	7	315	35	14	35	21	35	0	0	0	0
	point8	8	315	35	14	35	21	35	0	0	0	0
	point9	9	315	35	14	35	21	35	0	0	0	0
	point10	10										
Rd192 ; NB Dalton kenner-court(1)1/1	point468	468	446	35	6	35	8	35	0	0	0	0
	point469	469										
Rd193 ; NB Dalton Court-Liberty(2)1/1	point470	470	446	35	6	35	8	35	0	0	0	0
	point471	471	446	35	6	35	8	35	0	0	0	0
	point472	472	446	35	6	35	8	35	0	0	0	0
	point473	473										
Rd195 ; NB Dalton liberty-findlay(2)1/1	point476	476	669	35	8	35	12	35	0	0	0	0
	point477	477	669	35	8	35	12	35	0	0	0	0
	point478	478										
Rd196 ; NB Dalton @ findlay(2)1/1	point479	479	640	35	8	35	12	35	0	0	0	0
	point480	480										
Rd197 ; NB Dalton findlay-bank(2)1/1	point481	481	791	35	24	35	55	35	0	0	0	0
	point482	482	791	35	24	35	55	35	0	0	0	0

	point483	483	791	35	24	35	55	35	0	0	0	0
	point484	484	791	35	24	35	55	35	0	0	0	0
	point485	485	791	35	24	35	55	35	0	0	0	0
	point486	486	791	35	24	35	55	35	0	0	0	0
	point487	487	791	35	24	35	55	35	0	0	0	0
	point488	488	791	35	24	35	55	35	0	0	0	0
	point489	489	791	35	24	35	55	35	0	0	0	0
	point490	490	791	35	24	35	55	35	0	0	0	0
	point491	491										
Rd211 ; NB Winchell to EB Ezzard(3)1/1	point512	512	0	0	0	0	0	0	0	0	0	0
	point513	513	0	0	0	0	0	0	0	0	0	0
	point514	514	0	0	0	0	0	0	0	0	0	0
	point515	515										
Rd212 ; NB Winhell EB Ezz-WB Ezz(3)1/1	point516	516	0	0	0	0	0	0	0	0	0	0
	point517	517										
Rd213 ; NB Winch Ezz-Off to 75(3)1/1	point518	518	0	0	0	0	0	0	0	0	0	0
	point2032	2032	0	0	0	0	0	0	0	0	0	0
	point519	519										
Rd214 ; NB Winch Off-liberty(3)1/1	point520	520	0	0	0	0	0	0	0	0	0	0
	point2033	2033	0	0	0	0	0	0	0	0	0	0
	point2034	2034	0	0	0	0	0	0	0	0	0	0
	point2035	2035	0	0	0	0	0	0	0	0	0	0
	point521	521	0	0	0	0	0	0	0	0	0	0
	point522	522	0	0	0	0	0	0	0	0	0	0
	point523	523	0	0	0	0	0	0	0	0	0	0
	point524	524	0	0	0	0	0	0	0	0	0	0
	point525	525	0	0	0	0	0	0	0	0	0	0
	point526	526										
Rd216 ; NB Wich Liberty-findlay(3)1/1	point529	529	0	0	0	0	0	0	0	0	0	0
	point530	530	0	0	0	0	0	0	0	0	0	0
	point531	531	0	0	0	0	0	0	0	0	0	0
	point532	532	0	0	0	0	0	0	0	0	0	0
	point533	533	0	0	0	0	0	0	0	0	0	0
	point534	534										
Rd217 ; NB Winchel @ Findlay(3)1/1	point535	535	0	0	0	0	0	0	0	0	0	0
	point536	536										

Rd218 ; NB Winch Findlay-Bank(3)1/1	point537	537	0	0	0	0	0	0	0	0	0	0
	point538	538	0	0	0	0	0	0	0	0	0	0
	point539	539	0	0	0	0	0	0	0	0	0	0
	point540	540	0	0	0	0	0	0	0	0	0	0
	point541	541	0	0	0	0	0	0	0	0	0	0
	point542	542	0	0	0	0	0	0	0	0	0	0
	point543	543	0	0	0	0	0	0	0	0	0	0
	point544	544	0	0	0	0	0	0	0	0	0	0
	point545	545	0	0	0	0	0	0	0	0	0	0
	point546	546	0	0	0	0	0	0	0	0	0	0
	point547	547										
Rd225 ; EB Bank Fr Winchell(2)1/1	point557	557	118	35	1	35	1	35	0	0	0	0
	point558	558	118	35	1	35	1	35	0	0	0	0
	point559	559										
Rd230 ; EB Finlay to Dalton(2)1/1	point572	572	97	35	1	35	2	35	0	0	0	0
	point573	573	97	35	1	35	2	35	0	0	0	0
	point574	574										
Rd232 ; EB Findlay Dalton-Western(2)1/1	point577	577	192	35	2	35	6	35	0	0	0	0
	point578	578	192	35	2	35	6	35	0	0	0	0
	point579	579	192	35	2	35	6	35	0	0	0	0
	point580	580	192	35	2	35	6	35	0	0	0	0
	point581	581										
Rd233 ; EB Findlay Under 75(2)1/1	point582	582	323	35	2	35	5	35	0	0	0	0
	point583	583										
Rd234 ; EB Findlay fr Winchell(2)1/1	point584	584	110	35	2	35	3	35	0	0	0	0
	point585	585	110	35	2	35	3	35	0	0	0	0
	point586	586	110	35	2	35	3	35	0	0	0	0
	point587	587	110	35	2	35	3	35	0	0	0	0
	point588	588										
Rd235 ; WB Findlay to Winchell(2)1/1	point589	589	107	35	1	35	2	35	0	0	0	0
	point590	590	107	35	1	35	2	35	0	0	0	0
	point591	591	107	35	1	35	2	35	0	0	0	0
	point592	592	107	35	1	35	2	35	0	0	0	0
	point593	593										
Rd236 ; WB Findlay Winch-Western(2)1/1	point594	594	110	35	3	35	7	35	0	0	0	0
	point595	595										

Rd237 ; WB Findlay Western-On Ramp(21/	point596	596	110	35	3	35	7	35	0	0	0	0
	point597	597	110	35	3	35	7	35	0	0	0	0
	point598	598										
Rd238 ; WB Findlay Western-Dalton(2)1/1	point599	599	328	35	6	35	11	35	0	0	0	0
	point600	600	328	35	6	35	11	35	0	0	0	0
	point601	601										
Rd239 ; WB Findlay @ Dalton(2)1/1	point602	602	29	35	0	0	1	35	0	0	0	0
	point603	603										
Rd240 ; WB Findlay fr Dalton(2)1/1	point604	604	29	35	0	0	1	35	0	0	0	0
	point605	605	29	35	0	0	1	35	0	0	0	0
	point606	606	29	35	0	0	1	35	0	0	0	0
	point607	607										
Rd241 ; SB Rt fr Western(1)1/1	point608	608	218	35	3	35	4	35	0	0	0	0
	point609	609	218	35	3	35	4	35	0	0	0	0
	point610	610	218	35	3	35	4	35	0	0	0	0
	point611	611										
Rd242 ; SB Western to Findlay(3)1/1	point612	612	574	35	21	35	50	35	0	0	0	0
	point613	613										
Rd243 ; SB Western @ Findlay(2)1/1	point614	614	320	35	4	35	6	35	0	0	0	0
	point615	615										
Rd244 ; SB Western Findlay-liberty(3)1/1	point616	616	320	35	4	35	6	35	0	0	0	0
	point617	617	320	35	4	35	6	35	0	0	0	0
	point618	618										
Rd245 ; SB Western @ liberty(3)1/1	point619	619	330	35	4	35	6	35	0	0	0	0
	point620	620										
Rd246 ; Western Liberty-On fr 75(3)1/1	point621	621	330	35	4	35	6	35	0	0	0	0
	point622	622	330	35	4	35	6	35	0	0	0	0
	point623	623	330	35	4	35	6	35	0	0	0	0
	point624	624	330	35	4	35	6	35	0	0	0	0
	point625	625	330	35	4	35	6	35	0	0	0	0
	point626	626										
Rd247 ; Western On ramp-EB Ezz(3)1/1	point627	627	652	35	9	35	19	35	0	0	0	0
	point628	628	652	35	9	35	19	35	0	0	0	0
	point629	629	652	35	9	35	19	35	0	0	0	0
	point630	630										
Rd248 ; Western Wb Ezz-Eb Ezz(3)1/1	point631	631	672	35	9	35	19	35	0	0	0	0

	point632	632										
Rd249 ; Western EB Ezz-Off to 75(3)1/1	point633	633	586	35	14	35	30	35	0	0	0	0
	point634	634										
Rd253 ; EB Liberty Dalton-Western(2)1/1	point643	643	250	35	3	35	7	35	0	0	0	0
	point644	644	250	35	3	35	7	35	0	0	0	0
	point645	645	250	35	3	35	7	35	0	0	0	0
	point646	646										
Rd254 ; EB Liberty western-winchell(3)1/1	point647	647	316	35	5	35	9	35	0	0	0	0
	point648	648	316	35	5	35	9	35	0	0	0	0
	point649	649										
Rd255 ; EB liberty fr winchell(2)1/1	point650	650	125	35	2	35	3	35	0	0	0	0
	point651	651										
Rd256 ; WB Liberty to Winchell(2)1/1	point652	652	110	35	1	35	3	35	0	0	0	0
	point653	653	110	35	1	35	3	35	0	0	0	0
	point654	654										
Rd257 ; WB liberty Winch-Western(2)1/1	point655	655	282	35	6	35	12	35	0	0	0	0
	point656	656	282	35	6	35	12	35	0	0	0	0
	point657	657	282	35	6	35	12	35	0	0	0	0
	point658	658										
Rd258 ; WB liberty western-dalton(2)1/1	point659	659	291	35	4	35	5	35	0	0	0	0
	point660	660	202	35	3	35	7	35	0	0	0	0
	point661	661										
Rd260 ; WB Ezz Ch to Winchell(2)1/1	point664	664	470	35	3	35	7	35	0	0	0	0
	point665	665	470	35	3	35	7	35	0	0	0	0
	point666	666	470	35	3	35	7	35	0	0	0	0
	point667	667	470	35	3	35	7	35	0	0	0	0
	point668	668										
Rd 261 ; WB Ezz Ch Winch-Western(3)1/1	point669	669	68	35	4	35	8	35	0	0	0	0
	point670	670	68	35	4	35	8	35	0	0	0	0
	point671	671	68	35	4	35	8	35	0	0	0	0
	point672	672										
Rd262 ; WB Ezz Ch Fr Western(2)1/1	point673	673	37	35	1	35	2	35	0	0	0	0
	point674	674	37	35	1	35	2	35	0	0	0	0
	point675	675	37	35	1	35	2	35	0	0	0	0
	point676	676	37	35	1	35	2	35	0	0	0	0
	point677	677	37	35	1	35	2	35	0	0	0	0

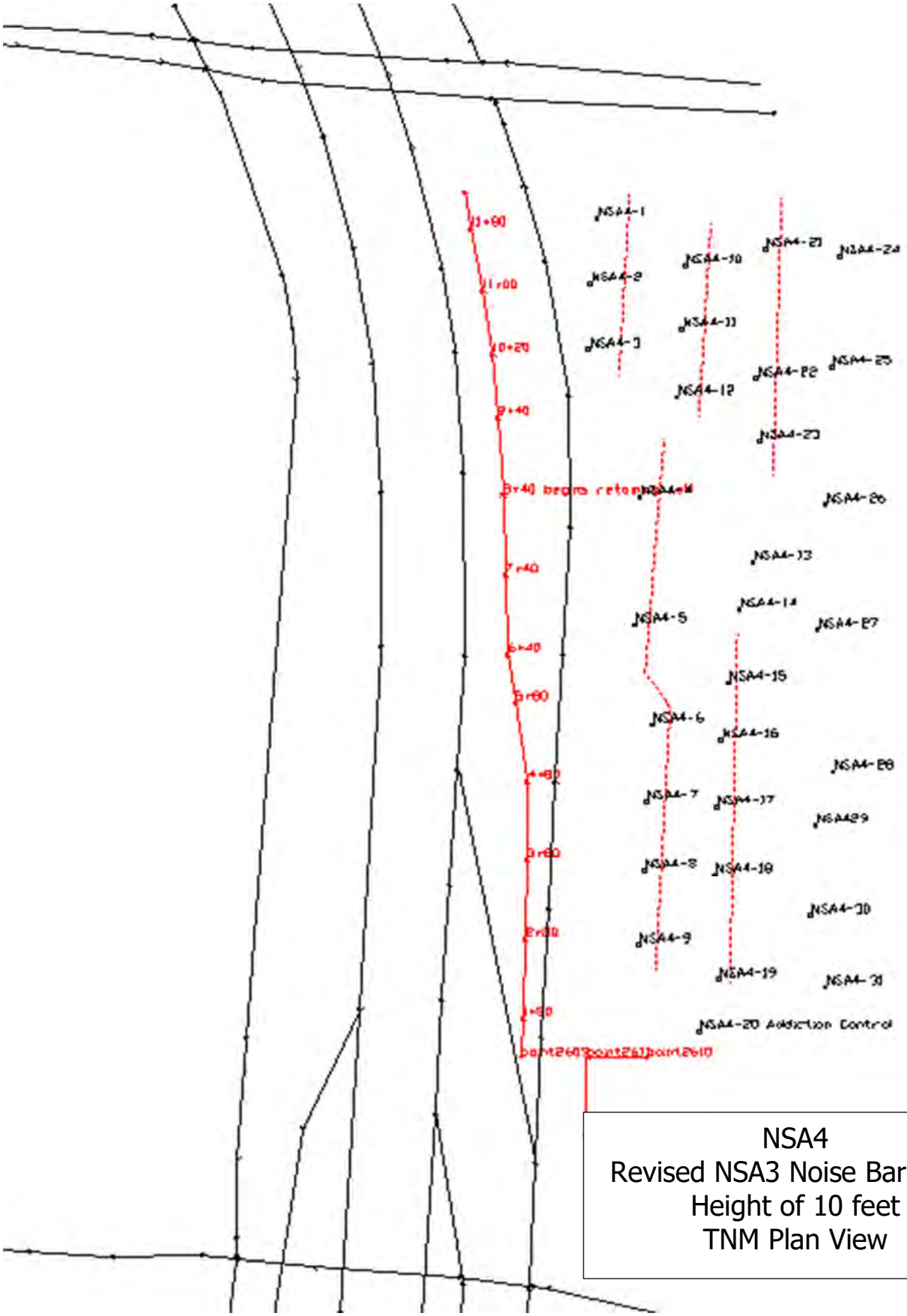
	point678	678	37	35	1	35	2	35	0	0	0	0
	point679	679	37	35	1	35	2	35	0	0	0	0
	point680	680	37	35	1	35	2	35	0	0	0	0
	point681	681										
Rd263 ; EB Ezz Ch to western(2)1/1	point682	682	37	35	1	35	2	35	0	0	0	0
	point683	683	37	35	1	35	2	35	0	0	0	0
	point684	684	37	35	1	35	2	35	0	0	0	0
	point685	685	37	35	1	35	2	35	0	0	0	0
	point686	686	37	35	1	35	2	35	0	0	0	0
	point687	687	37	35	1	35	2	35	0	0	0	0
	point688	688	37	35	1	35	2	35	0	0	0	0
	point689	689	37	35	1	35	2	35	0	0	0	0
	point690	690	37	35	1	35	2	35	0	0	0	0
	point691	691	37	35	1	35	2	35	0	0	0	0
	point692	692										
Rd264 ; EB Ezz Ch Western-Winchell(2)1/1	point693	693	147	35	1	35	2	35	0	0	0	0
	point694	694	147	35	1	35	2	35	0	0	0	0
	point695	695	147	35	1	35	2	35	0	0	0	0
	point696	696										
Rd265 ; EB Ezz Ch Fr Winchell(2)1/1	point697	697	441	35	2	35	7	35	0	0	0	0
	point698	698	441	35	2	35	7	35	0	0	0	0
	point699	699	441	35	2	35	7	35	0	0	0	0
	point700	700										
Rd311; Off fr NB CD to 75(2)1/1	point905	905	3185	55	36	55	49	55	0	0	0	0
	point906	906	3185	55	36	55	49	55	0	0	0	0
	point907	907	3185	55	36	55	49	55	0	0	0	0
	point908	908	3185	55	36	55	49	55	0	0	0	0
	point909	909	3185	55	36	55	49	55	0	0	0	0
	point910	910	3185	55	36	55	49	55	0	0	0	0
	point911	911	3185	55	36	55	49	55	0	0	0	0
	point912	912										
Rd322; Ramp 6th+9th to Winch(2)1/1	point1026	1026	0	0	0	0	0	0	0	0	0	0
	point1027	1027	0	0	0	0	0	0	0	0	0	0
	point1028	1028										
Rd323; Ramp 6th+9th to Winch(1)1/1	point1029	1029	0	0	0	0	0	0	0	0	0	0
	point1030	1030	0	0	0	0	0	0	0	0	0	0

	point1031	1031	0	0	0	0	0	0	0	0	0	0
	point1032	1032	0	0	0	0	0	0	0	0	0	0
	point1033	1033	0	0	0	0	0	0	0	0	0	0
	point1034	1034	0	0	0	0	0	0	0	0	0	0
	point1035	1035	0	0	0	0	0	0	0	0	0	0
	point1036	1036	0	0	0	0	0	0	0	0	0	0
	point1037	1037	0	0	0	0	0	0	0	0	0	0
	point1038	1038	0	0	0	0	0	0	0	0	0	0
	point1039	1039										
Rd324; NB Winch 6th on-Free On(2)1/1	point1040	1040	364	35	11	35	25	35	0	0	0	0
	point1041	1041										
Rd337; NB 75 5lane-Western Off(6)1/1	point1169	1169	8317	55	247	55	576	55	0	0	0	0
	point1170	1170	8317	55	247	55	576	55	0	0	0	0
	point1171	1171	8317	55	247	55	576	55	0	0	0	0
	point1172	1172										
Rd338; NB 75 Western Off-Winc On(5)1/1	point1173	1173	8317	55	247	55	576	55	0	0	0	0
	point1174	1174	8317	55	247	55	576	55	0	0	0	0
	point1175	1175	8317	55	247	55	576	55	0	0	0	0
	point1176	1176										
Rd351; SB 75 West On-Free Of(6)1/1	point1266	1266	5405	55	161	55	374	55	0	0	0	0
	point1267	1267	5405	55	161	55	374	55	0	0	0	0
	point1268	1268	5405	55	161	55	374	55	0	0	0	0
	point1269	1269	5405	55	161	55	374	55	0	0	0	0
	point1270	1270	5405	55	161	55	374	55	0	0	0	0
	point1271	1271	5405	55	161	55	374	55	0	0	0	0
	point1272	1272	5405	55	161	55	374	55	0	0	0	0
	point1273	1273	5405	55	161	55	374	55	0	0	0	0
	point1274	1274	5405	55	161	55	374	55	0	0	0	0
	point1275	1275	5405	55	161	55	374	55	0	0	0	0
	point1276	1276	5405	55	161	55	374	55	0	0	0	0
	point1277	1277	5405	55	161	55	374	55	0	0	0	0
	point1278	1278										
Rd352; SB 75 Free Off-CD Off(6)1/1	point1279	1279	5024	55	152	55	354	55	71	55	0	0
	point1280	1280										
Rd353; SB 75 Fr Free Off(3)1/1	point1281	1281	3015	55	136	55	320	55	0	0	0	0
	point1282	1282	3015	55	136	55	320	55	0	0	0	0

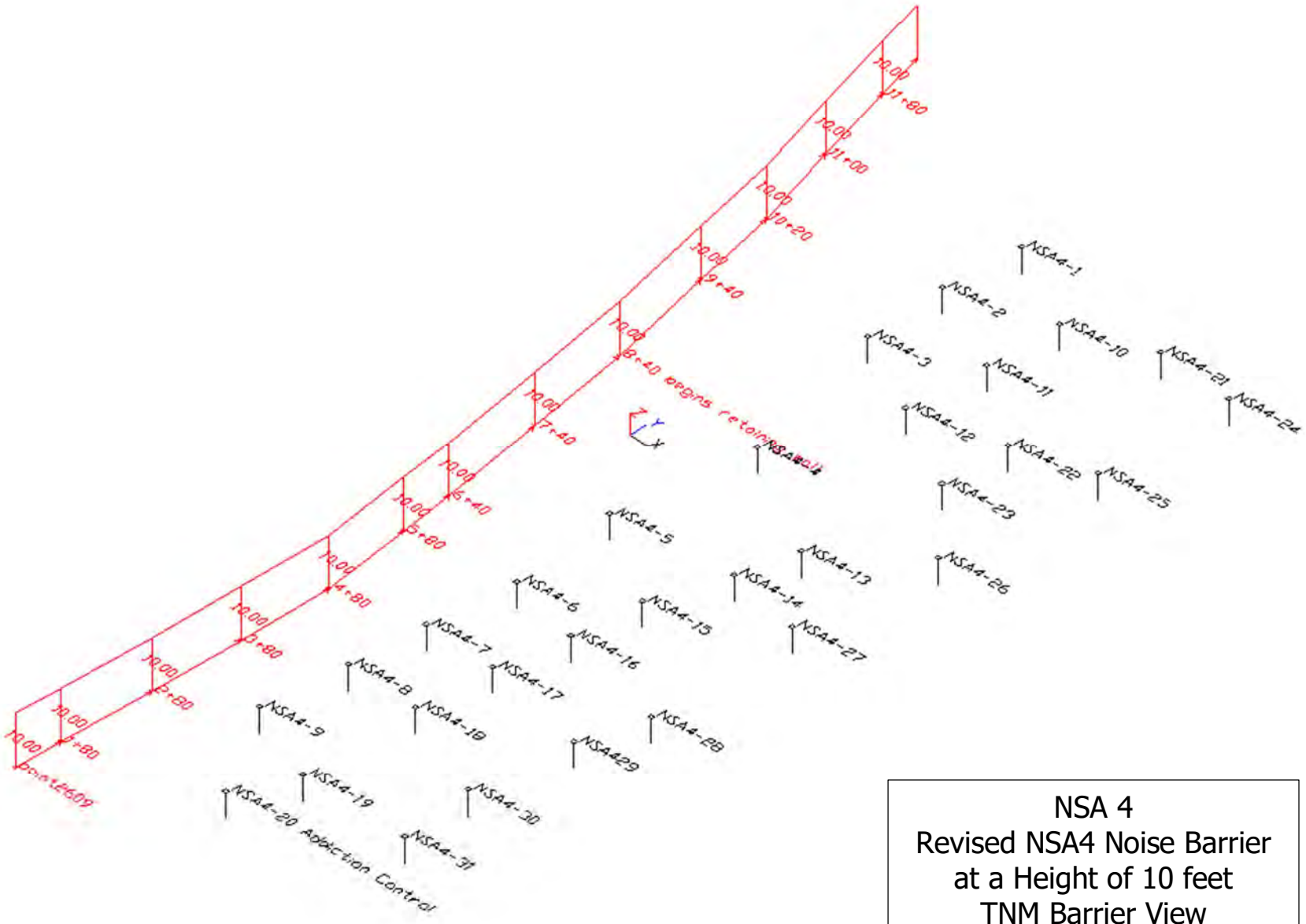
	point1283	1283	3015	55	136	55	320	55	0	0	0	0
	point1284	1284	3015	55	136	55	320	55	0	0	0	0
	point1285	1285	3015	55	136	55	320	55	0	0	0	0
	point1286	1286	3015	55	136	55	320	55	0	0	0	0
	point1287	1287	3015	55	136	55	320	55	0	0	0	0
	point1288	1288	3015	55	136	55	320	55	0	0	0	0
	point1289	1289	3015	55	136	55	320	55	0	0	0	0
	point1290	1290	3015	55	136	55	320	55	0	0	0	0
	point1291	1291	3015	55	136	55	320	55	0	0	0	0
	point1292	1292	3015	55	136	55	320	55	0	0	0	0
	point1293	1293	3015	55	136	55	320	55	0	0	0	0
	point1294	1294	3015	55	136	55	320	55	0	0	0	0
	point1295	1295	3015	55	136	55	320	55	0	0	0	0
	point1296	1296	3015	55	136	55	320	55	0	0	0	0
	point1297	1297										
Rd366; SB Off to Freeman(1)1/1	point1383	1383	381	35	9	35	20	35	0	0	0	0
	point1384	1384	381	35	9	35	20	35	0	0	0	0
	point1385	1385	381	35	9	35	20	35	0	0	0	0
	point1386	1386	381	35	9	35	20	35	0	0	0	0
	point1387	1387	381	35	9	35	20	35	0	0	0	0
	point1388	1388	381	35	9	35	20	35	0	0	0	0
	point1389	1389	381	35	9	35	20	35	0	0	0	0
	point1390	1390	381	35	9	35	20	35	0	0	0	0
	point1391	1391										
Rd368 ; SB CD to On fr Western(3)1/1	point1398	1398	2009	35	16	35	35	35	0	0	0	0
	point1399	1399	2009	35	16	35	35	35	0	0	0	0
	point1400	1400	2009	35	16	35	35	35	0	0	0	0
	point1401	1401	2009	35	16	35	35	35	0	0	0	0
	point1402	1402	2009	35	16	35	35	35	0	0	0	0
	point1403	1403	2009	35	16	35	35	35	0	0	0	0
	point1404	1404	2009	35	16	35	35	35	0	0	0	0
	point1405	1405	2009	35	16	35	35	35	0	0	0	0
	point1406	1406	2009	35	16	35	35	35	0	0	0	0
	point1407	1407	2009	35	16	35	35	35	0	0	0	0
	point1408	1408	2009	35	16	35	35	35	0	0	0	0
	point1409	1409	2009	35	16	35	35	35	0	0	0	0

	point1410	1410	2009	35	16	35	35	35	0	0	0	0
	point1411	1411	2009	35	16	35	35	35	0	0	0	0
	point1412	1412										
Rd369; SB CD western On-7th Off(4)1/1	point1413	1413	2706	35	81	35	122	35	0	0	0	0
	point1414	1414	2706	35	81	35	122	35	0	0	0	0
	point1415	1415	2706	35	81	35	122	35	0	0	0	0
	point1416	1416	2706	35	81	35	122	35	0	0	0	0
	point1417	1417	2706	35	81	35	122	35	0	0	0	0
	point1418	1418										
Rd434; NB 75 On Fr CD - 6 lane(5)1/1	point1791	1791	2599	55	154	55	357	55	0	0	0	0
	point1792	1792	2599	55	154	55	357	55	0	0	0	0
	point1793	1793	2599	55	154	55	357	55	0	0	0	0
	point1794	1794	2599	55	154	55	357	55	0	0	0	0
	point1795	1795	2599	55	154	55	357	55	0	0	0	0
	point1796	1796										
Rd435; NB 75 On Fr CD - 6 lane(5)1/1	point1797	1797	7034	55	209	55	487	55	0	0	0	0
	point2029	2029	7034	55	209	55	487	55	0	0	0	0
	point2030	2030	7034	55	209	55	487	55	0	0	0	0
	point2031	2031	7034	55	209	55	487	55	0	0	0	0
	point1798	1798	7034	55	209	55	487	55	0	0	0	0
	point1799	1799	7034	55	209	55	487	55	0	0	0	0
	point1800	1800	7034	55	209	55	487	55	0	0	0	0
	point1801	1801	7034	55	209	55	487	55	0	0	0	0
	point1802	1802	7034	55	209	55	487	55	0	0	0	0
	point1803	1803	7034	55	209	55	487	55	0	0	0	0
	point1804	1804	7034	55	209	55	487	55	0	0	0	0
	point1806	1806	7034	55	209	55	487	55	0	0	0	0
	point1808	1808	7034	55	209	55	487	55	0	0	0	0
	point1809	1809	7034	55	209	55	487	55	0	0	0	0
	point1810	1810	7034	55	209	55	487	55	0	0	0	0
	point1811	1811	7034	55	209	55	487	55	0	0	0	0
	point1812	1812										
Rd350 ; SB 75 fr Off-On fr western(5)1/1-2-	point2043	2043	5405	55	161	55	374	55	0	0	0	0
	point1260	1260	5405	55	161	55	374	55	0	0	0	0
	point1261	1261	5405	55	161	55	374	55	0	0	0	0
	point1262	1262	5405	55	161	55	374	55	0	0	0	0

	point1263	1263	5405	55	161	55	374	55	0	0	0	0
	point1264	1264	5405	55	161	55	374	55	0	0	0	0
	point1265	1265										
Rd361; SB Off to Findlay(1)1/1-2	point2045	2045	792	35	24	35	54	35	0	0	0	0
	point1358	1358	792	35	24	35	54	35	0	0	0	0
	point1359	1359	792	35	24	35	54	35	0	0	0	0
	point1360	1360	792	35	24	35	54	35	0	0	0	0
	point1361	1361	792	35	24	35	54	35	0	0	0	0
	point1362	1362	792	35	24	35	54	35	0	0	0	0
	point1363	1363	792	35	24	35	54	35	0	0	0	0
	point1364	1364	792	35	24	35	54	35	0	0	0	0
	point1365	1365										
Rd318; Ramp Free-WB Ezz Ch(1)1/1-2	point2048	2048	4435	55	55	55	130	55	0	0	0	0
	point984	984	4435	55	55	55	130	55	0	0	0	0
	point985	985	4435	55	55	55	130	55	0	0	0	0
	point986	986	4435	55	55	55	130	55	0	0	0	0
	point987	987	4435	55	55	55	130	55	0	0	0	0
	point988	988	4435	55	55	55	130	55	0	0	0	0
	point989	989	4435	55	55	55	130	55	0	0	0	0
	point990	990										



NSA4
Revised NSA3 Noise Barrier at Height of 10 feet
TNM Plan View



NSA 4
Revised NSA4 Noise Barrier
at a Height of 10 feet
TNM Barrier View

Lawhon & Associates
CMCox

9 June 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA4
BARRIER DESIGN: Revised NSA4 at 10'
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
NSA4-1	2114	8	68.7	70.0	66	1.3	10	Snd Lvl	67.8	2.2	5	-2.8
NSA4-2	2115	8	69.4	70.8	66	1.4	10	Snd Lvl	67.3	3.5	5	-1.5
NSA4-3	2116	8	69.9	71.4	66	1.5	10	Snd Lvl	67.0	4.4	5	-0.6
NSA4-4	2117	8	68.8	73.5	66	4.7	10	Snd Lvl	65.5	8.0	5	3.0
NSA4-5	2118	8	71.6	74.5	66	2.9	10	Snd Lvl	68.1	6.4	5	1.4
NSA4-6	2119	4	71.4	73.4	66	2.0	10	Snd Lvl	67.5	5.9	5	0.9
NSA4-7	2120	4	71.1	73.0	66	1.9	10	Snd Lvl	67.5	5.5	5	0.5
NSA4-8	2121	4	70.6	72.4	66	1.8	10	Snd Lvl	67.5	4.9	5	-0.1
NSA4-9	2122	4	70.1	72.0	66	1.9	10	Snd Lvl	67.4	4.6	5	-0.4
NSA4-10	2123	8	66.8	68.4	66	1.6	10	Snd Lvl	65.4	3.0	5	-2.0
NSA4-11	2124	8	66.8	69.5	66	2.7	10	Snd Lvl	65.1	4.4	5	-0.6
NSA4-12	2125	8	67.3	70.4	66	3.1	10	Snd Lvl	64.8	5.6	5	0.6
NSA4-13	2126	6	64.5	68.0	66	3.5	10	Snd Lvl	64.1	3.9	5	-1.1
NSA4-14	2127	6	64.4	67.6	66	3.2	10	Snd Lvl	63.6	4.0	5	-1.0
NSA4-15	2128	6	66.3	68.5	66	2.2	10	Snd Lvl	63.8	4.7	5	-0.3
NSA4-16	2129	4	65.9	67.9	66	2.0	10	Snd Lvl	63.4	4.5	5	-0.5
NSA4-17	2130	4	65.5	67.7	66	2.2	10	Snd Lvl	63.2	4.5	5	-0.5
NSA4-18	2131	4	65.3	67.5	66	2.2	10	Snd Lvl	63.4	4.1	5	-0.9
NSA4-19	2132	4	65.4	67.1	66	1.7	10	Snd Lvl	64.3	2.8	5	-2.2
NSA4-20 Addiction Control	2133	1	66.6	68.4	66	1.8	10	Snd Lvl	65.1	3.3	5	-1.7
NSA4-21	2134	8	64.1	66.5	66	2.4	10	Snd Lvl	64.4	2.1	5	-2.9
NSA4-22	2135	8	62.7	66.1	66	3.4	10	Snd Lvl	61.5	4.6	5	-0.4
NSA4-23	2136	6	64.1	67.2	66	3.1	10	Snd Lvl	63.6	3.6	5	-1.4
NSA4-24	2137	8	61.3	63.8	66	2.5	10	----	62.4	1.4	5	-3.6

NSA4-25	2138	8	60.0	63.0	66	3.0	10	----	60.6	2.4	5	-2.6
NSA4-26	2139	8	63.0	66.7	66	3.7	10	Snd Lvl	62.8	3.9	5	-1.1
NSA4-27	2140	8	63.6	67.1	66	3.5	10	Snd Lvl	63.5	3.6	5	-1.4
NSA4-28	2141	4	63.3	64.8	66	1.5	10	----	61.3	3.5	5	-1.5
NSA429	2142	4	62.4	64.0	66	1.6	10	----	60.4	3.6	5	-1.4
NSA4-30	2143	4	62.5	64.1	66	1.6	10	----	60.5	3.6	5	-1.4
NSA4-31	2144	4	62.5	64.1	66	1.6	10	----	60.9	3.2	5	-1.8

Dwelling Units		**# DUs**	**Noise Reduction**		
			Min	**Avg**	**Max**
			dB	**dB**	**dB**
All Selected		185	1.4	4.1	8.0
All Impacted		153	2.1	4.3	8.0
All that meet NR Goal		32	5.5	6.3	8.0

Lawhon & Associates				**9 June 2023**						
CMCox				**TNM 2.5**						
RESULTS: BARRIER DESCRIPTIONS										
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**									
RUN:	**Design Year Build Alternative I NSA4**									
BARRIER DESIGN:	**Revised NSA4 at 10'**									
Barriers										
Name	**Type**	**Heights along Barrier**			**Length**	**If Wall**	**If Berm**			**Cost**
		Min	**Avg**	**Max**		**Area**	**Volume**	**Top Width**	**Run:Rise**	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Noise barrier NSA4 retaining wall	W	10.00	10.00	10.00	388	3876				581461
Noise barrier NSA4 on ground	W	10.00	10.00	10.00	711	7109				1066287
									Total Cost:	1647748

Lawhon & Associates 9 June 2023
CMCox TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA4

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per Unit Area	$ per Unit Vol.	Top Width	Run:Rise	$ per Unit Length			X	Y	Z	at Point	Seg Ht Increment	#Up	#Dn	On Struct?	Important Reflections?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Noise barrier NSA4 on ground	W	5.00	99.99	150.00				0.00	point2609	2609	5,266,607.0	4,293,880.0	502.90	10.00	1.00	3	2		
									1+80	2599	5,266,609.0	4,293,930.0	502.79	10.00	1.00	3	2		
									2+80	2600	5,266,612.5	4,294,030.0	502.58	10.00	1.00	3	2		
									3+80	2601	5,266,614.0	4,294,130.0	502.29	10.00	1.00	3	2		
									4+80	2571	5,266,615.0	4,294,229.5	502.00	10.00	1.00	3	2		
									5+80	2602	5,266,600.5	4,294,328.5	501.38	10.00	1.00	3	2		
									6+40	2573	5,266,592.0	4,294,389.0	501.00	10.00	1.00	3	2		
									7+40	2603	5,266,589.0	4,294,489.0	503.81	10.00	1.00	3	2		
									8+40	2604	5,266,586.0	4,294,589.0	506.62	10.00					
Noise barrier NSA3 along EOS	W	5.00	99.99	0.00				0.00	0+00	2579	5,266,462.0	4,295,219.0	524.00	12.00	1.00	4	2		
									0+40	2586	5,266,446.0	4,295,256.0	524.38	12.00	1.00	4	2		
									0+80	2588	5,266,430.5	4,295,293.0	524.75	12.00	1.00	4	2		
									1+80	2589	5,266,390.0	4,295,384.5	525.66	12.00	1.00	4	2		
									2+80	2590	5,266,343.5	4,295,473.0	525.92	12.00	1.00	4	2		
									3+80	2591	5,266,292.5	4,295,559.0	525.69	12.00	1.00	4	2		
									4+80	2592	5,266,241.5	4,295,645.0	524.99	12.00	1.00	4	2		
									5+80	2593	5,266,190.0	4,295,731.0	524.29	12.00	1.00	4	2		
									6+60	2594	5,266,148.5	4,295,799.5	523.73	12.00	1.00	4	2		
									7+00	2596	5,266,127.5	4,295,833.5	523.46	12.00	1.00	4	2		
									7+40	2595	5,266,106.5	4,295,867.5	523.18	12.00	1.00	4	2		
									7+67	2585	5,266,093.0	4,295,890.0	523.00	12.00					
Barrier424	W	0.00	99.99	0.00				0.00	point2610	2610	5,266,754.0	4,293,880.0	508.00	22.00	0.00	0	0		
									point2611	2611	5,266,684.0	4,293,880.0	508.00	22.00	0.00	0	0		
									point2612	2612	5,266,684.0	4,293,780.0	508.00	22.00					
Noise barrier NSA4 retaining wall	W	5.00	99.99	150.00				0.00	8+40 begins ret	2613	5,266,586.0	4,294,589.0	506.62	10.00	1.00	3	2		
									9+40	2605	5,266,579.5	4,294,688.5	510.10	10.00	1.00	3	2		
									10+20	2606	5,266,574.0	4,294,768.5	512.87	10.00	1.00	3	2		
									11+00	2607	5,266,562.5	4,294,847.5	515.88	10.00	1.00	3	2		
									11+80	2608	5,266,548.5	4,294,926.5	517.83	10.00	1.00	3	2		
									12+29	2578	5,266,540.5	4,294,973.5	519.00	10.00					

Lawhon & Associates 9 June 2023
CMCox TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA4

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
NSA4-1	2114	8	5,266,695.5	4,294,937.5	498.00	4.92	68.70	66	10.0	5.0	Y
NSA4-2	2115	8	5,266,688.0	4,294,855.0	498.00	4.92	69.40	66	10.0	5.0	Y
NSA4-3	2116	8	5,266,686.0	4,294,772.0	497.00	4.92	69.90	66	10.0	5.0	Y
NSA4-4	2117	8	5,266,746.0	4,294,586.0	501.00	4.92	68.80	66	10.0	5.0	Y
NSA4-5	2118	8	5,266,739.5	4,294,424.5	504.00	4.92	71.60	66	10.0	5.0	Y
NSA4-6	2119	4	5,266,760.0	4,294,298.5	506.00	4.92	71.40	66	10.0	5.0	Y
NSA4-7	2120	4	5,266,753.0	4,294,202.0	507.00	4.92	71.10	66	10.0	5.0	Y
NSA4-8	2121	4	5,266,751.0	4,294,115.5	508.00	4.92	70.60	66	10.0	5.0	Y
NSA4-9	2122	4	5,266,745.0	4,294,020.5	509.00	4.92	70.10	66	10.0	5.0	Y
NSA4-10	2123	8	5,266,799.0	4,294,877.5	500.00	4.92	66.80	66	10.0	5.0	Y
NSA4-11	2124	8	5,266,795.5	4,294,798.0	500.00	4.92	66.80	66	10.0	5.0	Y
NSA4-12	2125	8	5,266,789.0	4,294,712.0	500.00	4.92	67.30	66	10.0	5.0	Y
NSA4-13	2126	6	5,266,878.5	4,294,503.5	503.00	4.92	64.50	66	10.0	5.0	Y
NSA4-14	2127	6	5,266,862.0	4,294,443.5	503.00	4.92	64.40	66	10.0	5.0	Y
NSA4-15	2128	6	5,266,849.5	4,294,351.5	506.00	4.92	66.30	66	10.0	5.0	Y
NSA4-16	2129	4	5,266,841.0	4,294,279.0	506.00	4.92	65.90	66	10.0	5.0	Y
NSA4-17	2130	4	5,266,835.5	4,294,195.5	508.00	4.92	65.50	66	10.0	5.0	Y
NSA4-18	2131	4	5,266,834.0	4,294,109.0	509.00	4.92	65.30	66	10.0	5.0	Y
NSA4-19	2132	4	5,266,838.0	4,293,977.0	510.00	4.92	65.40	66	10.0	5.0	Y
NSA4-20 Addiction Control	2133	1	5,266,815.0	4,293,912.0	511.00	4.92	66.60	66	10.0	5.0	Y
NSA4-21	2134	8	5,266,892.5	4,294,899.0	502.00	4.92	64.10	66	10.0	5.0	Y
NSA4-22	2135	8	5,266,882.5	4,294,735.5	500.00	4.92	62.70	66	10.0	5.0	Y

NSA4-23	2136	6	5,266,886.0	4,294,656.5	501.00	4.92	64.10	66	10.0	5.0	Y
NSA4-24	2137	8	5,266,979.5	4,294,889.5	503.00	4.92	61.30	66	10.0	5.0	Y
NSA4-25	2138	8	5,266,970.0	4,294,750.5	502.00	4.92	60.00	66	10.0	5.0	Y
NSA4-26	2139	8	5,266,963.0	4,294,575.5	503.00	4.92	63.00	66	10.0	5.0	Y
NSA4-27	2140	8	5,266,953.5	4,294,418.0	505.00	4.92	63.60	66	10.0	5.0	Y
NSA4-28	2141	4	5,266,972.0	4,294,239.5	508.00	4.92	63.30	66	10.0	5.0	Y
NSA429	2142	4	5,266,951.5	4,294,172.0	508.00	4.92	62.40	66	10.0	5.0	Y
NSA4-30	2143	4	5,266,946.0	4,294,057.0	510.00	4.92	62.50	66	10.0	5.0	Y
NSA4-31	2144	4	5,266,963.0	4,293,967.5	512.00	4.92	62.50	66	10.0	5.0	Y

Lawhon & Associates			**9 June 2023**									
CMCox			**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**											
RUN:	**Design Year Build Alternative I NSA4**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Rd45 ; SB Ramp western-SB 75(1)1/1	point1	1	586	35	14	35	30	35	0	0	0	0
	point2	2	586	35	14	35	30	35	0	0	0	0
	point3	3	586	35	14	35	30	35	0	0	0	0
	point4	4	586	35	14	35	30	35	0	0	0	0
	point5	5	586	35	14	35	30	35	0	0	0	0
	point6	6	586	35	14	35	30	35	0	0	0	0
	point7	7	586	35	14	35	30	35	0	0	0	0
	point8	8	586	35	14	35	30	35	0	0	0	0
	point9	9	586	35	14	35	30	35	0	0	0	0
	point10	10										
Rd192 ; NB Dalton kenner-court(1)1/1	point468	468	446	35	6	35	8	35	0	0	0	0
	point469	469										
Rd193 ; NB Dalton Court-Liberty(2)1/1	point470	470	446	35	6	35	8	35	0	0	0	0
	point471	471	446	35	6	35	8	35	0	0	0	0
	point472	472	446	35	6	35	8	35	0	0	0	0
	point473	473										
Rd195 ; NB Dalton liberty-findlay(2)1/1	point476	476	669	35	8	35	12	35	0	0	0	0
	point477	477	669	35	8	35	12	35	0	0	0	0
	point478	478										
Rd196 ; NB Dalton @ findlay(2)1/1	point479	479	640	35	8	35	12	35	0	0	0	0
	point480	480										
Rd197 ; NB Dalton findlay-bank(2)1/1	point481	481	791	35	24	35	55	35	0	0	0	0
	point482	482	791	35	24	35	55	35	0	0	0	0

	point483	483	791	35	24	35	55	35	0	0	0	0
	point484	484	791	35	24	35	55	35	0	0	0	0
	point485	485	791	35	24	35	55	35	0	0	0	0
	point486	486	791	35	24	35	55	35	0	0	0	0
	point487	487	791	35	24	35	55	35	0	0	0	0
	point488	488	791	35	24	35	55	35	0	0	0	0
	point489	489	791	35	24	35	55	35	0	0	0	0
	point490	490	791	35	24	35	55	35	0	0	0	0
	point491	491										
Rd211 ; NB Winchell to EB Ezzard(3)1/1	point512	512	1581	35	33	35	76	35	0	0	0	0
	point513	513	1581	35	33	35	76	35	0	0	0	0
	point514	514	1581	35	33	35	76	35	0	0	0	0
	point515	515										
Rd212 ; NB Winhell EB Ezz-WB Ezz(3)1/1	point516	516	1699	35	21	35	49	35	0	0	0	0
	point517	517										
Rd213 ; NB Winch Ezz-Off to 75(3)1/1	point518	518	1692	35	33	35	75	35	0	0	0	0
	point2032	2032	367	35	8	35	15	35	0	0	0	0
	point519	519										
Rd214 ; NB Winch Off-liberty(3)1/1	point520	520	367	35	8	35	15	35	0	0	0	0
	point2033	2033	367	35	8	35	15	35	0	0	0	0
	point2034	2034	367	35	8	35	15	35	0	0	0	0
	point2035	2035	367	35	8	35	15	35	0	0	0	0
	point521	521	367	35	8	35	15	35	0	0	0	0
	point522	522	367	35	8	35	15	35	0	0	0	0
	point523	523	367	35	8	35	15	35	0	0	0	0
	point524	524	367	35	8	35	15	35	0	0	0	0
	point525	525	367	35	8	35	15	35	0	0	0	0
	point526	526										
Rd216 ; NB Wich Liberty-findlay(3)1/1	point529	529	470	35	9	35	21	35	0	0	0	0
	point530	530	470	35	9	35	21	35	0	0	0	0
	point531	531	470	35	9	35	21	35	0	0	0	0
	point532	532	470	35	9	35	21	35	0	0	0	0
	point533	533	470	35	9	35	21	35	0	0	0	0
	point534	534										
Rd217 ; NB Winchel @ Findlay(3)1/1	point535	535	669	35	8	35	12	35	0	0	0	0
	point536	536										

Rd218 ; NB Winch Findlay-Bank(3)1/1	point537	537	556	35	9	35	15	35	0	0	0	0
	point538	538	556	35	9	35	15	35	0	0	0	0
	point539	539	556	35	9	35	15	35	0	0	0	0
	point540	540	556	35	9	35	15	35	0	0	0	0
	point541	541	556	35	9	35	15	35	0	0	0	0
	point542	542	556	35	9	35	15	35	0	0	0	0
	point543	543	556	35	9	35	15	35	0	0	0	0
	point544	544	556	35	9	35	15	35	0	0	0	0
	point545	545	556	35	9	35	15	35	0	0	0	0
	point546	546	556	35	9	35	15	35	0	0	0	0
	point547	547										
Rd225 ; EB Bank Fr Winchell(2)1/1	point557	557	118	35	1	35	1	35	0	0	0	0
	point558	558	230	35	6	35	14	35	0	0	0	0
	point559	559										
Rd230 ; EB Finlay to Dalton(2)1/1	point572	572	97	35	1	35	2	35	0	0	0	0
	point573	573	97	35	1	35	2	35	0	0	0	0
	point574	574										
Rd232 ; EB Findlay Dalton-Western(2)1/1	point577	577	192	35	2	35	6	35	0	0	0	0
	point578	578	192	35	2	35	6	35	0	0	0	0
	point579	579	192	35	2	35	6	35	0	0	0	0
	point580	580	192	35	2	35	6	35	0	0	0	0
	point581	581										
Rd233 ; EB Findlay Under 75(2)1/1	point582	582	269	35	3	35	8	35	0	0	0	0
	point583	583										
Rd234 ; EB Findlay fr Winchell(2)1/1	point584	584	202	35	3	35	5	35	0	0	0	0
	point585	585	202	35	3	35	5	35	0	0	0	0
	point586	586	202	35	3	35	5	35	0	0	0	0
	point587	587	202	35	3	35	5	35	0	0	0	0
	point588	588										
Rd235 ; WB Findlay to Winchell(2)1/1	point589	589	59	35	0	0	1	35	0	0	0	0
	point590	590	59	35	0	0	1	35	0	0	0	0
	point591	591	59	35	0	0	1	35	0	0	0	0
	point592	592	59	35	0	0	1	35	0	0	0	0
	point593	593										
Rd236 ; WB Findlay Winch-Western(2)1/1	point594	594	144	35	2	35	4	35	0	0	0	0
	point595	595										

Rd237 ; WB Findlay Western-On Ramp(21/	point596	596	98	35	1	35	1	35	0	0	0	0
	point597	597	144	35	2	35	4	35	0	0	0	0
	point598	598										
Rd238 ; WB Findlay Western-Dalton(2)1/1	point599	599	345	35	5	35	10	35	0	0	0	0
	point600	600	345	35	5	35	10	35	0	0	0	0
	point601	601										
Rd239 ; WB Findlay @ Dalton(2)1/1	point602	602	29	35	0	0	1	35	0	0	0	0
	point603	603										
Rd240 ; WB Findlay fr Dalton(2)1/1	point604	604	29	35	0	0	1	35	0	0	0	0
	point605	605	29	35	0	0	1	35	0	0	0	0
	point606	606	29	35	0	0	1	35	0	0	0	0
	point607	607										
Rd241 ; SB Rt fr Western(1)1/1	point608	608	218	35	3	35	4	35	0	0	0	0
	point609	609	218	35	3	35	4	35	0	0	0	0
	point610	610	218	35	3	35	4	35	0	0	0	0
	point611	611										
Rd242 ; SB Western to Findlay(3)1/1	point612	612	574	35	21	35	50	35	0	0	0	0
	point613	613										
Rd243 ; SB Western @ Findlay(2)1/1	point614	614	574	35	21	35	50	35	0	0	0	0
	point615	615										
Rd244 ; SB Western Findlay-liberty(3)1/1	point616	616	643	35	9	35	18	35	0	0	0	0
	point617	617	643	35	9	35	18	35	0	0	0	0
	point618	618										
Rd245 ; SB Western @ liberty(3)1/1	point619	619	330	35	4	35	6	35	0	0	0	0
	point620	620										
Rd246 ; Western Liberty-On fr 75(3)1/1	point621	621	652	35	8	35	20	35	0	0	0	0
	point622	622	652	35	8	35	20	35	0	0	0	0
	point623	623	652	35	8	35	20	35	0	0	0	0
	point624	624	652	35	8	35	20	35	0	0	0	0
	point625	625	652	35	8	35	20	35	0	0	0	0
	point626	626										
Rd247 ; Western On ramp-EB Ezz(3)1/1	point627	627	652	35	8	35	20	35	0	0	0	0
	point628	628	652	35	8	35	20	35	0	0	0	0
	point629	629	652	35	8	35	20	35	0	0	0	0
	point630	630										
Rd248 ; Western Wb Ezz-Eb Ezz(3)1/1	point631	631	643	35	8	35	19	35	0	0	0	0

	point632	632										
Rd249 ; Western EB Ezz-Off to 75(3)1/1	point633	633	586	35	14	35	30	35	0	0	0	0
	point634	634										
Rd253 ; EB Liberty Dalton-Western(2)1/1	point643	643	250	35	3	35	7	35	0	0	0	0
	point644	644	250	35	3	35	7	35	0	0	0	0
	point645	645	250	35	3	35	7	35	0	0	0	0
	point646	646										
Rd254 ; EB Liberty western-winchell(3)1/1	point647	647	316	35	5	35	9	35	0	0	0	0
	point648	648	316	35	5	35	9	35	0	0	0	0
	point649	649										
Rd255 ; EB liberty fr winchell(2)1/1	point650	650	403	35	6	35	11	35	0	0	0	0
	point651	651										
Rd256 ; WB Liberty to Winchell(2)1/1	point652	652	378	35	4	35	8	35	0	0	0	0
	point653	653	378	35	4	35	8	35	0	0	0	0
	point654	654										
Rd257 ; WB liberty Winch-Western(2)1/1	point655	655	282	35	6	35	12	35	0	0	0	0
	point656	656	282	35	6	35	12	35	0	0	0	0
	point657	657	282	35	6	35	12	35	0	0	0	0
	point658	658										
Rd258 ; WB liberty western-dalton(2)1/1	point659	659	291	35	4	35	5	35	0	0	0	0
	point660	660	202	35	3	35	7	35	0	0	0	0
	point661	661										
Rd260 ; WB Ezz Ch to Winchell(2)1/1	point664	664	470	35	3	35	7	35	0	0	0	0
	point665	665	470	35	3	35	7	35	0	0	0	0
	point666	666	470	35	3	35	7	35	0	0	0	0
	point667	667	470	35	3	35	7	35	0	0	0	0
	point668	668										
Rd 261 ; WB Ezz Ch Winch-Western(3)1/1	point669	669	58	35	1	35	1	35	0	0	0	0
	point670	670	58	35	1	35	1	35	0	0	0	0
	point671	671	58	35	1	35	1	35	0	0	0	0
	point672	672										
Rd262 ; WB Ezz Ch Fr Western(2)1/1	point673	673	37	35	1	35	2	35	0	0	0	0
	point674	674	37	35	1	35	2	35	0	0	0	0
	point675	675	37	35	1	35	2	35	0	0	0	0
	point676	676	37	35	1	35	2	35	0	0	0	0
	point677	677	37	35	1	35	2	35	0	0	0	0

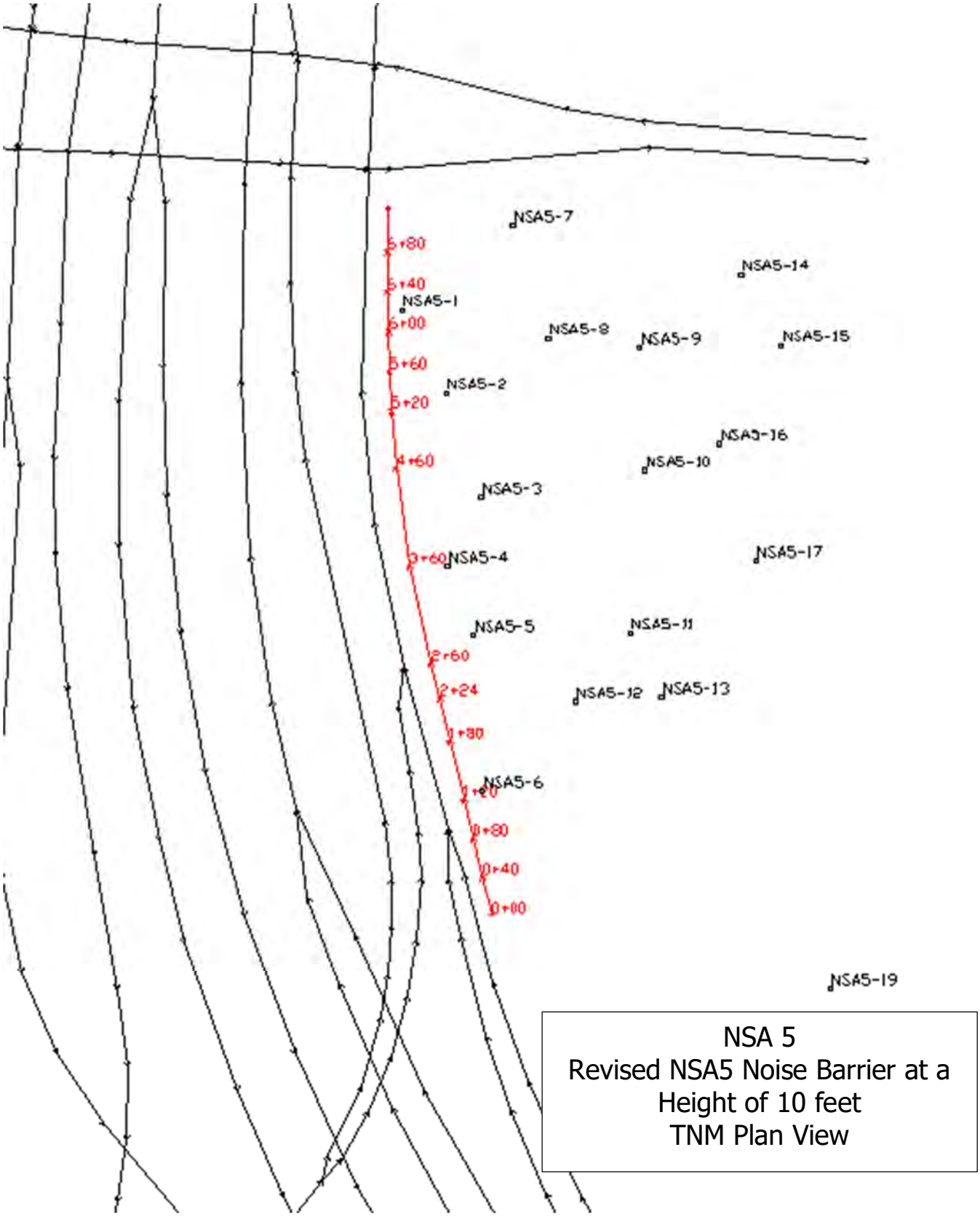
	point678	678	37	35	1	35	2	35	0	0	0	0
	point679	679	37	35	1	35	2	35	0	0	0	0
	point680	680	37	35	1	35	2	35	0	0	0	0
	point681	681										
Rd263 ; EB Ezz Ch to western(2)1/1	point682	682	37	35	1	35	2	35	0	0	0	0
	point683	683	37	35	1	35	2	35	0	0	0	0
	point684	684	37	35	1	35	2	35	0	0	0	0
	point685	685	37	35	1	35	2	35	0	0	0	0
	point686	686	37	35	1	35	2	35	0	0	0	0
	point687	687	37	35	1	35	2	35	0	0	0	0
	point688	688	37	35	1	35	2	35	0	0	0	0
	point689	689	37	35	1	35	2	35	0	0	0	0
	point690	690	37	35	1	35	2	35	0	0	0	0
	point691	691	37	35	1	35	2	35	0	0	0	0
	point692	692										
Rd264 ; EB Ezz Ch Western-Winchell(2)1/1	point693	693	147	35	1	35	2	35	0	0	0	0
	point694	694	147	35	1	35	2	35	0	0	0	0
	point695	695	147	35	1	35	2	35	0	0	0	0
	point696	696										
Rd265 ; EB Ezz Ch Fr Winchell(2)1/1	point697	697	441	35	2	35	7	35	0	0	0	0
	point698	698	441	35	2	35	7	35	0	0	0	0
	point699	699	441	35	2	35	7	35	0	0	0	0
	point700	700										
Rd311; Off fr NB CD to 75(2)1/1	point905	905	2557	55	166	55	447	55	0	0	0	0
	point906	906	2557	55	166	55	447	55	0	0	0	0
	point907	907	2557	55	166	55	447	55	0	0	0	0
	point908	908	2557	55	166	55	447	55	0	0	0	0
	point909	909	2557	55	166	55	447	55	0	0	0	0
	point910	910	2557	55	166	55	447	55	0	0	0	0
	point911	911	2557	55	166	55	447	55	0	0	0	0
	point912	912										
Rd322; Ramp 6th+9th to Winch(2)1/1	point1026	1026	1581	35	33	35	76	35	0	0	0	0
	point1027	1027	1581	35	33	35	76	35	0	0	0	0
	point1028	1028										
Rd323; Ramp 6th+9th to Winch(1)1/1	point1029	1029	1581	35	33	35	76	35	0	0	0	0
	point1030	1030	1581	35	33	35	76	35	0	0	0	0

	point1031	1031	1581	35	33	35	76	35	0	0	0	0
	point1032	1032	1581	35	33	35	76	35	0	0	0	0
	point1033	1033	1581	35	33	35	76	35	0	0	0	0
	point1034	1034	1581	35	33	35	76	35	0	0	0	0
	point1035	1035	1581	35	33	35	76	35	0	0	0	0
	point1036	1036	1581	35	33	35	76	35	0	0	0	0
	point1037	1037	1581	35	33	35	76	35	0	0	0	0
	point1038	1038	1581	35	33	35	76	35	0	0	0	0
	point1039	1039										
Rd324; NB Winch 6th on-Free On(2)1/1	point1040	1040	1581	35	33	35	76	35	0	0	0	0
	point1041	1041										
Rd337; NB 75 5lane-Western Off(6)1/1	point1169	1169	8317	55	247	55	576	55	0	0	0	0
	point1170	1170	8317	55	247	55	576	55	0	0	0	0
	point1171	1171	8317	55	247	55	576	55	0	0	0	0
	point1172	1172										
Rd338; NB 75 Western Off-Winc On(5)1/1	point1173	1173	8317	55	247	55	576	55	0	0	0	0
	point1174	1174	8317	55	247	55	576	55	0	0	0	0
	point1175	1175	8317	55	247	55	576	55	0	0	0	0
	point1176	1176										
Rd351; SB 75 West On-Free Of(6)1/1	point1266	1266	5405	55	161	55	354	55	0	0	0	0
	point1267	1267	5405	55	161	55	354	55	0	0	0	0
	point1268	1268	5405	55	161	55	354	55	0	0	0	0
	point1269	1269	5405	55	161	55	354	55	0	0	0	0
	point1270	1270	5405	55	161	55	354	55	0	0	0	0
	point1271	1271	5405	55	161	55	354	55	0	0	0	0
	point1272	1272	5405	55	161	55	354	55	0	0	0	0
	point1273	1273	5405	55	161	55	354	55	0	0	0	0
	point1274	1274	5405	55	161	55	354	55	0	0	0	0
	point1275	1275	5405	55	161	55	354	55	0	0	0	0
	point1276	1276	5405	55	161	55	354	55	0	0	0	0
	point1277	1277	5405	55	161	55	354	55	0	0	0	0
	point1278	1278										
Rd352; SB 75 Free Off-CD Off(6)1/1	point1279	1279	5024	55	152	55	334	55	0	0	0	0
	point1280	1280										
Rd353; SB 75 Fr Free Off(3)1/1	point1281	1281	3006	55	138	55	306	55	0	0	0	0
	point1282	1282	3006	55	138	55	306	55	0	0	0	0

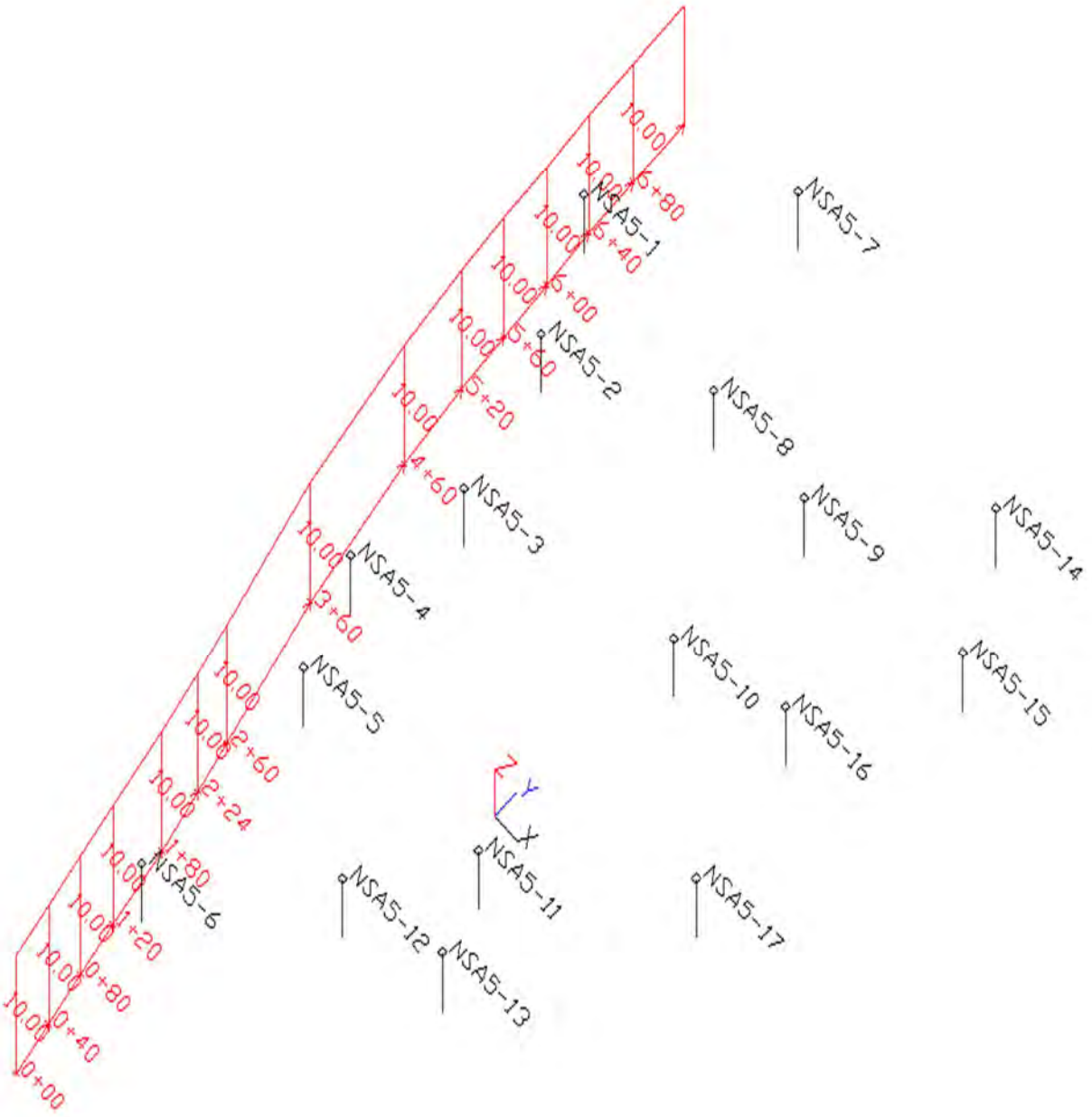
	point1283	1283	3006	55	138	55	306	55	0	0	0	0
	point1284	1284	3006	55	138	55	306	55	0	0	0	0
	point1285	1285	3006	55	138	55	306	55	0	0	0	0
	point1286	1286	3006	55	138	55	306	55	0	0	0	0
	point1287	1287	3006	55	138	55	306	55	0	0	0	0
	point1288	1288	3006	55	138	55	306	55	0	0	0	0
	point1289	1289	3006	55	138	55	306	55	0	0	0	0
	point1290	1290	3006	55	138	55	306	55	0	0	0	0
	point1291	1291	3006	55	138	55	306	55	0	0	0	0
	point1292	1292	3006	55	138	55	306	55	0	0	0	0
	point1293	1293	3006	55	138	55	306	55	0	0	0	0
	point1294	1294	3006	55	138	55	306	55	0	0	0	0
	point1295	1295	3006	55	138	55	306	55	0	0	0	0
	point1296	1296	3006	55	138	55	306	55	0	0	0	0
	point1297	1297										
Rd366; SB Off to Freeman(1)1/1	point1383	1383	381	35	9	35	20	35	0	0	0	0
	point1384	1384	381	35	9	35	20	35	0	0	0	0
	point1385	1385	381	35	9	35	20	35	0	0	0	0
	point1386	1386	381	35	9	35	20	35	0	0	0	0
	point1387	1387	381	35	9	35	20	35	0	0	0	0
	point1388	1388	381	35	9	35	20	35	0	0	0	0
	point1389	1389	381	35	9	35	20	35	0	0	0	0
	point1390	1390	381	35	9	35	20	35	0	0	0	0
	point1391	1391										
Rd368 ; SB CD to On fr Western(3)1/1	point1398	1398	2018	35	14	35	28	35	0	0	0	0
	point1399	1399	2018	35	14	35	28	35	0	0	0	0
	point1400	1400	2018	35	14	35	28	35	0	0	0	0
	point1401	1401	2018	35	14	35	28	35	0	0	0	0
	point1402	1402	2018	35	14	35	28	35	0	0	0	0
	point1403	1403	2018	35	14	35	28	35	0	0	0	0
	point1404	1404	2018	35	14	35	28	35	0	0	0	0
	point1405	1405	2018	35	14	35	28	35	0	0	0	0
	point1406	1406	2018	35	14	35	28	35	0	0	0	0
	point1407	1407	2018	35	14	35	28	35	0	0	0	0
	point1408	1408	2018	35	14	35	28	35	0	0	0	0
	point1409	1409	2018	35	14	35	28	35	0	0	0	0

	point1410	1410	2018	35	14	35	28	35	0	0	0	0
	point1411	1411	2018	35	14	35	28	35	0	0	0	0
	point1412	1412										
Rd369; SB CD western On-7th Off(4)1/1	point1413	1413	2604	35	28	35	58	35	0	0	0	0
	point1414	1414	2604	35	28	35	58	35	0	0	0	0
	point1415	1415	2604	35	28	35	58	35	0	0	0	0
	point1416	1416	2604	35	28	35	58	35	0	0	0	0
	point1417	1417	2604	35	28	35	58	35	0	0	0	0
	point1418	1418										
Rd434; NB 75 On Fr CD - 6 lane(5)1/1	point1791	1791	2557	55	166	55	447	55	0	0	0	0
	point1792	1792	2557	55	166	55	447	55	0	0	0	0
	point1793	1793	2557	55	166	55	447	55	0	0	0	0
	point1794	1794	2557	55	166	55	447	55	0	0	0	0
	point1795	1795	2557	55	166	55	447	55	0	0	0	0
	point1796	1796										
Rd435; NB 75 On Fr CD - 6 lane(5)1/1	point1797	1797	6992	55	222	55	576	55	0	0	0	0
	point2029	2029	6992	55	222	55	576	55	0	0	0	0
	point2030	2030	6992	55	222	55	576	55	0	0	0	0
	point2031	2031	8317	55	247	55	576	55	0	0	0	0
	point1798	1798	8317	55	247	55	576	55	0	0	0	0
	point1799	1799	8317	55	247	55	576	55	0	0	0	0
	point1800	1800	8317	55	247	55	576	55	0	0	0	0
	point1801	1801	8317	55	247	55	576	55	0	0	0	0
	point1802	1802	8317	55	247	55	576	55	0	0	0	0
	point1803	1803	8317	55	247	55	576	55	0	0	0	0
	point1804	1804	8317	55	247	55	576	55	0	0	0	0
	point1805	1805	8317	55	247	55	576	55	0	0	0	0
	point1806	1806	8317	55	247	55	576	55	0	0	0	0
	point1807	1807	8317	55	247	55	576	55	0	0	0	0
	point1808	1808	8317	55	247	55	576	55	0	0	0	0
	point1809	1809	8317	55	247	55	576	55	0	0	0	0
	point1810	1810	8317	55	247	55	576	55	0	0	0	0
	point1811	1811	8317	55	247	55	576	55	0	0	0	0
	point1812	1812										
Rd350 ; SB 75 fr Off-On fr western(5)1/1-2-	point2043	2043	5405	55	161	55	374	55	0	0	0	0
	point1260	1260	5405	55	161	55	374	55	0	0	0	0

	point1261	1261	5405	55	161	55	374	55	0	0	0	0
	point1262	1262	5405	55	161	55	374	55	0	0	0	0
	point1263	1263	5405	55	161	55	374	55	0	0	0	0
	point1264	1264	5405	55	161	55	374	55	0	0	0	0
	point1265	1265										
Rd361; SB Off to Findlay(1)1/1-2	point2045	2045	792	35	24	35	54	35	0	0	0	0
	point1358	1358	792	35	24	35	54	35	0	0	0	0
	point1359	1359	792	35	24	35	54	35	0	0	0	0
	point1360	1360	792	35	24	35	54	35	0	0	0	0
	point1361	1361	792	35	24	35	54	35	0	0	0	0
	point1362	1362	792	35	24	35	54	35	0	0	0	0
	point1363	1363	792	35	24	35	54	35	0	0	0	0
	point1364	1364	792	35	24	35	54	35	0	0	0	0
	point1365	1365										
Rd318; Ramp Free-WB Ezz Ch(1)1/1-2	point2048	2048	4435	55	56	55	129	55	0	0	0	0
	point984	984	4435	55	56	55	129	55	0	0	0	0
	point985	985	4435	55	56	55	129	55	0	0	0	0
	point986	986	4435	55	56	55	129	55	0	0	0	0
	point987	987	4435	55	56	55	129	55	0	0	0	0
	point988	988	4435	55	56	55	129	55	0	0	0	0
	point989	989	4435	55	56	55	129	55	0	0	0	0
	point990	990										
Ramp NB Winchell to I75	point2049	2049	1325	50	25	50	60	50	0	0	0	0
	point2050	2050										



NSA 5
Revised NSA5 Noise Barrier at a Height of 10 feet
TNM Plan View



NSA5
Revised NSA5 Noise Barrier at a Height of 10 Feet
TNM Barrier Plan

Lawhon & Associates
CMCox
30 June 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA 5
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
NSA5-1	2114	12	74.3	76.2	66	1.9	10	Snd Lvl	66.4	9.8	5	4.8
NSA5-2	2115	12	72.3	73.7	66	1.4	10	Snd Lvl	66.6	7.1	5	2.1
NSA5-3	2116	12	71.8	72.9	66	1.1	10	Snd Lvl	65.8	7.1	5	2.1
NSA5-4	2117	12	73.6	75.0	66	1.4	10	Snd Lvl	66.1	8.9	5	3.9
NSA5-5	2118	12	72.6	74.1	66	1.5	10	Snd Lvl	65.7	8.4	5	3.4
NSA5-6	2119	12	71.7	74.4	66	2.7	10	Snd Lvl	65.7	8.7	5	3.7
NSA5-7	2120	12	66.2	69.4	66	3.2	10	Snd Lvl	67.8	1.6	5	-3.4
NSA5-8	2121	12	64.0	67.6	66	3.6	10	Snd Lvl	64.8	2.8	5	-2.2
NSA5-9	2122	12	61.5	65.0	66	3.5	10	----	63.1	1.9	5	-3.1
NSA5-10	2123	12	62.9	65.1	66	2.2	10	----	62.6	2.5	5	-2.5
NSA5-11	2124	12	62.5	65.5	66	3.0	10	----	62.4	3.1	5	-1.9
NSA5-12	2125	12	64.8	67.3	66	2.5	10	Snd Lvl	63.3	4.0	5	-1.0
NSA5-13	2126	12	62.7	65.0	66	2.3	10	----	62.2	2.8	5	-2.2
NSA5-14	2127	12	61.5	63.5	66	2.0	10	----	62.5	1.0	5	-4.0
NSA5-15	2128	12	60.5	62.5	66	2.0	10	----	61.2	1.3	5	-3.7
NSA5-16	2129	12	60.2	63.4	66	3.2	10	----	61.5	1.9	5	-3.1
NSA5-17	2130	12	60.9	63.0	66	2.1	10	----	61.0	2.0	5	-3.0
NSA5-18 New Apartment Bldg No	2132	5	66.9	69.3	66	2.4	10	Snd Lvl	65.6	3.7	5	-1.3
NSA5-19 New Apartment Bldg So	2133	5	70.4	73.3	66	2.9	10	Snd Lvl	69.8	3.5	5	-1.5
NSA5-20 Basketball Ct.	2134	1	60.6	62.0	66	1.4	10	----	60.8	1.2	5	-3.8
NSA5-21 Com center pool	2135	1	62.1	63.7	66	1.6	10	----	62.3	1.4	5	-3.6
Head Start School Playground north	2136	1	62.9	65.0	66	2.1	10	----	64.7	0.3	5	-4.7
Head Start School Playground South	2137	2	66.7	68.8	66	2.1	10	Snd Lvl	68.7	0.1	5	-4.9
NSA5-24 Senior Center	2138	1	62.2	63.4	66	1.2	10	----	63.1	0.3	5	-4.7

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	220	0.1	3.6	9.8
All Impacted	120	0.1	5.5	9.8
All that meet NR Goal	72	7.1	8.3	9.8

Lawhon & Associates **30 June 2023**
CMCox **TNM 2.5**

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: **HAM-75-1.05 PID 89068**
RUN: **Design Year Build Alternative I NSA 5**
BARRIER DESIGN: **INPUT HEIGHTS**

Barriers

Name	**Type**	**Heights along Barrier**			**Length**	**If Wall**	**If Berm**			**Cost**
		Min	**Avg**	**Max**		**Area**	**Volume**	**Top Width**	**Run:Rise**	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Noise barrier NSA5 on retaining wall	W	10.00	10.00	10.00	436	4363				654520
Noise barrier NSA5 on ground	W	10.00	10.00	10.00	499	4994				149827
									Total Cost:	804347

Lawhon & Associates 30 June 2023
CMCox TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA 5

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
NSA5-1	2114	12	5,266,644.5	4,293,346.5	502.00	4.92	74.30	66	10.0	5.0	Y
NSA5-2	2115	12	5,266,689.0	4,293,263.0	503.00	4.92	72.30	66	10.0	5.0	Y
NSA5-3	2116	12	5,266,724.0	4,293,158.0	504.00	4.92	71.80	66	10.0	5.0	Y
NSA5-4	2117	12	5,266,690.5	4,293,088.0	502.00	4.92	73.60	66	10.0	5.0	Y
NSA5-5	2118	12	5,266,716.5	4,293,019.0	502.00	4.92	72.60	66	10.0	5.0	Y
NSA5-6	2119	12	5,266,725.5	4,292,862.5	502.00	4.92	71.70	66	10.0	5.0	Y
NSA5-7	2120	12	5,266,756.0	4,293,430.5	505.00	4.92	66.20	66	10.0	5.0	Y
NSA5-8	2121	12	5,266,791.5	4,293,318.0	503.00	4.92	64.00	66	10.0	5.0	Y
NSA5-9	2122	12	5,266,883.0	4,293,309.0	504.00	4.92	61.50	66	10.0	5.0	Y
NSA5-10	2123	12	5,266,888.0	4,293,185.0	505.00	4.92	62.90	66	10.0	5.0	Y
NSA5-11	2124	12	5,266,873.5	4,293,021.5	502.00	4.92	62.50	66	10.0	5.0	Y
NSA5-12	2125	12	5,266,818.5	4,292,952.5	501.00	4.92	64.80	66	10.0	5.0	Y
NSA5-13	2126	12	5,266,905.0	4,292,957.0	503.00	4.92	62.70	66	10.0	5.0	Y
NSA5-14	2127	12	5,266,985.0	4,293,382.0	506.00	4.92	61.50	66	10.0	5.0	Y
NSA5-15	2128	12	5,267,025.5	4,293,311.0	505.00	4.92	60.50	66	10.0	5.0	Y
NSA5-16	2129	12	5,266,963.0	4,293,212.0	504.00	4.92	60.20	66	10.0	5.0	Y
NSA5-17	2130	12	5,266,999.5	4,293,094.0	505.00	4.92	60.90	66	10.0	5.0	Y
NSA5-18 New Apartment Bldg No	2132	5	5,266,848.0	4,292,726.0	507.00	4.92	66.90	66	10.0	5.0	Y
NSA5-19 New Apartment Bldg So	2133	5	5,266,848.0	4,292,578.0	507.00	4.92	70.40	66	10.0	5.0	Y
NSA5-20 Basketball Ct.	2134	1	5,267,141.0	4,292,914.0	507.00	4.92	60.60	66	10.0	5.0	Y
NSA5-21 Com center pool	2135	1	5,267,074.0	4,292,764.0	509.00	4.92	62.10	66	10.0	5.0	Y
Head Start School Playground north	2136	1	5,267,174.0	4,292,487.0	511.00	4.92	62.90	66	10.0	5.0	Y

Head Start School Playground South	2137	2	5,267,136.0	4,292,338.0	511.00	4.92	66.70	66	10.0	5.0	Y
NSA5-24 Senior Center	2138	1	5,267,294.0	4,292,559.0	511.00	4.92	62.20	66	10.0	5.0	Y

Lawhon & Associates 30 June 2023
CMCox TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA 5

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht	Perturbs		On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Noise barrier NSA5 on retaining wall	W	5.00	99.99	150.00				0.00	0+00	2611	5,266,805.0	4,292,539.0	506.00	10.00	1.00	2	2		
									0+40	2614	5,266,788.5	4,292,575.5	505.50	10.00	1.00	2	2		
									0+80	2615	5,266,774.5	4,292,613.0	504.50	10.00	1.00	2	2		
									2+00	2616	5,266,738.5	4,292,727.5	502.50	10.00	1.00	2	2		
									3+20	2617	5,266,709.5	4,292,844.0	501.00	10.00	1.00	2	2		
									4-36	2599	5,266,682.5	4,292,957.0	499.00	10.00					
Noise barrier NSA5 on ground	W	5.00	99.99	30.00				0.00	0+00	2600	5,266,682.5	4,292,957.0	499.00	10.00	1.00	2	2		
									1+20	2618	5,266,655.5	4,293,074.0	499.50	10.00	1.00	2	2		
									2+40	2619	5,266,640.5	4,293,193.0	499.50	10.00	1.00	2	2		
									2+80	2620	5,266,635.5	4,293,232.5	499.50	10.00	1.00	2	2		
									3+60	2621	5,266,632.0	4,293,312.5	500.00	10.00	1.00	2	2		
									4+40	2622	5,266,630.5	4,293,392.5	500.50	10.00	1.00	2	2		
									5+00	2580	5,266,631.0	4,293,452.0	501.00	10.00					

Lawhon & Associates			**9 June 2023**									
CMCox			**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**											
RUN:	**Design Year Build Alternative I NSA 5**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Rd45 ; SB Ramp western-SB 75(1)1/1	point1	1	285	35	6	35	9	35	0	0	0	0
	point2	2	285	35	6	35	9	35	0	0	0	0
	point3	3	285	35	6	35	9	35	0	0	0	0
	point4	4	285	35	6	35	9	35	0	0	0	0
	point5	5	285	35	6	35	9	35	0	0	0	0
	point6	6	285	35	6	35	9	35	0	0	0	0
	point7	7	285	35	6	35	9	35	0	0	0	0
	point8	8	285	35	6	35	9	35	0	0	0	0
	point9	9	285	35	6	35	9	35	0	0	0	0
	point10	10										
Rd123 ; NB Freeman 8th-Gest(4)1/1	point196	196	524	35	14	35	32	35	0	0	0	0
	point197	197	524	35	14	35	32	35	0	0	0	0
	point198	198	524	35	14	35	32	35	0	0	0	0
	point199	199	524	35	14	35	32	35	0	0	0	0
	point200	200	524	35	14	35	32	35	0	0	0	0
	point201	201	524	35	14	35	32	35	0	0	0	0
	point202	202	524	35	14	35	32	35	0	0	0	0
	point203	203	524	35	14	35	32	35	0	0	0	0
	point204	204	524	35	14	35	32	35	0	0	0	0
	point205	205										
Rd128 ; SB Freem Gest-8th(4)1/1	point210	210	570	35	15	35	35	35	0	0	0	0
	point211	211	570	35	15	35	35	35	0	0	0	0
	point212	212	570	35	15	35	35	35	0	0	0	0

	point213	213	570	35	15	35	35	35	0	0	0	0
	point214	214	570	35	15	35	35	35	0	0	0	0
	point215	215	570	35	15	35	35	35	0	0	0	0
	point216	216	570	35	15	35	35	35	0	0	0	0
	point217	217	570	35	15	35	35	35	0	0	0	0
	point218	218										
Rd158 ; EB Gest Dalton-Western(2)1/1	point354	354	245	35	2	35	3	35	0	0	0	0
	point355	355	245	35	2	35	3	35	0	0	0	0
	point356	356	245	35	2	35	3	35	0	0	0	0
	point357	357	245	35	2	35	3	35	0	0	0	0
	point358	358	245	35	2	35	3	35	0	0	0	0
	point359	359										
Rd159 ; EB Gest Western-Freeman(2)1/1	point360	360	398	35	5	35	7	35	0	0	0	0
	point361	361										
Rd160 ; EB gest @ Freeman(2)1/1	point362	362	398	35	5	35	7	35	0	0	0	0
	point363	363										
Rd 180 NB Gest @ Freeman(2)1/1	point421	421	126	35	2	35	2	35	0	0	0	0
	point422	422										
Rd181 ; NB Gest Free-Western(3)1/1	point423	423	126	35	2	35	2	35	0	0	0	0
	point424	424										
Rd182 ; NB Gest Western-Dalton(2)1/1	point425	425	362	35	2	35	6	35	0	0	0	0
	point426	426	362	35	2	35	6	35	0	0	0	0
	point427	427	362	35	2	35	6	35	0	0	0	0
	point428	428	362	35	2	35	6	35	0	0	0	0
	point429	429	362	35	2	35	6	35	0	0	0	0
	point430	430										
Rd211 ; NB Winchell to EB Ezzard(3)1/1	point512	512	1581	35	36	35	83	35	0	0	0	0
	point513	513	1581	35	36	35	83	35	0	0	0	0
	point514	514	1581	35	36	35	83	35	0	0	0	0
	point515	515										
Rd212 ; NB Winhell EB Ezz-WB Ezz(3)1/1	point516	516	1581	35	36	35	83	35	0	0	0	0
	point517	517										
Rd213 ; NB Winch Ezz-Off to 75(3)1/1	point518	518	359	35	10	35	21	35	0	0	0	0
	point519	519										
Rd214 ; NB Winch Off-liberty(3)1/1	point520	520	359	35	10	35	21	35	0	0	0	0
	point521	521	359	35	10	35	21	35	0	0	0	0

	point522	522	359	35	10	35	21	35	0	0	0	0
	point523	523	359	35	10	35	21	35	0	0	0	0
	point524	524	359	35	10	35	21	35	0	0	0	0
	point525	525	359	35	10	35	21	35	0	0	0	0
	point526	526										
Rd215 ; NB Winchell @ liderty(3)1/1	point527	527	530	35	15	35	35	35	0	0	0	0
	point528	528										
Rd216 ; NB Wich Liberty-findlay(3)1/1	point529	529	470	35	9	35	21	35	0	0	0	0
	point530	530	470	35	9	35	21	35	0	0	0	0
	point531	531	470	35	9	35	21	35	0	0	0	0
	point532	532	470	35	9	35	21	35	0	0	0	0
	point534	534										
Rd217 ; NB Winchel @ Findlay(3)1/1	point535	535	669	35	8	35	12	35	0	0	0	0
	point536	536										
Rd218 ; NB Winch Findlay-Bank(3)1/1	point537	537	470	35	9	35	21	35	0	0	0	0
	point538	538	470	35	9	35	21	35	0	0	0	0
	point539	539	470	35	9	35	21	35	0	0	0	0
	point540	540	470	35	9	35	21	35	0	0	0	0
	point541	541	470	35	9	35	21	35	0	0	0	0
	point542	542	470	35	9	35	21	35	0	0	0	0
	point543	543	470	35	9	35	21	35	0	0	0	0
	point544	544	470	35	9	35	21	35	0	0	0	0
	point545	545	470	35	9	35	21	35	0	0	0	0
	point546	546	470	35	9	35	21	35	0	0	0	0
	point547	547										
Rd219 ; NB Winchell @ Bank(3)1/1	point548	548	514	35	6	35	10	35	0	0	0	0
	point549	549										
Rd242 ; SB Western to Findlay(3)1/1	point612	612	643	35	9	35	18	35	0	0	0	0
	point613	613										
Rd243 ; SB Western @ Findlay(2)1/1	point614	614	320	35	4	35	6	35	0	0	0	0
	point615	615										
Rd244 ; SB Western Findlay-liberty(3)1/1	point616	616	643	35	9	35	18	35	0	0	0	0
	point617	617	643	35	9	35	18	35	0	0	0	0
	point618	618										
Rd245 ; SB Western @ liberty(3)1/1	point619	619	330	35	4	35	6	35	0	0	0	0
	point620	620										

Rd246 ; Western Liberty-On fr 75(3)1/1	point621	621	330	35	4	35	6	35	0	0	0	0
	point622	622	330	35	4	35	6	35	0	0	0	0
	point623	623	330	35	4	35	6	35	0	0	0	0
	point624	624	330	35	4	35	6	35	0	0	0	0
	point625	625	330	35	4	35	6	35	0	0	0	0
	point626	626										
Rd247 ; Western On ramp-EB Ezz(3)1/1	point627	627	652	35	10	35	18	35	0	0	0	0
	point628	628	652	35	10	35	18	35	0	0	0	0
	point629	629	652	35	10	35	18	35	0	0	0	0
	point630	630										
Rd248 ; Western Wb Ezz-Eb Ezz(3)1/1	point631	631	652	35	10	35	18	35	0	0	0	0
	point632	632										
Rd249 ; Western EB Ezz-Off to 75(3)1/1	point633	633	598	35	11	35	21	35	0	0	0	0
	point634	634										
Rd250 ; Western 75 Off-Gest(3)1/1	point635	635	313	35	5	35	12	35	0	0	0	0
	point636	636	313	35	5	35	12	35	0	0	0	0
	point637	637	313	35	5	35	12	35	0	0	0	0
	point638	638										
Rd252 ; EB liberty @ dalton(2)1/1	point641	641	233	35	3	35	4	35	0	0	0	0
	point642	642										
Rd253 ; EB Liberty Dalton-Western(2)1/1	point643	643	250	35	3	35	7	35	0	0	0	0
	point644	644	250	35	3	35	7	35	0	0	0	0
	point645	645	250	35	3	35	7	35	0	0	0	0
	point646	646										
Rd254 ; EB Liberty western-winchell(3)1/1	point647	647	316	35	5	35	9	35	0	0	0	0
	point648	648	316	35	5	35	9	35	0	0	0	0
	point649	649										
Rd255 ; EB liberty fr winchell(2)1/1	point650	650	403	35	6	35	11	35	0	0	0	0
	point651	651										
Rd256 ; WB Liberty to Winchell(2)1/1	point652	652	378	35	4	35	8	35	0	0	0	0
	point653	653	378	35	4	35	8	35	0	0	0	0
	point654	654										
Rd257 ; WB liberty Winch-Western(2)1/1	point655	655	282	35	6	35	12	35	0	0	0	0
	point656	656	282	35	6	35	12	35	0	0	0	0
	point657	657	282	35	6	35	12	35	0	0	0	0
	point658	658										

Rd258 ; WB liberty western-dalton(2)1/1	point659	659	291	35	4	35	5	35	0	0	0	0
	point660	660	202	35	3	35	7	35	0	0	0	0
	point661	661										
Rd259 ; WB liberty @ Dalton(2)1/1	point662	662	291	35	4	35	5	35	0	0	0	0
	point663	663										
Rd260 ; WB Ezz Ch to Winchell(2)1/1	point664	664	470	35	3	35	7	35	0	0	0	0
	point665	665	470	35	3	35	7	35	0	0	0	0
	point666	666	470	35	3	35	7	35	0	0	0	0
	point667	667	470	35	3	35	7	35	0	0	0	0
	point668	668										
Rd 261 ; WB Ezz Ch Winch-Western(3)1/1	point669	669	68	35	3	35	8	35	0	0	0	0
	point670	670	68	35	3	35	8	35	0	0	0	0
	point671	671	68	35	3	35	8	35	0	0	0	0
	point672	672										
Rd262 ; WB Ezz Ch Fr Western(2)1/1	point673	673	27	35	5	35	8	35	0	0	0	0
	point674	674	27	35	5	35	8	35	0	0	0	0
	point675	675	27	35	5	35	8	35	0	0	0	0
	point676	676	27	35	5	35	8	35	0	0	0	0
	point677	677	27	35	5	35	8	35	0	0	0	0
	point678	678	27	35	5	35	8	35	0	0	0	0
	point679	679	27	35	5	35	8	35	0	0	0	0
	point680	680	27	35	5	35	8	35	0	0	0	0
	point681	681										
Rd263 ; EB Ezz Ch to western(2)1/1	point682	682	46	35	4	35	10	35	0	0	0	0
	point683	683	46	35	4	35	10	35	0	0	0	0
	point684	684	46	35	4	35	10	35	0	0	0	0
	point685	685	46	35	4	35	10	35	0	0	0	0
	point686	686	46	35	4	35	10	35	0	0	0	0
	point687	687	46	35	4	35	10	35	0	0	0	0
	point688	688	46	35	4	35	10	35	0	0	0	0
	point689	689	46	35	4	35	10	35	0	0	0	0
	point690	690	46	35	4	35	10	35	0	0	0	0
	point691	691	46	35	4	35	10	35	0	0	0	0
	point692	692										
Rd264 ; EB Ezz Ch Western-Winchell(2)1/1	point693	693	144	35	2	35	4	35	0	0	0	0
	point694	694	144	35	2	35	4	35	0	0	0	0

	point695	695	144	35	2	35	4	35	0	0	0	0
	point696	696										
Rd265 ; EB Ezz Ch Fr Winchell(2)1/1	point697	697	447	35	1	35	2	35	0	0	0	0
	point698	698	447	35	1	35	2	35	0	0	0	0
	point699	699	447	35	1	35	2	35	0	0	0	0
	point700	700										
Rd272 ; NB Linn 8th-Court(3)1/1	point735	735	392	35	2	35	6	35	0	0	0	0
	point736	736	392	35	2	35	6	35	0	0	0	0
	point737	737	392	35	2	35	6	35	0	0	0	0
	point738	738										
Rd273 ; NB Linn fr Court(2)1/1	point739	739	408	35	8	35	14	35	0	0	0	0
	point740	740	408	35	8	35	14	35	0	0	0	0
	point741	741	408	35	8	35	14	35	0	0	0	0
	point742	742										
Rd274 ; SB Linn to Court(2)1/1	point743	743	503	35	8	35	19	35	0	0	0	0
	point744	744	503	35	8	35	19	35	0	0	0	0
	point745	745	503	35	8	35	19	35	0	0	0	0
	point746	746										
Rd275 ; SB Linn Court-8th(2)1/1	point747	747	578	35	3	35	9	35	0	0	0	0
	point748	748	578	35	3	35	9	35	0	0	0	0
	point749	749	578	35	3	35	9	35	0	0	0	0
	point750	750										
Rd310 ; NB CD to 75 On(3)1/1	point898	898	4655	55	58	55	138	55	0	0	0	0
	point899	899	4655	55	58	55	138	55	0	0	0	0
	point900	900	4655	55	58	55	138	55	0	0	0	0
	point901	901	4655	55	58	55	138	55	0	0	0	0
	point902	902	4655	55	58	55	138	55	0	0	0	0
	point903	903	4655	55	58	55	138	55	0	0	0	0
	point904	904										
Rd311; Off fr NB CD to 75(2)1/1	point905	905	4435	55	55	55	130	55	0	0	0	0
	point906	906	4435	55	55	55	130	55	0	0	0	0
	point907	907	4435	55	55	55	130	55	0	0	0	0
	point908	908	4435	55	55	55	130	55	0	0	0	0
	point909	909	4435	55	55	55	130	55	0	0	0	0
	point910	910	4435	55	55	55	130	55	0	0	0	0
	point911	911	4435	55	55	55	130	55	0	0	0	0

	point912	912										
Rd316; On fr CD to Winchell(1)1/1	point961	961	220	35	3	35	7	35	0	0	0	0
	point962	962	220	35	3	35	7	35	0	0	0	0
	point963	963	220	35	3	35	7	35	0	0	0	0
	point964	964	220	35	3	35	7	35	0	0	0	0
	point965	965	220	35	3	35	7	35	0	0	0	0
	point966	966	220	35	3	35	7	35	0	0	0	0
	point967	967	220	35	3	35	7	35	0	0	0	0
	point968	968	220	35	3	35	7	35	0	0	0	0
	point969	969	220	35	3	35	7	35	0	0	0	0
	point970	970	220	35	3	35	7	35	0	0	0	0
	point971	971	220	35	3	35	7	35	0	0	0	0
	point972	972										
Rd317; Ramp fr Freeman to Winch(2)1/1	point973	973	922	35	11	35	17	35	0	0	0	0
	point974	974	922	35	11	35	17	35	0	0	0	0
	point975	975	922	35	11	35	17	35	0	0	0	0
	point976	976										
Rd318; Ramp Free-WB Ezz Ch(1)1/1	point977	977	0	0	0	0	0	0	0	0	0	0
	point978	978	0	0	0	0	0	0	0	0	0	0
	point979	979	0	0	0	0	0	0	0	0	0	0
	point980	980	0	0	0	0	0	0	0	0	0	0
	point981	981	0	0	0	0	0	0	0	0	0	0
	point982	982	0	0	0	0	0	0	0	0	0	0
	point983	983	0	0	0	0	0	0	0	0	0	0
	point984	984	0	0	0	0	0	0	0	0	0	0
	point985	985	0	0	0	0	0	0	0	0	0	0
	point986	986	0	0	0	0	0	0	0	0	0	0
	point987	987	0	0	0	0	0	0	0	0	0	0
	point988	988	0	0	0	0	0	0	0	0	0	0
	point989	989	0	0	0	0	0	0	0	0	0	0
	point990	990										
Rd319; Ramp Free to Winch(1)1/1	point991	991	742	35	2	35	6	35	0	0	0	0
	point992	992	742	35	2	35	6	35	0	0	0	0
	point993	993	742	35	2	35	6	35	0	0	0	0
	point994	994	742	35	2	35	6	35	0	0	0	0
	point995	995	742	35	2	35	6	35	0	0	0	0

	point996	996	742	35	2	35	6	35	0	0	0	0
	point997	997	742	35	2	35	6	35	0	0	0	0
	point998	998	742	35	2	35	6	35	0	0	0	0
	point999	999	742	35	2	35	6	35	0	0	0	0
	point1000	1000	742	35	2	35	6	35	0	0	0	0
	point1001	1001										
Rd322; Ramp 6th+9th to Winch(2)1/1	point1026	1026	619	35	31	35	70	35	0	0	0	0
	point1027	1027	619	35	31	35	70	35	0	0	0	0
	point1028	1028										
Rd323; Ramp 6th+9th to Winch(1)1/1	point1029	1029	619	35	31	35	70	35	0	0	0	0
	point1030	1030	619	35	31	35	70	35	0	0	0	0
	point1031	1031	619	35	31	35	70	35	0	0	0	0
	point1032	1032	619	35	31	35	70	35	0	0	0	0
	point1033	1033	619	35	31	35	70	35	0	0	0	0
	point1034	1034	619	35	31	35	70	35	0	0	0	0
	point1035	1035	619	35	31	35	70	35	0	0	0	0
	point1036	1036	619	35	31	35	70	35	0	0	0	0
	point1037	1037	619	35	31	35	70	35	0	0	0	0
	point1038	1038	619	35	31	35	70	35	0	0	0	0
	point1039	1039										
Rd324; NB Winch 6th on-Free On(2)1/1	point1040	1040	839	35	34	35	77	35	0	0	0	0
	point1041	1041										
Rd335; NB 75 to On Fr CD(3)1/1	point1155	1155	2557	55	167	55	436	55	0	0	0	0
	point1156	1156	2557	55	167	55	436	55	0	0	0	0
	point1157	1157	2557	55	167	55	436	55	0	0	0	0
	point1158	1158	2557	55	167	55	436	55	0	0	0	0
	point1159	1159	2557	55	167	55	436	55	0	0	0	0
	point1160	1160	2557	55	167	55	436	55	0	0	0	0
	point1161	1161	2557	55	167	55	436	55	0	0	0	0
	point1162	1162	2557	55	167	55	436	55	0	0	0	0
	point1163	1163	2557	55	167	55	436	55	0	0	0	0
	point1164	1164	2557	55	167	55	436	55	0	0	0	0
	point1165	1165	2557	55	167	55	436	55	0	0	0	0
	point1166	1166	2557	55	167	55	436	55	0	0	0	0
	point1167	1167	2557	55	167	55	436	55	0	0	0	0
	point1168	1168										

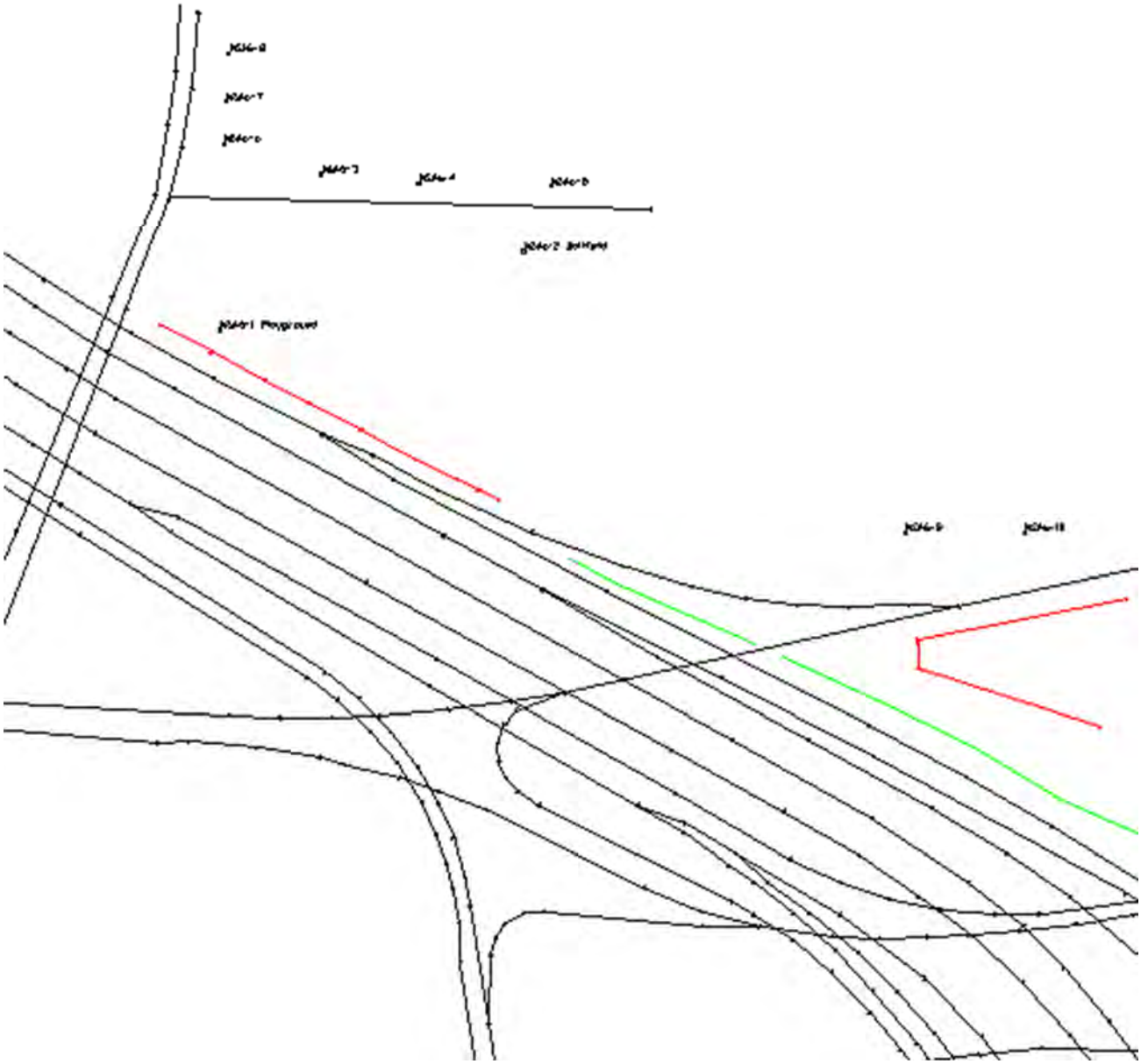
Rd337; NB 75 5lane-Western Off(6)1/1	point1169	1169	6992	55	222	55	576	55	0	0	0	0
	point1170	1170	6992	55	222	55	576	55	0	0	0	0
	point1171	1171	6992	55	222	55	576	55	0	0	0	0
	point1172	1172										
Rd351; SB 75 West On-Free Of(6)1/1	point1266	1266	5405	55	161	55	354	55	0	0	0	0
	point1267	1267	5405	55	161	55	354	55	0	0	0	0
	point1268	1268	5405	55	161	55	354	55	0	0	0	0
	point1269	1269	5405	55	161	55	354	55	0	0	0	0
	point1270	1270	5405	55	161	55	354	55	0	0	0	0
	point1271	1271	5405	55	161	55	354	55	0	0	0	0
	point1272	1272	5405	55	161	55	354	55	0	0	0	0
	point1273	1273	5405	55	161	55	354	55	0	0	0	0
	point1274	1274	5405	55	161	55	354	55	0	0	0	0
	point1275	1275	5405	55	161	55	354	55	0	0	0	0
	point1276	1276	5405	55	161	55	354	55	0	0	0	0
	point1277	1277	5405	55	161	55	354	55	0	0	0	0
	point1278	1278										
Rd352; SB 75 Free Off-CD Off(6)1/1	point1279	1279	5024	55	152	55	334	55	0	0	0	0
	point1280	1280										
Rd353; SB 75 Fr Free Off(3)1/1	point1281	1281	3006	55	138	55	306	55	0	0	0	0
	point1282	1282	3006	55	138	55	306	55	0	0	0	0
	point1283	1283	3006	55	138	55	306	55	0	0	0	0
	point1284	1284	3006	55	138	55	306	55	0	0	0	0
	point1285	1285	3006	55	138	55	306	55	0	0	0	0
	point1286	1286	3006	55	138	55	306	55	0	0	0	0
	point1287	1287	3006	55	138	55	306	55	0	0	0	0
	point1288	1288	3006	55	138	55	306	55	0	0	0	0
	point1289	1289	3006	55	138	55	306	55	0	0	0	0
	point1290	1290	3006	55	138	55	306	55	0	0	0	0
	point1291	1291	3006	55	138	55	306	55	0	0	0	0
	point1292	1292	3006	55	138	55	306	55	0	0	0	0
	point1293	1293	3006	55	138	55	306	55	0	0	0	0
	point1294	1294	3006	55	138	55	306	55	0	0	0	0
	point1295	1295	3006	55	138	55	306	55	0	0	0	0
	point1296	1296	3006	55	138	55	306	55	0	0	0	0
	point1297	1297	3006	55	138	55	306	55	0	0	0	0

	point1298	1298	3006	55	138	55	306	55	0	0	0	0
	point1299	1299	3006	55	138	55	306	55	0	0	0	0
	point1300	1300	3006	55	138	55	306	55	0	0	0	0
	point1301	1301	3006	55	138	55	306	55	0	0	0	0
	point1302	1302										
Rd366; SB Off to Freeman(1)1/1	point1383	1383	381	35	9	35	20	35	0	0	0	0
	point1384	1384	381	35	9	35	20	35	0	0	0	0
	point1385	1385	381	35	9	35	20	35	0	0	0	0
	point1386	1386	381	35	9	35	20	35	0	0	0	0
	point1387	1387	381	35	9	35	20	35	0	0	0	0
	point1388	1388	381	35	9	35	20	35	0	0	0	0
	point1389	1389	381	35	9	35	20	35	0	0	0	0
	point1390	1390	381	35	9	35	20	35	0	0	0	0
	point1391	1391										
Rd367; SB Off To Freeman(2)1/1	point1392	1392	381	35	9	35	20	35	0	0	0	0
	point1393	1393	381	35	9	35	20	35	0	0	0	0
	point1394	1394	381	35	9	35	20	35	0	0	0	0
	point1395	1395	381	35	9	35	20	35	0	0	0	0
	point1396	1396	381	35	9	35	20	35	0	0	0	0
	point1397	1397										
Rd368 ; SB CD to On fr Western(3)1/1	point1398	1398	2018	35	14	35	28	35	0	0	0	0
	point1399	1399	2018	35	14	35	28	35	0	0	0	0
	point1400	1400	2018	35	14	35	28	35	0	0	0	0
	point1401	1401	2018	35	14	35	28	35	0	0	0	0
	point1402	1402	2018	35	14	35	28	35	0	0	0	0
	point1403	1403	2018	35	14	35	28	35	0	0	0	0
	point1404	1404	2018	35	14	35	28	35	0	0	0	0
	point1405	1405	2018	35	14	35	28	35	0	0	0	0
	point1406	1406	2018	35	14	35	28	35	0	0	0	0
	point1407	1407	2018	35	14	35	28	35	0	0	0	0
	point1408	1408	2018	35	14	35	28	35	0	0	0	0
	point1409	1409	2018	35	14	35	28	35	0	0	0	0
	point1410	1410	2018	35	14	35	28	35	0	0	0	0
	point1411	1411	2018	35	14	35	28	35	0	0	0	0
	point1412	1412										
Rd369; SB CD western On-7th Off(4)1/1	point1413	1413	2303	35	20	35	37	35	0	0	0	0

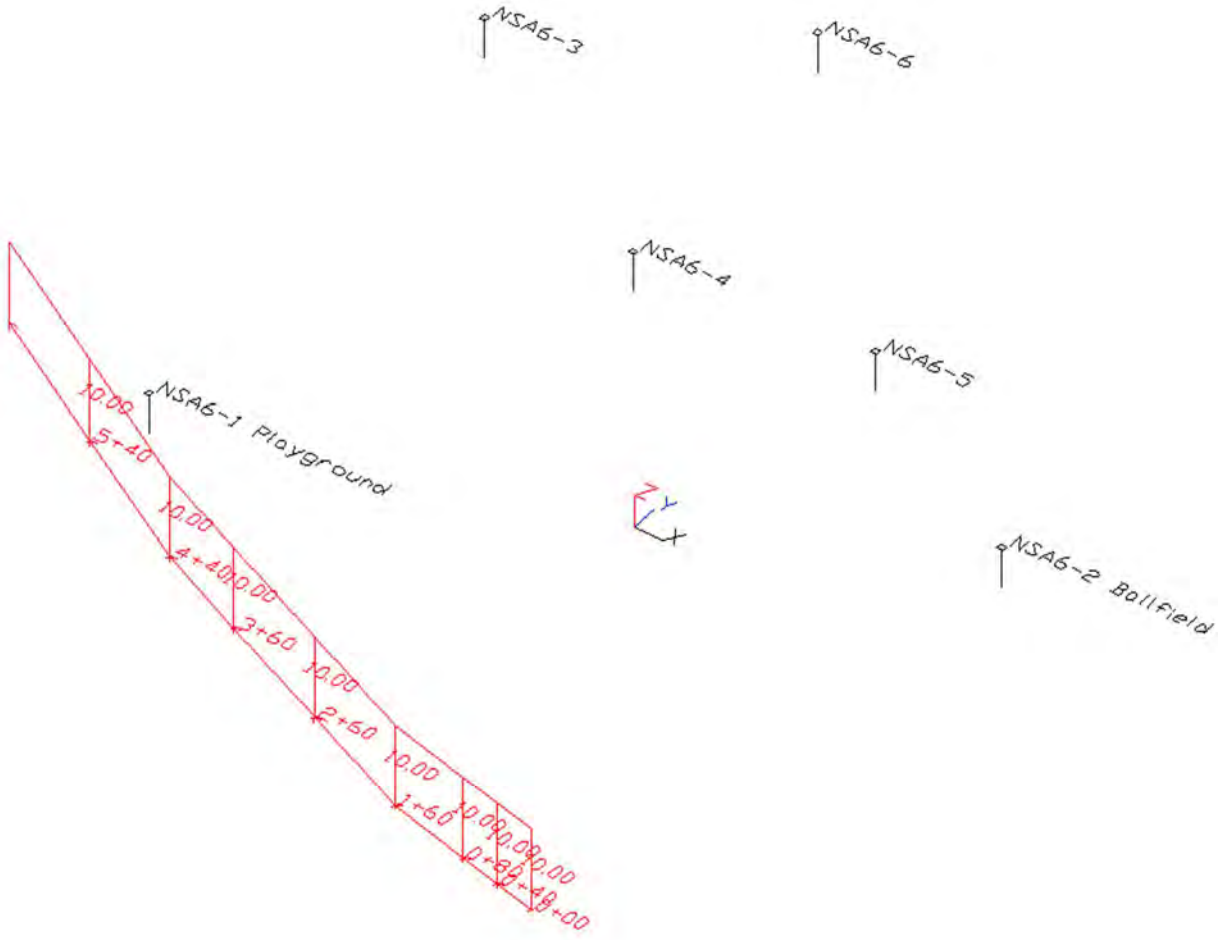
	point1414	1414	2303	35	20	35	37	35	0	0	0	0
	point1415	1415	2303	35	20	35	37	35	0	0	0	0
	point1416	1416	2303	35	20	35	37	35	0	0	0	0
	point1417	1417	2303	35	20	35	37	35	0	0	0	0
	point1418	1418										
Rd370; SB CD 7th of- 5th off(3)1/1	point1419	1419	326	35	10	35	15	35	0	0	0	0
	point1420	1420	326	35	10	35	15	35	0	0	0	0
	point1421	1421	326	35	10	35	15	35	0	0	0	0
	point1422	1422										
Rd375; SB Off fr CD to 7th(1)1/1	point1451	1451	1977	35	10	35	22	35	0	0	0	0
	point1452	1452	1977	35	10	35	22	35	0	0	0	0
	point1453	1453	1977	35	10	35	22	35	0	0	0	0
	point1454	1454										
Rd404 ; SB Gest - 8th off(2)1/1	point1736	1736	149	35	3	35	8	35	0	0	0	0
	point1737	1737	149	35	3	35	8	35	0	0	0	0
	point1738	1738	149	35	3	35	8	35	0	0	0	0
	point1739	1739	149	35	3	35	8	35	0	0	0	0
	point1740	1740	149	35	3	35	8	35	0	0	0	0
	point1741	1741	149	35	3	35	8	35	0	0	0	0
	point1742	1742	149	35	3	35	8	35	0	0	0	0
	point1743	1743	149	35	3	35	8	35	0	0	0	0
	point1744	1744	149	35	3	35	8	35	0	0	0	0
	point1745	1745	149	35	3	35	8	35	0	0	0	0
	point1746	1746	149	35	3	35	8	35	0	0	0	0
	point1747	1747	149	35	3	35	8	35	0	0	0	0
	point1748	1748	149	35	3	35	8	35	0	0	0	0
	point1749	1749	149	35	3	35	8	35	0	0	0	0
	point1750	1750	149	35	3	35	8	35	0	0	0	0
	point1751	1751	149	35	3	35	8	35	0	0	0	0
	point1752	1752										
Rd405; NB Gest 7th off-3lane(2)1/1	point1753	1753	414	35	11	35	25	35	0	0	0	0
	point1754	1754	414	35	11	35	25	35	0	0	0	0
	point1755	1755	414	35	11	35	25	35	0	0	0	0
	point1756	1756	414	35	11	35	25	35	0	0	0	0
	point1757	1757	414	35	11	35	25	35	0	0	0	0
	point1758	1758	414	35	11	35	25	35	0	0	0	0

	point1759	1759	414	35	11	35	25	35	0	0	0	0
	point1760	1760	414	35	11	35	25	35	0	0	0	0
	point1761	1761	414	35	11	35	25	35	0	0	0	0
	point1762	1762	414	35	11	35	25	35	0	0	0	0
	point1763	1763	414	35	11	35	25	35	0	0	0	0
	point1764	1764	414	35	11	35	25	35	0	0	0	0
	point1765	1765	414	35	11	35	25	35	0	0	0	0
	point1766	1766										
Rd406; NB Gest to Freeman(3)1/1	point1767	1767	240	35	3	35	7	35	0	0	0	0
	point1768	1768										
Rd434; NB 75 On Fr CD - 6 lane(5)1/1	point1791	1791	6992	55	222	55	576	55	0	0	0	0
	point1792	1792	6992	55	222	55	576	55	0	0	0	0
	point1793	1793	6992	55	222	55	576	55	0	0	0	0
	point1794	1794	6992	55	222	55	576	55	0	0	0	0
	point1795	1795	6992	55	222	55	576	55	0	0	0	0
	point1796	1796										
Rd435; NB 75 On Fr CD - 6 lane(5)1/1	point1797	1797	6992	55	222	55	576	55	0	0	0	0
	point1798	1798	6992	55	222	55	576	55	0	0	0	0
	point1799	1799	6992	55	222	55	576	55	0	0	0	0
	point1800	1800	6992	55	222	55	576	55	0	0	0	0
	point1801	1801	6992	55	222	55	576	55	0	0	0	0
	point1802	1802	6992	55	222	55	576	55	0	0	0	0
	point1803	1803	6992	55	222	55	576	55	0	0	0	0
	point1804	1804	6992	55	222	55	576	55	0	0	0	0
	point1805	1805	6992	55	222	55	576	55	0	0	0	0
	point1806	1806	6992	55	222	55	576	55	0	0	0	0
	point1807	1807	6992	55	222	55	576	55	0	0	0	0
	point1808	1808	6992	55	222	55	576	55	0	0	0	0
	point1809	1809	6992	55	222	55	576	55	0	0	0	0
	point1810	1810	6992	55	222	55	576	55	0	0	0	0
	point1811	1811	6992	55	222	55	576	55	0	0	0	0
	point1812	1812										
Rd 452; NB Winch Fr Bank(3)1/1	point1876	1876	514	35	6	35	10	35	0	0	0	0
	point1877	1877										
Rd361; SB Off to Findlay(1)1/1-2	point2025	2025	643	35	9	35	18	35	0	0	0	0
	point1360	1360	643	35	9	35	18	35	0	0	0	0

	point1361	1361	643	35	9	35	18	35	0	0	0	0
	point1362	1362	643	35	9	35	18	35	0	0	0	0
	point1363	1363	643	35	9	35	18	35	0	0	0	0
	point1364	1364	643	35	9	35	18	35	0	0	0	0
	point1365	1365										
Rd365; SB On Fr Western(1)1/1-2	point2026	2026	5405	55	161	55	354	55	0	0	0	0
	point1379	1379	5405	55	161	55	354	55	0	0	0	0
	point1380	1380	5405	55	161	55	354	55	0	0	0	0
	point1381	1381	5405	55	161	55	354	55	0	0	0	0
	point1382	1382										
Rd320; Ramp fr 6th St to Winch(1)1/1-2	point2027	2027	619	35	31	35	70	35	0	0	0	0
	point1012	1012	619	35	31	35	70	35	0	0	0	0
	point1013	1013	619	35	31	35	70	35	0	0	0	0
	point1014	1014										



NSA6
Revised NSA6 Noise Barrier at
a Height of 10 Feet
TNM Plan View



NSA6
Revised NSA6 Noise Barrier
at a Height of 10 Feet
TNM Barrier View

Lawhon & Associates
CMCox
30 June 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA6
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
NSA6-1 Playground	2114	6	69.2	72.4	66	3.2	10	Snd Lvl	63.6	8.8	5	3.8
NSA6-2 Ballfield	2115	1	60.5	62.4	66	1.9	10	----	60.1	2.3	5	-2.7
NSA6-3	2116	6	62.1	63.4	66	1.3	10	----	62.4	1.0	5	-4.0
NSA6-4	2117	5	61.5	61.5	66	0.0	10	----	59.6	1.9	5	-3.1
NSA6-5	2118	2	59.0	59.9	66	0.9	10	----	58.4	1.5	5	-3.5
NSA6-6	2119	3	63.6	65.1	66	1.5	10	----	63.9	1.2	5	-3.8
NSA6-7	2125	3	63.9	64.2	66	0.3	10	----	63.1	1.1	5	-3.9
NSA6-8	2127	3	62.2	63.1	66	0.9	10	----	62.2	0.9	5	-4.1
NSA6-9	2129	2	63.8	64.6	66	0.8	10	----	64.5	0.1	5	-4.9
NSA6-10	2130	2	62.5	63.6	66	1.1	10	----	63.5	0.1	5	-4.9

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	33	0.1	1.9	8.8
All Impacted	6	8.8	8.8	8.8
All that meet NR Goal	6	8.8	8.8	8.8

Lawhon & Associates				**9 June 2023**						
CMCox				**TNM 2.5**						
RESULTS: BARRIER DESCRIPTIONS										
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**									
RUN:	**Design Year Build Alternative I NSA6**									
BARRIER DESIGN:	**Revised NSA6 at 10'**									
Barriers										
Name	**Type**	**Heights along Barrier**			**Length**	**If Wall**	**If Berm**			**Cost**
		Min	**Avg**	**Max**		**Area**	**Volume**	**Top Width**	**Run:Rise**	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
Barrier NSA6	W	10.00	10.00	10.00	640	6398				191949
									Total Cost:	191949

Lawhon & Associates **30 June 2023**
CMCox **TNM 2.5**

INPUT: RECEIVERS
PROJECT/CONTRACT: **HAM-75-1.05 PID 89068**
RUN: **Design Year Build Alternative I NSA6**

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
NSA6-1 Playground	2114	6	5,267,510.0	4,291,933.0	510.00	4.92	69.20	66	10.0	5.0	Y
NSA6-2 Ballfield	2115	1	5,268,016.0	4,292,063.0	517.00	4.92	60.50	66	10.0	5.0	Y
NSA6-3	2116	6	5,267,679.0	4,292,197.0	513.00	4.92	62.10	66	10.0	5.0	Y
NSA6-4	2117	5	5,267,841.0	4,292,182.0	512.00	4.92	61.50	66	10.0	5.0	Y
NSA6-5	2118	2	5,268,061.0	4,292,177.0	515.00	4.92	59.00	66	10.0	5.0	Y
NSA6-6	2119	3	5,267,516.0	4,292,248.0	514.00	4.92	63.60	66	10.0	5.0	Y
NSA6-7	2125	3	5,267,520.0	4,292,318.0	513.00	4.92	63.90	66	10.0	5.0	Y
NSA6-8	2127	3	5,267,525.0	4,292,398.0	512.00	4.92	62.20	66	10.0	5.0	Y
NSA6-9	2129	2	5,268,652.0	4,291,595.0	539.00	4.92	63.80	66	10.0	5.0	Y
NSA6-10	2130	2	5,268,850.0	4,291,595.0	541.00	4.92	62.50	66	10.0	5.0	Y

Lawhon & Associates **9 June 2023**
CMCox **TNM 2.5**

INPUT: BARRIERS
PROJECT/CONTRACT: **HAM-75-1.05 PID 89068**
RUN: **Design Year Build Alternative I NSA6**

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per Unit Area	$ per Unit Vol.	Top Width	Run:Rise	$ per Unit Length			X	Y	Z	at Point	Seg Ht Incre-ment	#Up	#Dn	On Struct?	Important Reflec-tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier NSA6	W	5.00	99.99	30.00				0.00	0+00	2585	5,267,974.5	4,291,652.0	521.29	12.00	1.00	4	2		
									0+40	2586	5,267,938.5	4,291,669.0	519.58	12.00	1.00	4	2		
									0+80	2587	5,267,902.5	4,291,686.5	517.87	12.00	1.00	4	2		
									1+60	2589	5,267,830.5	4,291,721.5	514.45	12.00	1.00	4	2		
									2+60	2590	5,267,742.0	4,291,767.5	512.90	12.00	1.00	4	2		
									3+60	2591	5,267,653.0	4,291,814.0	511.35	12.00	1.00	4	2		
									4+40	2592	5,267,582.0	4,291,851.0	510.11	12.00	1.00	4	2		
									5+40	2593	5,267,493.5	4,291,897.5	511.99	12.00	1.00	4	2		
									6+40	2594	5,267,405.0	4,291,943.5	513.87	12.00					
NSA 7 Fire fighters memorial	W	5.00	99.99	30.00				0.00	point2595	2595	5,269,617.0	4,290,420.0	548.00	11.00	1.00	3	3		
									point2596	2596	5,269,577.0	4,290,520.0	548.00	11.00	1.00	3	3		
									point2597	2597	5,269,529.5	4,290,609.0	547.00	11.00	1.00	3	3		
									point2598	2598	5,269,482.0	4,290,686.0	547.00	11.00					

Lawhon & Associates				**9 June 2023**								
CMCox				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**											
RUN:	**Design Year Build Alternative I NSA6**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Rd45 ; SB Ramp western-SB 75(1)1/1	point1	1	315	35	14	35	21	35	0	0	0	0
	point2	2	315	35	14	35	21	35	0	0	0	0
	point3	3	315	35	14	35	21	35	0	0	0	0
	point4	4	315	35	14	35	21	35	0	0	0	0
	point5	5	315	35	14	35	21	35	0	0	0	0
	point6	6	315	35	14	35	21	35	0	0	0	0
	point7	7	315	35	14	35	21	35	0	0	0	0
	point8	8	315	35	14	35	21	35	0	0	0	0
	point9	9	315	35	14	35	21	35	0	0	0	0
	point10	10										
Rd102 ; NB Off fr Gest to 7th(1)1/1	point140	140	298	35	9	35	13	35	0	0	0	0
	point141	141	298	35	9	35	13	35	0	0	0	0
	point142	142	298	35	9	35	13	35	0	0	0	0
	point143	143	298	35	9	35	13	35	0	0	0	0
	point144	144	298	35	9	35	13	35	0	0	0	0
	point145	145	298	35	9	35	13	35	0	0	0	0
	point146	146	298	35	9	35	13	35	0	0	0	0
	point147	147										
Rd108 ; 9th to NB Off to 75(4)1/1	point168	168	2167	35	16	35	49	35	0	0	0	0
	point169	169	2167	35	16	35	49	35	0	0	0	0
	point170	170	2167	35	16	35	49	35	0	0	0	0
	point171	171	2167	35	16	35	49	35	0	0	0	0
	point172	172	2167	35	16	35	49	35	0	0	0	0

	point173	173										
Rd109 ; W 8th NB Off-SB Off(3)1/1	point174	174	1002	35	61	35	27	35	0	0	0	0
	point175	175										
Rd123 ; NB Freeman 8th-Gest(4)1/1	point196	196	524	35	14	35	32	35	0	0	0	0
	point197	197	524	35	14	35	32	35	0	0	0	0
	point198	198	524	35	14	35	32	35	0	0	0	0
	point199	199	524	35	14	35	32	35	0	0	0	0
	point200	200	524	35	14	35	32	35	0	0	0	0
	point201	201	524	35	14	35	32	35	0	0	0	0
	point202	202	524	35	14	35	32	35	0	0	0	0
	point203	203	524	35	14	35	32	35	0	0	0	0
	point204	204	524	35	14	35	32	35	0	0	0	0
	point205	205										
Rd124 ; NB Freeman @ Gest(4)1/1	point206	206	922	35	11	35	17	35	0	0	0	0
	point207	207										
Rd127 ; SB Freeman @ Gest(4)1/1	point208	208	592	35	7	35	11	35	0	0	0	0
	point209	209										
Rd128 ; SB Freem Gest-8th(4)1/1	point210	210	570	35	15	35	35	35	0	0	0	0
	point211	211	570	35	15	35	35	35	0	0	0	0
	point212	212	570	35	15	35	35	35	0	0	0	0
	point213	213	570	35	15	35	35	35	0	0	0	0
	point214	214	570	35	15	35	35	35	0	0	0	0
	point215	215	570	35	15	35	35	35	0	0	0	0
	point216	216	570	35	15	35	35	35	0	0	0	0
	point217	217	570	35	15	35	35	35	0	0	0	0
	point218	218										
Rd147 ; EB 8th Freeman-Linn(4)1/1	point296	296	470	25	12	25	28	25	0	0	0	0
	point297	297	470	25	12	25	28	25	0	0	0	0
	point298	298	470	25	12	25	28	25	0	0	0	0
	point299	299	470	25	12	25	28	25	0	0	0	0
	point300	300	470	25	12	25	28	25	0	0	0	0
	point301	301										
Rd148 ; EB 8th @ Linn (4)1/1	point302	302	470	25	12	25	28	25	0	0	0	0
	point303	303										
Rd149 ; EB 8th Linn-Ramps(3)1/1	point304	304	432	25	12	25	26	25	0	0	0	0
	point305	305										

Rd151 ; EB 8th Off to 7th(2)1/1	point316	316	240	35	6	35	114	35	0	0	0	0
	point317	317	240	35	6	35	114	35	0	0	0	0
	point318	318	240	35	6	35	114	35	0	0	0	0
	point319	319	240	35	6	35	114	35	0	0	0	0
	point320	320	240	35	6	35	114	35	0	0	0	0
	point321	321	240	35	6	35	114	35	0	0	0	0
	point322	322	240	35	6	35	114	35	0	0	0	0
	point323	323	240	35	6	35	114	35	0	0	0	0
	point324	324	240	35	6	35	114	35	0	0	0	0
	point325	325	240	35	6	35	114	35	0	0	0	0
	point326	326										
Rd152 ; 8th Viad 9th-wb 8th(2)1/1	point327	327	745	35	20	35	45	35	0	0	0	0
	point328	328	745	35	20	35	45	35	0	0	0	0
	point329	329	745	35	20	35	45	35	0	0	0	0
	point330	330	745	35	20	35	45	35	0	0	0	0
	point331	331	745	35	20	35	45	35	0	0	0	0
	point332	332	745	35	20	35	45	35	0	0	0	0
	point333	333										
Rd153 ; WB 8th Via-Linn(3)1/1	point334	334	745	35	20	35	45	35	0	0	0	0
	point335	335										
Rd154 ; WB 8th @ Linn(3)1/1	point336	336	745	35	20	35	45	35	0	0	0	0
	point337	337										
Rd155 ; WB 8th Linn-Freeman(4)1/1	point338	338	745	35	20	35	45	35	0	0	0	0
	point339	339	745	35	20	35	45	35	0	0	0	0
	point340	340	745	35	20	35	45	35	0	0	0	0
	point341	341	745	35	20	35	45	35	0	0	0	0
	point342	342	745	35	20	35	45	35	0	0	0	0
	point343	343	745	35	20	35	45	35	0	0	0	0
	point344	344	745	35	20	35	45	35	0	0	0	0
	point345	345										
Rd159 ; EB Gest Western-Freeman(2)1/1	point360	360	398	35	5	35	7	35	0	0	0	0
	point361	361										
Rd160 ; EB gest @ Freeman(2)1/1	point362	362	398	35	5	35	7	35	0	0	0	0
	point363	363										
Rd163 ; SB Gest 8th On-Und 6th(3)1/1	point364	364	186	35	2	35	2	35	0	0	0	0
	point365	365										

Rd175 ; NB Gest 6th Exp-Off to 7th(2)1/1	point419	419	255	35	2	35	3	35	0	0	0	0
	point420	420										
Rd 180 NB Gest @ Freeman(2)1/1	point421	421	126	35	2	35	2	35	0	0	0	0
	point422	422										
Rd181 ; NB Gest Free-Western(3)1/1	point423	423	126	35	2	35	2	35	0	0	0	0
	point424	424										
Rd211 ; NB Winchell to EB Ezzard(3)1/1	point512	512	420	35	12	35	28	35	0	0	0	0
	point513	513	420	35	12	35	28	35	0	0	0	0
	point514	514	420	35	12	35	28	35	0	0	0	0
	point515	515										
Rd212 ; NB Winhell EB Ezz-WB Ezz(3)1/1	point516	516	530	35	15	35	35	35	0	0	0	0
	point517	517										
Rd213 ; NB Winch Ezz-Off to 75(3)1/1	point518	518	530	35	15	35	35	35	0	0	0	0
	point519	519										
Rd247 ; Western On ramp-EB Ezz(3)1/1	point627	627	330	35	4	35	6	35	0	0	0	0
	point628	628	330	35	4	35	6	35	0	0	0	0
	point629	629	330	35	4	35	6	35	0	0	0	0
	point630	630										
Rd248 ; Western Wb Ezz-Eb Ezz(3)1/1	point631	631	330	35	4	35	6	35	0	0	0	0
	point632	632										
Rd249 ; Western EB Ezz-Off to 75(3)1/1	point633	633	563	35	7	35	10	35	0	0	0	0
	point634	634										
Rd270 ; NB Linn On fr 6th-8th(4)1/1	point728	728	350	35	9	35	21	35	0	0	0	0
	point729	729	350	35	9	35	21	35	0	0	0	0
	point730	730	350	35	9	35	21	35	0	0	0	0
	point731	731	350	35	9	35	21	35	0	0	0	0
	point732	732										
Rd271 ; NB Linn @ W 8th(4)1/1	point733	733	408	35	8	35	14	35	0	0	0	0
	point734	734										
Rd272 ; NB Linn 8th-Court(3)1/1	point735	735	408	35	8	35	14	35	0	0	0	0
	point736	736	408	35	8	35	14	35	0	0	0	0
	point737	737	408	35	8	35	14	35	0	0	0	0
	point738	738										
Rd273 ; NB Linn fr Court(2)1/1	point739	739	408	35	8	35	14	35	0	0	0	0
	point740	740	408	35	8	35	14	35	0	0	0	0
	point741	741	408	35	8	35	14	35	0	0	0	0

	point742	742										
Rd274 ; SB Linn to Court(2)1/1	point743	743	503	35	8	35	19	35	0	0	0	0
	point744	744	503	35	8	35	19	35	0	0	0	0
	point745	745	503	35	8	35	19	35	0	0	0	0
	point746	746										
Rd275 ; SB Linn Court-8th(2)1/1	point747	747	503	35	8	35	19	35	0	0	0	0
	point748	748	349	35	10	35	21	35	0	0	0	0
	point749	749	0	0	0	0	0	0	0	0	0	0
	point750	750										
Rd276 ; SB Linn @ W 8th(2)1/1	point751	751	605	35	18	35	27	35	0	0	0	0
	point752	752										
Rd277 ; SB Linn 8th-Dalton(4)1/1	point753	753	303	35	12	35	15	35	0	0	0	0
	point754	754	303	35	12	35	15	35	0	0	0	0
	point755	755	303	35	12	35	15	35	0	0	0	0
	point756	756	303	35	12	35	15	35	0	0	0	0
	point757	757										
Rd278 ; SB Linn @ Dalton(4)1/1	point758	758	1097	35	33	35	50	35	0	0	0	0
	point759	759										
Rd310 ; NB CD to 75 On(3)1/1	point898	898	3385	35	42	35	63	35	0	0	0	0
	point899	899	3385	35	42	35	63	35	0	0	0	0
	point900	900	3385	35	42	35	63	35	0	0	0	0
	point901	901	3385	35	42	35	63	35	0	0	0	0
	point902	902	3385	35	42	35	63	35	0	0	0	0
	point903	903	3385	35	42	35	63	35	0	0	0	0
	point904	904										
Rd311; Off fr NB CD to 75(2)1/1	point905	905	3185	55	36	55	49	55	0	0	0	0
	point906	906	3185	55	36	55	49	55	0	0	0	0
	point907	907	3185	55	36	55	49	55	0	0	0	0
	point908	908	3185	55	36	55	49	55	0	0	0	0
	point909	909	3185	55	36	55	49	55	0	0	0	0
	point910	910	3185	55	36	55	49	55	0	0	0	0
	point911	911	3185	55	36	55	49	55	0	0	0	0
	point912	912										
Rd316; On fr CD to Winchell(1)1/1	point961	961	200	35	6	35	14	35	0	0	0	0
	point962	962	200	35	6	35	14	35	0	0	0	0
	point963	963	200	35	6	35	14	35	0	0	0	0

	point964	964	200	35	6	35	14	35	0	0	0	0
	point965	965	200	35	6	35	14	35	0	0	0	0
	point966	966	200	35	6	35	14	35	0	0	0	0
	point967	967	200	35	6	35	14	35	0	0	0	0
	point968	968	200	35	6	35	14	35	0	0	0	0
	point969	969	200	35	6	35	14	35	0	0	0	0
	point970	970	200	35	6	35	14	35	0	0	0	0
	point971	971	200	35	6	35	14	35	0	0	0	0
	point972	972										
Rd317; Ramp fr Freeman to Winch(2)1/1	point973	973	922	35	11	35	17	35	0	0	0	0
	point974	974	922	35	11	35	17	35	0	0	0	0
	point975	975	922	35	11	35	17	35	0	0	0	0
	point976	976										
Rd318; Ramp Free-WB Ezz Ch(1)1/1	point977	977	710	35	9	35	21	35	0	0	0	0
	point978	978	710	35	9	35	21	35	0	0	0	0
	point979	979	710	35	9	35	21	35	0	0	0	0
	point980	980	710	35	9	35	21	35	0	0	0	0
	point981	981	710	35	9	35	21	35	0	0	0	0
	point982	982	710	35	9	35	21	35	0	0	0	0
	point983	983	710	35	9	35	21	35	0	0	0	0
	point984	984	710	35	9	35	21	35	0	0	0	0
	point985	985	710	35	9	35	21	35	0	0	0	0
	point986	986	710	35	9	35	21	35	0	0	0	0
	point987	987	710	35	9	35	21	35	0	0	0	0
	point988	988	710	35	9	35	21	35	0	0	0	0
	point989	989	710	35	9	35	21	35	0	0	0	0
	point990	990										
Rd319; Ramp Free to Winch(1)1/1	point991	991	18	35	1	35	1	35	0	0	0	0
	point992	992	18	35	1	35	1	35	0	0	0	0
	point993	993	18	35	1	35	1	35	0	0	0	0
	point994	994	18	35	1	35	1	35	0	0	0	0
	point995	995	18	35	1	35	1	35	0	0	0	0
	point996	996	18	35	1	35	1	35	0	0	0	0
	point997	997	18	35	1	35	1	35	0	0	0	0
	point998	998	18	35	1	35	1	35	0	0	0	0
	point999	999	18	35	1	35	1	35	0	0	0	0

	point1000	1000	18	35	1	35	1	35	0	0	0	0
	point1001	1001										
Rd320; Ramp fr 6th St to Winch(1)1/1	point99	2345	0	0	0	0	0	0	0	0	0	0
	point1002	1002	149	35	4	35	7	35	0	0	0	0
	point1003	1003	149	35	4	35	7	35	0	0	0	0
	point1004	1004	149	35	4	35	7	35	0	0	0	0
	point1005	1005	149	35	4	35	7	35	0	0	0	0
	point1006	1006	149	35	4	35	7	35	0	0	0	0
	point1007	1007	149	35	4	35	7	35	0	0	0	0
	point1008	1008	149	35	4	35	7	35	0	0	0	0
	point1009	1009	149	35	4	35	7	35	0	0	0	0
	point1010	1010	149	35	4	35	7	35	0	0	0	0
	point1011	1011	149	35	4	35	7	35	0	0	0	0
	point1012	1012	149	35	4	35	7	35	0	0	0	0
	point1013	1013	149	35	4	35	7	35	0	0	0	0
	point1014	1014										
Rd321; Ramp 9th to Winch(1)1/1	point1015	1015	200	35	6	35	14	35	0	0	0	0
	point1016	1016	200	35	6	35	14	35	0	0	0	0
	point1017	1017	200	35	6	35	14	35	0	0	0	0
	point1018	1018	200	35	6	35	14	35	0	0	0	0
	point1019	1019	200	35	6	35	14	35	0	0	0	0
	point1020	1020	200	35	6	35	14	35	0	0	0	0
	point1021	1021	200	35	6	35	14	35	0	0	0	0
	point1022	1022	200	35	6	35	14	35	0	0	0	0
	point1023	1023	200	35	6	35	14	35	0	0	0	0
	point1024	1024	200	35	6	35	14	35	0	0	0	0
	point1025	1025										
Rd322; Ramp 6th+9th to Winch(2)1/1	point1026	1026	349	35	10	35	21	35	0	0	0	0
	point1027	1027	349	35	10	35	21	35	0	0	0	0
	point1028	1028										
Rd323; Ramp 6th+9th to Winch(1)1/1	point1029	1029	349	35	10	35	21	35	0	0	0	0
	point1030	1030	349	35	10	35	21	35	0	0	0	0
	point1031	1031	349	35	10	35	21	35	0	0	0	0
	point1032	1032	349	35	10	35	21	35	0	0	0	0
	point1033	1033	349	35	10	35	21	35	0	0	0	0
	point1034	1034	349	35	10	35	21	35	0	0	0	0

	point1035	1035	349	35	10	35	21	35	0	0	0	0
	point1036	1036	349	35	10	35	21	35	0	0	0	0
	point1037	1037	349	35	10	35	21	35	0	0	0	0
	point1038	1038	349	35	10	35	21	35	0	0	0	0
	point1039	1039										
Rd324; NB Winch 6th on-Free On(2)1/1	point1040	1040	364	35	11	35	25	35	0	0	0	0
	point1041	1041										
Rd326; Ramp WB 71-NB CD(1)1/1	point1062	1062	2809	35	85	35	127	35	0	0	0	0
	point1063	1063	2809	35	85	35	127	35	0	0	0	0
	point1064	1064	2809	35	85	35	127	35	0	0	0	0
	point1065	1065	2809	35	85	35	127	35	0	0	0	0
	point1066	1066	2809	35	85	35	127	35	0	0	0	0
	point1067	1067	2809	35	85	35	127	35	0	0	0	0
	point1068	1068										
Rd335; NB 75 to On Fr CD(3)1/1	point1155	1155	3005	55	48	55	147	55	0	0	0	0
	point1156	1156	3005	55	48	55	147	55	0	0	0	0
	point1157	1157	3005	55	48	55	147	55	0	0	0	0
	point1158	1158	3005	55	48	55	147	55	0	0	0	0
	point1159	1159	3005	55	48	55	147	55	0	0	0	0
	point1160	1160	3005	55	48	55	147	55	0	0	0	0
	point1161	1161	3005	55	48	55	147	55	0	0	0	0
	point1162	1162	3005	55	48	55	147	55	0	0	0	0
	point1163	1163	3005	55	48	55	147	55	0	0	0	0
	point1164	1164	3005	55	48	55	147	55	0	0	0	0
	point1165	1165	3005	55	48	55	147	55	0	0	0	0
	point1166	1166	3005	55	48	55	147	55	0	0	0	0
	point1167	1167	3005	55	48	55	147	55	0	0	0	0
	point1168	1168										
Rd352; SB 75 Free Off-CD Off(6)1/1	point1279	1279	6408	55	71	55	570	55	71	55	0	0
	point1280	1280										
Rd353; SB 75 Fr Free Off(3)1/1	point1281	1281	3634	55	32	55	253	55	0	0	0	0
	point1282	1282	3634	55	32	55	253	55	0	0	0	0
	point1283	1283	3634	55	32	55	253	55	0	0	0	0
	point1284	1284	3634	55	32	55	253	55	0	0	0	0
	point1285	1285	3634	55	32	55	253	55	0	0	0	0
	point1286	1286	3634	55	32	55	253	55	0	0	0	0

	point1287	1287	3634	55	32	55	253	55	0	0	0	0
	point1288	1288	3634	55	32	55	253	55	0	0	0	0
	point1289	1289	3634	55	32	55	253	55	0	0	0	0
	point1290	1290	3634	55	32	55	253	55	0	0	0	0
	point1291	1291	3634	55	32	55	253	55	0	0	0	0
	point1292	1292	3634	55	32	55	253	55	0	0	0	0
	point1293	1293	3634	55	32	55	253	55	0	0	0	0
	point1294	1294	3634	55	32	55	253	55	0	0	0	0
	point1295	1295	3634	55	32	55	253	55	0	0	0	0
	point1296	1296	3634	55	32	55	253	55	0	0	0	0
	point1297	1297	3634	55	32	55	253	55	0	0	0	0
	point1298	1298	3634	55	32	55	253	55	0	0	0	0
	point1299	1299	3634	55	32	55	253	55	0	0	0	0
	point1300	1300	3634	55	32	55	253	55	0	0	0	0
	point1301	1301	3634	55	32	55	253	55	0	0	0	0
	point1302	1302										
Rd366; SB Off to Freeman(1)1/1	point1383	1383	592	35	7	35	11	35	0	0	0	0
	point1384	1384	592	35	7	35	11	35	0	0	0	0
	point1385	1385	592	35	7	35	11	35	0	0	0	0
	point1386	1386	592	35	7	35	11	35	0	0	0	0
	point1387	1387	592	35	7	35	11	35	0	0	0	0
	point1388	1388	592	35	7	35	11	35	0	0	0	0
	point1389	1389	592	35	7	35	11	35	0	0	0	0
	point1390	1390	592	35	7	35	11	35	0	0	0	0
	point1391	1391										
Rd367; SB Off To Freeman(2)1/1	point1392	1392	592	35	7	35	11	35	0	0	0	0
	point1393	1393	592	35	7	35	11	35	0	0	0	0
	point1394	1394	592	35	7	35	11	35	0	0	0	0
	point1395	1395	592	35	7	35	11	35	0	0	0	0
	point1396	1396	592	35	7	35	11	35	0	0	0	0
	point1397	1397										
Rd368 ; SB CD to On fr Western(3)1/1	point1398	1398	2948	35	89	35	133	35	0	0	0	0
	point1399	1399	2948	35	89	35	133	35	0	0	0	0
	point1400	1400	2948	35	89	35	133	35	0	0	0	0
	point1401	1401	2948	35	89	35	133	35	0	0	0	0
	point1402	1402	2948	35	89	35	133	35	0	0	0	0

	point1403	1403	2948	35	89	35	133	35	0	0	0	0
	point1404	1404	2948	35	89	35	133	35	0	0	0	0
	point1405	1405	2948	35	89	35	133	35	0	0	0	0
	point1406	1406	2948	35	89	35	133	35	0	0	0	0
	point1407	1407	2948	35	89	35	133	35	0	0	0	0
	point1408	1408	2948	35	89	35	133	35	0	0	0	0
	point1409	1409	2948	35	89	35	133	35	0	0	0	0
	point1410	1410	2948	35	89	35	133	35	0	0	0	0
	point1411	1411	2948	35	89	35	133	35	0	0	0	0
	point1412	1412										
Rd369; SB CD western On-7th Off(4)1/1	point1413	1413	2706	35	81	35	122	35	0	0	0	0
	point1414	1414	2706	35	81	35	122	35	0	0	0	0
	point1415	1415	2706	35	81	35	122	35	0	0	0	0
	point1416	1416	2706	35	81	35	122	35	0	0	0	0
	point1417	1417	2706	35	81	35	122	35	0	0	0	0
	point1418	1418										
Rd370; SB CD 7th of- 5th off(3)1/1	point1419	1419	326	35	10	35	15	35	0	0	0	0
	point1420	1420	326	35	10	35	15	35	0	0	0	0
	point1421	1421	326	35	10	35	15	35	0	0	0	0
	point1422	1422										
Rd371; SB CD 5th Off-3rd Off(2)1/1	point1423	1423	2381	35	72	35	108	35	0	0	0	0
	point1424	1424	2381	35	72	35	108	35	0	0	0	0
	point1425	1425	2381	35	72	35	108	35	0	0	0	0
	point1426	1426	2381	35	72	35	108	35	0	0	0	0
	point1427	1427	2381	35	72	35	108	35	0	0	0	0
	point1428	1428	2381	35	72	35	108	35	0	0	0	0
	point1429	1429	2381	35	72	35	108	35	0	0	0	0
	point1430	1430										
Rd372; SB Cd 3rd Off - 8th On(2)1/1	point1431	1431	2381	35	72	35	108	35	0	0	0	0
	point1432	1432	2381	35	72	35	108	35	0	0	0	0
	point1433	1433	2381	35	72	35	108	35	0	0	0	0
	point1434	1434										
Rd375; SB Off fr CD to 7th(1)1/1	point1451	1451	167	35	5	35	8	35	0	0	0	0
	point1452	1452	167	35	5	35	8	35	0	0	0	0
	point1453	1453	167	35	5	35	8	35	0	0	0	0
	point1454	1454	167	35	5	35	8	35	0	0	0	0

	point1455	1455	167	35	5	35	8	35	0	0	0	0
	point1456	1456	167	35	5	35	8	35	0	0	0	0
	point1457	1457	167	35	5	35	8	35	0	0	0	0
	point1458	1458	167	35	5	35	8	35	0	0	0	0
	point1459	1459	167	35	5	35	8	35	0	0	0	0
	point1460	1460	167	35	5	35	8	35	0	0	0	0
	point1461	1461	167	35	5	35	8	35	0	0	0	0
	point1462	1462	167	35	5	35	8	35	0	0	0	0
	point1463	1463										
Rd377; SB Off fr Cd to 2nd + Free(2)1/1	point1480	1480	960	35	12	35	18	35	0	0	0	0
	point1481	1481	960	35	12	35	18	35	0	0	0	0
	point1482	1482	960	35	12	35	18	35	0	0	0	0
	point1483	1483	960	35	12	35	18	35	0	0	0	0
	point1484	1484	960	35	12	35	18	35	0	0	0	0
	point1485	1485	960	35	12	35	18	35	0	0	0	0
	point1486	1486	960	35	12	35	18	35	0	0	0	0
	point1487	1487	960	35	12	35	18	35	0	0	0	0
	point1488	1488	960	35	12	35	18	35	0	0	0	0
	point1489	1489	960	35	12	35	18	35	0	0	0	0
	point1490	1490										
Rd391; Ramp W 8th-SB CD(1)1/1	point1625	1625	258	35	8	35	14	35	0	0	0	0
	point1626	1626	258	35	8	35	14	35	0	0	0	0
	point1627	1627	258	35	8	35	14	35	0	0	0	0
	point1628	1628	258	35	8	35	14	35	0	0	0	0
	point1629	1629	258	35	8	35	14	35	0	0	0	0
	point1630	1630	258	35	8	35	14	35	0	0	0	0
	point1631	1631	258	35	8	35	14	35	0	0	0	0
	point1632	1632	258	35	8	35	14	35	0	0	0	0
	point1633	1633	258	35	8	35	14	35	0	0	0	0
	point1634	1634	258	35	8	35	14	35	0	0	0	0
	point1635	1635	258	35	8	35	14	35	0	0	0	0
	point1636	1636	258	35	8	35	14	35	0	0	0	0
	point1637	1637	258	35	8	35	14	35	0	0	0	0
	point1638	1638	258	35	8	35	14	35	0	0	0	0
	point1639	1639	258	35	8	35	14	35	0	0	0	0
	point1640	1640	258	35	8	35	14	35	0	0	0	0

	point1641	1641										
Rd393; 7th Via GestOn-SB CD on(2)1/1	point1648	1648	530	35	4	35	12	35	0	0	0	0
	point1649	1649	530	35	4	35	12	35	0	0	0	0
	point1650	1650	530	35	4	35	12	35	0	0	0	0
	point1651	1651	530	35	4	35	12	35	0	0	0	0
	point1652	1652	530	35	4	35	12	35	0	0	0	0
	point1653	1653	530	35	4	35	12	35	0	0	0	0
	point1654	1654	530	35	4	35	12	35	0	0	0	0
	point1655	1655	530	35	4	35	12	35	0	0	0	0
	point1656	1656	530	35	4	35	12	35	0	0	0	0
	point1657	1657										
Rd395; W 7th St (3)1/1	point1662	1662	368	25	10	25	22	25	0	0	0	0
	point1663	1663										
Rd396; W 7th to Central(4)1/1	point1664	1664	368	25	10	25	22	25	0	0	0	0
	point1665	1665	368	25	10	25	22	25	0	0	0	0
	point1666	1666										
Rd404 ; SB Gest - 8th off(2)1/1	point1736	1736	120	35	3	35	7	35	0	0	0	0
	point1737	1737	120	35	3	35	7	35	0	0	0	0
	point1738	1738	120	35	3	35	7	35	0	0	0	0
	point1739	1739	120	35	3	35	7	35	0	0	0	0
	point1740	1740	120	35	3	35	7	35	0	0	0	0
	point1741	1741	120	35	3	35	7	35	0	0	0	0
	point1742	1742	120	35	3	35	7	35	0	0	0	0
	point1743	1743	120	35	3	35	7	35	0	0	0	0
	point1744	1744	120	35	3	35	7	35	0	0	0	0
	point1745	1745	120	35	3	35	7	35	0	0	0	0
	point1746	1746	120	35	3	35	7	35	0	0	0	0
	point1747	1747	120	35	3	35	7	35	0	0	0	0
	point1748	1748	120	35	3	35	7	35	0	0	0	0
	point1749	1749	120	35	3	35	7	35	0	0	0	0
	point1750	1750	120	35	3	35	7	35	0	0	0	0
	point1751	1751	120	35	3	35	7	35	0	0	0	0
	point1752	1752										
Rd405; NB Gest 7th off-3lane(2)1/1	point1753	1753	414	35	11	35	25	35	0	0	0	0
	point1754	1754	414	35	11	35	25	35	0	0	0	0
	point1755	1755	414	35	11	35	25	35	0	0	0	0

	point1756	1756	414	35	11	35	25	35	0	0	0	0
	point1757	1757	414	35	11	35	25	35	0	0	0	0
	point1758	1758	414	35	11	35	25	35	0	0	0	0
	point1759	1759	414	35	11	35	25	35	0	0	0	0
	point1760	1760	414	35	11	35	25	35	0	0	0	0
	point1761	1761	414	35	11	35	25	35	0	0	0	0
	point1762	1762	414	35	11	35	25	35	0	0	0	0
	point1763	1763	414	35	11	35	25	35	0	0	0	0
	point1764	1764	414	35	11	35	25	35	0	0	0	0
	point1765	1765	414	35	11	35	25	35	0	0	0	0
	point1766	1766										
Rd406; NB Gest to Freeman(3)1/1	point1767	1767	414	35	11	35	25	35	0	0	0	0
	point1768	1768										
Rd431; SB Off Fro CD(1)1/1	point1783	1783	167	35	5	35	8	35	0	0	0	0
	point1784	1784	167	35	5	35	8	35	0	0	0	0
	point1785	1785										
Rd434; NB 75 On Fr CD - 6 lane(5)1/1	point1791	1791	6740	55	84	55	196	55	0	0	0	0
	point1792	1792	6740	55	84	55	196	55	0	0	0	0
	point1793	1793	6740	55	84	55	196	55	0	0	0	0
	point1794	1794	6740	55	84	55	196	55	0	0	0	0
	point1795	1795	6740	55	84	55	196	55	0	0	0	0
	point1796	1796										
Rd309; NB CD to CDunder w8th(1)1/1-2	point885	2386	0	0	0	0	0	0	0	0	0	0
	point2025	2025	437	35	13	35	20	35	0	0	0	0
	point888	888	437	35	13	35	20	35	0	0	0	0
	point889	889	437	35	13	35	20	35	0	0	0	0
	point890	890	437	35	13	35	20	35	0	0	0	0
	point891	891	437	35	13	35	20	35	0	0	0	0
	point892	892	437	35	13	35	20	35	0	0	0	0
	point893	893	437	35	13	35	20	35	0	0	0	0
	point894	894	437	35	13	35	20	35	0	0	0	0
	point895	895	437	35	13	35	20	35	0	0	0	0
	point896	896	437	35	13	35	20	35	0	0	0	0
	point897	897										
I-75 nb New lower	point1130	2026	3560	55	44	55	352	55	0	0	0	0
	point1131	2027	3560	55	44	55	352	55	0	0	0	0

	point1132	2028	3560	55	44	55	352	55	0	0	0	0
	point1133	2029	3560	55	44	55	352	55	0	0	0	0
	point1134	2030	3560	55	44	55	352	55	0	0	0	0
	point1135	2031	3560	55	44	55	352	55	0	0	0	0
	point1136	2032	3560	55	44	55	352	55	0	0	0	0
	point1137	2033	3560	55	44	55	352	55	0	0	0	0
	point1138	2034	3560	55	44	55	352	55	0	0	0	0
	point1139	2035	3560	55	44	55	352	55	0	0	0	0
	point1140	2036	3560	55	44	55	352	55	0	0	0	0
	point1141	2037	3560	55	44	55	352	55	0	0	0	0
	point1142	2038	3560	55	44	55	352	55	0	0	0	0
	point1143	2039	3560	55	44	55	352	55	0	0	0	0
	point1144	2040	3560	55	44	55	352	55	0	0	0	0
	point1145	2041	3560	55	44	55	352	55	0	0	0	0
	point1146	2042	3560	55	44	55	352	55	0	0	0	0
	point1147	2043	3560	55	44	55	352	55	0	0	0	0
	point1148	2044	3560	55	44	55	352	55	0	0	0	0
	point1149	2045	3560	55	44	55	352	55	0	0	0	0
	point1150	2046	3560	55	44	55	352	55	0	0	0	0
	point1151	2047	3560	55	44	55	352	55	0	0	0	0
	point1152	2048	3560	55	44	55	352	55	0	0	0	0
	point1153	2049	3560	55	44	55	352	55	0	0	0	0
	point1154	2050										
rd355 SB75	point1303	2051	2430	55	30	55	240	55	0	0	0	0
	point1304	2052	2430	55	30	55	240	55	0	0	0	0
	point1305	2053	2430	55	30	55	240	55	0	0	0	0
	point1306	2054	2430	55	30	55	240	55	0	0	0	0
	point1307	2055	2430	55	30	55	240	55	0	0	0	0
	point1308	2056	2430	55	30	55	240	55	0	0	0	0
	point1309	2057	2430	55	30	55	240	55	0	0	0	0
	point1310	2058	2430	55	30	55	240	55	0	0	0	0
	point1311	2059	2430	55	30	55	240	55	0	0	0	0
	point1312	2060	2430	55	30	55	240	55	0	0	0	0
	point1313	2061	2430	55	30	55	240	55	0	0	0	0
	point1314	2062	2430	55	30	55	240	55	0	0	0	0
	point1315	2063	2430	55	30	55	240	55	0	0	0	0

	point1316	2064	2430	55	30	55	240	55	0	0	0	0
	point1317	2065	2430	55	30	55	240	55	0	0	0	0
	point1318	2066	2430	55	30	55	240	55	0	0	0	0
	point1319	2067	2430	55	30	55	240	55	0	0	0	0
	point1320	2068	2430	55	30	55	240	55	0	0	0	0
	point1321	2069	2430	55	30	55	240	55	0	0	0	0
	point1322	2070	2430	55	30	55	240	55	0	0	0	0
	point1323	2071	2430	55	30	55	240	55	0	0	0	0
	point1324	2072	2430	55	30	55	240	55	0	0	0	0
	point1325	2073	2430	55	30	55	240	55	0	0	0	0
	point1326	2074	2430	55	30	55	240	55	0	0	0	0
	point1327	2075	2430	55	30	55	240	55	0	0	0	0
	point1328	2076										
Rd 402SB71 upper	point1717	2077	2821	55	35	55	279	55	0	0	0	0
	point1718	2078	2821	55	35	55	279	55	0	0	0	0
	point1719	2079	2821	55	35	55	279	55	0	0	0	0
	point1720	2080	2821	55	35	55	279	55	0	0	0	0
	point1721	2081	2821	55	35	55	279	55	0	0	0	0
	point1722	2082	2821	55	35	55	279	55	0	0	0	0
	point1723	2083	2821	55	35	55	279	55	0	0	0	0
	point1724	2084	2821	55	35	55	279	55	0	0	0	0
	point1725	2085	2821	55	35	55	279	55	0	0	0	0
	point1726	2086	2821	55	35	55	279	55	0	0	0	0
	point1727	2087	2821	55	35	55	279	55	0	0	0	0
	point1728	2088	2821	55	35	55	279	55	0	0	0	0
	point1729	2089	2821	55	35	55	279	55	0	0	0	0
	point1730	2090	2821	55	35	55	279	55	0	0	0	0
	point1731	2091	2821	55	35	55	279	55	0	0	0	0
	point1732	2092	2821	55	35	55	279	55	0	0	0	0
	point1733	2093	2821	55	35	55	279	55	0	0	0	0
	point1734	2094	2821	55	35	55	279	55	0	0	0	0
	point1735	2095										
Rd491 WB71	point1714	2096	2821	55	35	55	279	55	0	0	0	0
	point1715	2097	2821	55	35	55	279	55	0	0	0	0
	point1716	2098										
Rd300 NB71 CD	point822	2099	2190	55	19	55	152	55	0	0	0	0

	point823	2100	2190	55	19	55	152	55	0	0	0	0
	point824	2101	2190	55	19	55	152	55	0	0	0	0
	point825	2102	2190	55	19	55	152	55	0	0	0	0
	point826	2103	2190	55	19	55	152	55	0	0	0	0
	point827	2104	2190	55	19	55	152	55	0	0	0	0
	point828	2105	2190	55	19	55	152	55	0	0	0	0
	point829	2106	2190	55	19	55	152	55	0	0	0	0
	point830	2107	2190	55	19	55	152	55	0	0	0	0
	point831	2108	2190	55	19	55	152	55	0	0	0	0
	point832	2109	2190	55	19	55	152	55	0	0	0	0
	point833	2110	2190	55	19	55	152	55	0	0	0	0
	point834	2111	2190	55	19	55	152	55	0	0	0	0
	point835	2112	2190	55	19	55	152	55	0	0	0	0
	point836	2113	2190	55	19	55	152	55	0	0	0	0
	point837	2114	2190	55	19	55	152	55	0	0	0	0
	point838	2115	2190	55	19	55	152	55	0	0	0	0
	point839	2116	2190	55	19	55	152	55	0	0	0	0
	point840	2117										
Rd301 NB75	point841	2118	4361	55	38	55	303	55	0	0	0	0
	point842	2119	4361	55	38	55	303	55	0	0	0	0
	point843	2120	4361	55	38	55	303	55	0	0	0	0
	point844	2121										
Rd393 NB from CD	point848	2122	660	35	20	35	30	35	0	0	0	0
	point849	2123	660	35	20	35	30	35	0	0	0	0
	point850	2124	660	35	20	35	30	35	0	0	0	0
	point851	2125	660	35	20	35	30	35	0	0	0	0
	point852	2126	660	35	20	35	30	35	0	0	0	0
	point853	2127	660	35	20	35	30	35	0	0	0	0
	point854	2128										
Rd304 NB from CD	point855	2129	660	35	20	35	30	35	0	0	0	0
	point856	2130	660	35	20	35	30	35	0	0	0	0
	point857	2131										
rd315 NB off fromCD	point949	2132	400	35	12	35	18	35	0	0	0	0
	point950	2133	400	35	12	35	18	35	0	0	0	0
	point951	2134	400	35	12	35	18	35	0	0	0	0
	point952	2135	400	35	12	35	18	35	0	0	0	0

	point953	2136	400	35	12	35	18	35	0	0	0	0
	point954	2137	400	35	12	35	18	35	0	0	0	0
	point955	2138	400	35	12	35	18	35	0	0	0	0
	point956	2139	400	35	12	35	18	35	0	0	0	0
	point957	2140	400	35	12	35	18	35	0	0	0	0
	point958	2141	400	35	12	35	18	35	0	0	0	0
	point959	2142	400	35	12	35	18	35	0	0	0	0
	point960	2143										
Rd287 NB42/127 to 2nd	point795	2144	0	0	0	0	0	0	0	0	0	0
	point796	2145	0	0	0	0	0	0	0	0	0	0
	point797	2146	372	35	11	35	17	35	0	0	0	0
	point798	2147	372	35	11	35	17	35	0	0	0	0
	point802	2148	0	0	0	0	0	0	0	0	0	0
	point803	2149										
Rd290 Smith SB	point804	2150	1023	35	31	35	46	35	0	0	0	0
	point805	2151	1023	35	31	35	46	35	0	0	0	0
	point806	2152	1023	35	31	35	46	35	0	0	0	0
	point808	2153	0	0	0	0	0	0	0	0	0	0
	point809	2154	0	0	0	0	0	0	0	0	0	0
	point810	2155										
Rd58 Rose EB	point24	2156	0	0	0	0	0	0	0	0	0	0
	point25	2157	0	0	0	0	0	0	0	0	0	0
	point26	2158	0	0	0	0	0	0	0	0	0	0
	point27	2159	0	0	0	0	0	0	0	0	0	0
	point29	2160	0	0	0	0	0	0	0	0	0	0
	point31	2161	0	0	0	0	0	0	0	0	0	0
	point32	2162	0	0	0	0	0	0	0	0	0	0
	point33	2163	0	0	0	0	0	0	0	0	0	0
	point34	2164	0	0	0	0	0	0	0	0	0	0
	point35	2165	0	0	0	0	0	0	0	0	0	0
	point36	2166	0	0	0	0	0	0	0	0	0	0
	point37	2167										
Rd61 Rose WB	point38	2168	0	0	0	0	0	0	0	0	0	0
	point39	2169	0	0	0	0	0	0	0	0	0	0
	point40	2170	0	0	0	0	0	0	0	0	0	0
	point41	2171	0	0	0	0	0	0	0	0	0	0

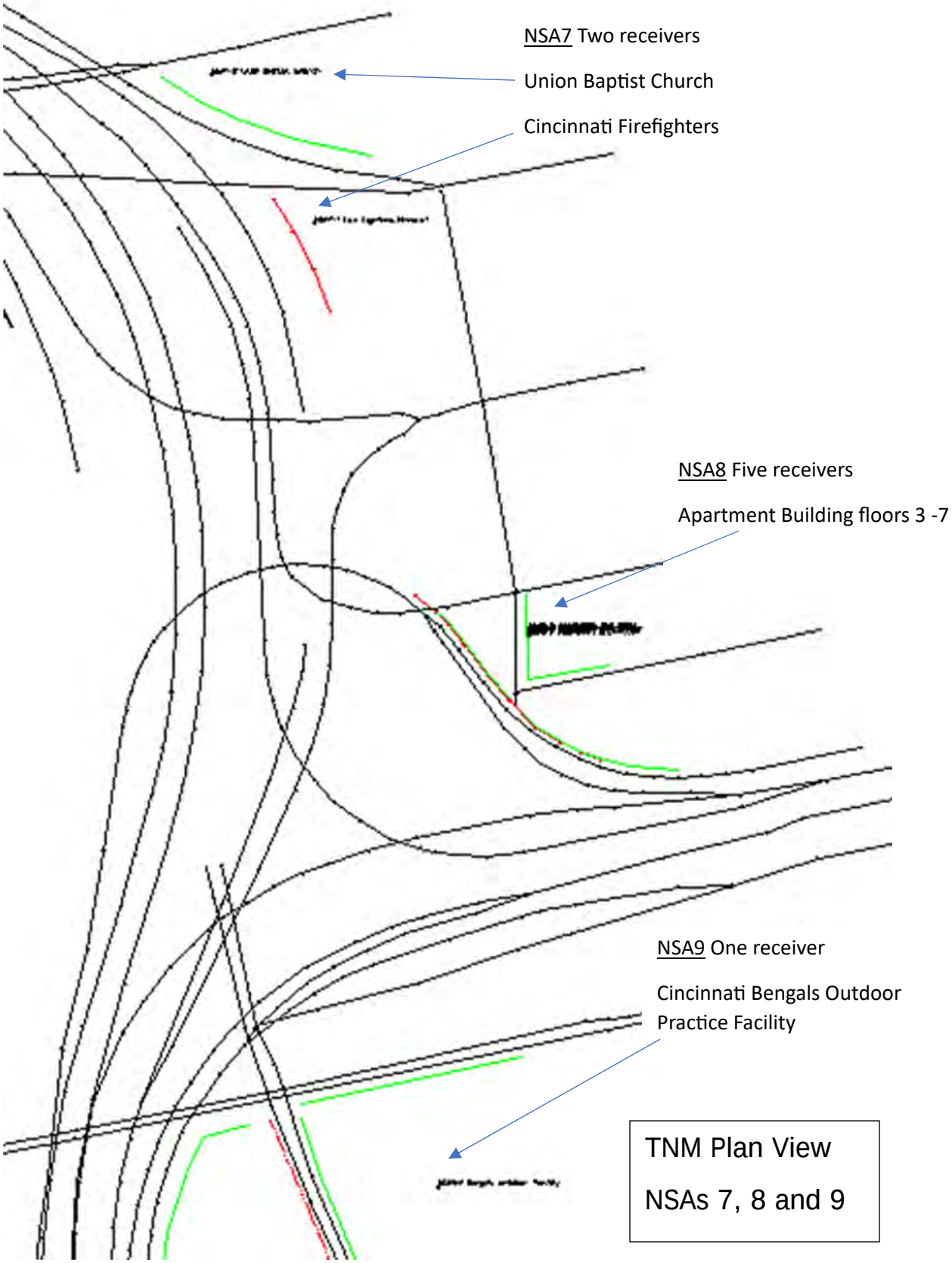
	point42	2172	0	0	0	0	0	0	0	0	0	0
	point43	2173	0	0	0	0	0	0	0	0	0	0
	point44	2174	0	0	0	0	0	0	0	0	0	0
	point45	2175	0	0	0	0	0	0	0	0	0	0
	point46	2176	0	0	0	0	0	0	0	0	0	0
	point47	2177	0	0	0	0	0	0	0	0	0	0
	point49	2178	0	0	0	0	0	0	0	0	0	0
	point50	2179	0	0	0	0	0	0	0	0	0	0
	point51	2180	0	0	0	0	0	0	0	0	0	0
	point53	2181	0	0	0	0	0	0	0	0	0	0
	point54	2182	0	0	0	0	0	0	0	0	0	0
	point55	2183										
Rd305 NBfrCD	point858	2196	260	35	8	35	12	35	0	0	0	0
	point859	2197	260	35	8	35	12	35	0	0	0	0
	point860	2198	260	35	8	35	12	35	0	0	0	0
	point861	2199	260	35	8	35	12	35	0	0	0	0
	point862	2200	260	35	8	35	12	35	0	0	0	0
	point863	2201	260	35	8	35	12	35	0	0	0	0
	point864	2202	260	35	8	35	12	35	0	0	0	0
	point865	2203	260	35	8	35	12	35	0	0	0	0
	point866	2204										
Rd69 EB71	point56	2205	4618	55	40	55	321	55	0	0	0	0
	point57	2206	4618	55	40	55	321	55	0	0	0	0
	point58	2207										
Rd 55 2nd to SB75	point11	2208	1841	25	55	25	83	25	0	0	0	0
	point12	2209	1841	25	55	25	83	25	0	0	0	0
	point13	2210	1841	25	55	25	83	25	0	0	0	0
	point14	2211	1841	25	55	25	83	25	0	0	0	0
	point16	2212	1841	25	55	25	83	25	0	0	0	0
	point17	2213	1841	25	55	25	83	25	0	0	0	0
	point19	2214	1841	25	55	25	83	25	0	0	0	0
	point20	2215	1841	25	55	25	83	25	0	0	0	0
	point21	2216	1841	25	55	25	83	25	0	0	0	0
	point22	2217	1841	25	55	25	83	25	0	0	0	0
	point23	2218										
Rd80 WB71	point96	2219	5943	55	52	55	413	55	0	0	0	0

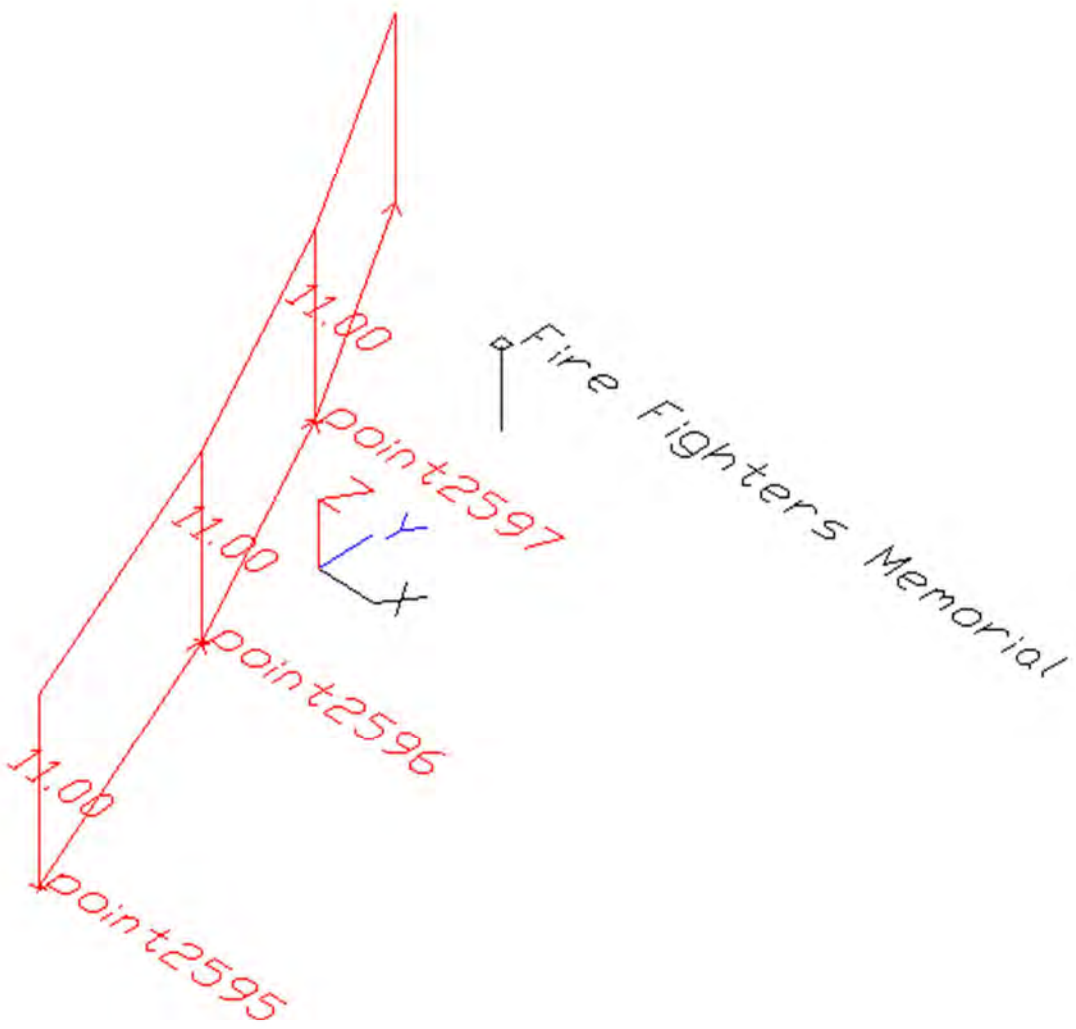
	point97	2220	5943	55	52	55	413	55	0	0	0	0
	point98	2221	5943	55	52	55	413	55	0	0	0	0
	point1770	2222	0	0	0	0	0	0	0	0	0	0
	point1711	2223	0	0	0	0	0	0	0	0	0	0
	point1712	2224	0	0	0	0	0	0	0	0	0	0
	point1713	2225										
Rd430 WB71 ramp to SB CD	point1771	2226	298	35	9	35	13	35	0	0	0	0
	point1772	2227	298	35	9	35	13	35	0	0	0	0
	point1773	2228	298	35	9	35	13	35	0	0	0	0
	point1774	2229	298	35	9	35	13	35	0	0	0	0
	point1775	2230	298	35	9	35	13	35	0	0	0	0
	point1776	2231	298	35	9	35	0	35	0	0	0	0
	point1777	2232	298	35	9	35	13	35	0	0	0	0
	point1778	2233	298	35	9	35	13	35	0	0	0	0
	point1779	2234	298	35	9	35	13	35	0	0	0	0
	point1780	2235	298	35	9	35	13	35	0	0	0	0
	point1781	2236	298	35	9	35	13	35	0	0	0	0
	point1782	2237										
Rd399 w3rd to SB CD	point1688	2238	1717	35	21	35	32	35	0	0	0	0
	point1689	2239	1717	35	21	35	32	35	0	0	0	0
	point1690	2240	1717	35	21	35	32	35	0	0	0	0
	point1691	2241	1717	35	21	35	32	35	0	0	0	0
	point1692	2242	1717	35	21	35	32	35	0	0	0	0
	point1693	2243	1717	35	21	35	32	35	0	0	0	0
	point1694	2244	1717	35	21	35	32	35	0	0	0	0
	point1695	2245	1717	35	21	35	32	35	0	0	0	0
	point1696	2246	1717	35	21	35	32	35	0	0	0	0
	point1697	2247	1717	35	21	35	32	35	0	0	0	0
	point1698	2248	1717	35	21	35	32	35	0	0	0	0
	point1699	2249	1717	35	21	35	32	35	0	0	0	0
	point1700	2250	1717	35	21	35	32	35	0	0	0	0
	point1701	2251	1717	35	21	35	32	35	0	0	0	0
	point1702	2252	1717	35	21	35	32	35	0	0	0	0
	point1703	2253	1717	35	21	35	32	35	0	0	0	0
	point1704	2254	1717	35	21	35	32	35	0	0	0	0
	point1705	2255	1717	35	21	35	32	35	0	0	0	0

	point1706	2256	1717	35	21	35	32	35	0	0	0	0
	point1707	2257	1717	35	21	35	32	35	0	0	0	0
	point1708	2258	1717	35	21	35	32	35	0	0	0	0
	point1709	2259	1717	35	21	35	32	35	0	0	0	0
	point1448	2260	4520	35	56	35	84	35	0	0	0	0
	point1449	2261	4520	35	56	35	84	35	0	0	0	0
	point1450	2262	4520	35	56	35	84	35	0	0	0	0
	point1787	2263	4520	35	56	35	84	35	0	0	0	0
	point1788	2264										
Rd376 SB off to 5th	point1464	2281	255	25	2	25	3	25	0	0	0	0
	point1465	2282	167	35	5	35	8	35	0	0	0	0
	point1466	2283	167	35	5	35	8	35	0	0	0	0
	point1467	2284	167	35	5	35	8	35	0	0	0	0
	point1468	2285	167	35	5	35	8	35	0	0	0	0
	point1469	2286	167	35	5	35	8	35	0	0	0	0
	point1470	2287	167	35	5	35	8	35	0	0	0	0
	point1471	2288	167	35	5	35	8	35	0	0	0	0
	point1472	2289	167	35	5	35	8	35	0	0	0	0
	point1473	2290	167	35	5	35	8	35	0	0	0	0
	point1474	2291	167	35	5	35	8	35	0	0	0	0
	point1475	2292	167	35	5	35	8	35	0	0	0	0
	point1476	2293	167	35	5	35	8	35	0	0	0	0
	point1477	2294	167	35	5	35	8	35	0	0	0	0
	point1478	2295	167	35	5	35	8	35	0	0	0	0
	point1479	2296	255	25	2	25	3	25	0	0	0	0
	point1559	2299	255	25	2	25	3	25	0	0	0	0
	point1560	2300	529	25	4	25	6	25	0	0	0	0
	point103	2301	529	25	4	25	6	25	0	0	0	0
	point104	2302	823	25	7	25	10	25	0	0	0	0
	point106	2303	823	25	7	25	10	25	0	0	0	0
	point107	2304										
Rd312 NB to Eb5th	point913	2305	260	35	8	35	12	35	0	0	0	0
	point914	2306	260	35	8	35	12	35	0	0	0	0
	point915	2307	260	35	8	35	12	35	0	0	0	0
	point916	2308	260	35	8	35	12	35	0	0	0	0
	point917	2309	260	35	8	35	12	35	0	0	0	0

	point918	2310	260	35	8	35	12	35	0	0	0	0
	point919	2311	260	35	8	35	12	35	0	0	0	0
	point920	2312	260	35	8	35	12	35	0	0	0	0
	point921	2313	0	0	0	0	0	0	0	0	0	0
	point923	2314	0	0	0	0	0	0	0	0	0	0
	point924	2315	260	35	8	35	12	35	0	0	0	0
	point925	2316	260	35	8	35	12	35	0	0	0	0
	point926	2317	260	35	8	35	12	35	0	0	0	0
	point927	2318	260	35	8	35	12	35	0	0	0	0
	point928	2319	260	35	8	35	12	35	0	0	0	0
	point929	2320	260	35	8	35	12	35	0	0	0	0
	point930	2321	260	35	8	35	12	35	0	0	0	0
	point931	2322										
Rd3254th to NB	point2021	2323	1404	35	42	35	63	35	0	0	0	0
	point2022	2324	1404	35	42	35	63	35	0	0	0	0
	point2023	2325	1404	35	42	35	63	35	0	0	0	0
	point1043	2326	1404	35	42	35	63	35	0	0	0	0
	point1044	2327	1404	35	42	35	63	35	0	0	0	0
	point1045	2328	1404	35	42	35	63	35	0	0	0	0
	point1046	2329	1404	35	42	35	63	35	0	0	0	0
	point1047	2330	1404	35	42	35	63	35	0	0	0	0
	point1048	2331	1404	35	42	35	63	35	0	0	0	0
	point1049	2332	1404	35	42	35	63	35	0	0	0	0
	point1050	2333	1404	35	42	35	63	35	0	0	0	0
	point1051	2334	1404	35	42	35	63	35	0	0	0	0
	point1052	2335	1404	35	42	35	63	35	0	0	0	0
	point1053	2336	1404	35	42	35	63	35	0	0	0	0
	point1054	2337	1404	35	42	35	63	35	0	0	0	0
	point1055	2338	1404	35	42	35	63	35	0	0	0	0
	point1056	2339	1404	35	42	35	63	35	0	0	0	0
	point1057	2340	1404	35	42	35	63	35	0	0	0	0
	point1058	2341	1404	35	42	35	63	35	0	0	0	0
	point1059	2342	1404	35	42	35	63	35	0	0	0	0
	point1060	2343	1404	35	42	35	63	35	0	0	0	0
	point1061	2344										
Rd 392 w8th NB	point1642	2346	784	25	6	25	10	25	0	0	0	0

	point1643	2347	784	25	6	25	10	25	0	0	0	0
	point1644	2348	784	25	6	25	10	25	0	0	0	0
	point1645	2349	784	25	6	25	10	25	0	0	0	0
	point1646	2350	784	25	6	25	10	25	0	0	0	0
	point1647	2351	784	25	6	25	10	25	0	0	0	0
	point123	2352	1581	35	20	35	29	35	0	0	0	0
	point124	2353	1581	35	20	35	29	35	0	0	0	0
	point125	2354	1581	35	20	35	29	35	0	0	0	0
	point126	2355										
Rd306 NB CD	point867	2374	1469	35	44	35	66	35	0	0	0	0
	point868	2375	1469	35	44	35	66	35	0	0	0	0
	point869	2376	1469	35	44	35	66	35	0	0	0	0
	point870	2377	1469	35	44	35	66	35	0	0	0	0
	point871	2378	1469	35	44	35	66	35	0	0	0	0
	point872	2379										
Roadway357	point873	2385	1209	35	36	35	55	35	0	0	0	0
	point875	2380	1209	35	36	35	55	35	0	0	0	0
	point876	2381	1209	35	36	35	55	35	0	0	0	0
	point877	2382	1209	35	36	35	55	35	0	0	0	0
	point878	2383	1209	35	36	35	55	35	0	0	0	0
	point879	2384										


NSA7 Two receivers
Union Baptist Church
Cincinnati Firefighters
NSA8 Five receivers
Apartment Building floors 3 -7
NSA9 One receiver
Cincinnati Bengals Outdoor Practice Facility
TNM Plan View
NSAs 7, 8 and 9



NSA7
Revised NSA7 Noise Barrier
Not Feasible and Reasonable
TNM Barrier View

Lawhon & Associates
CMCox
30 June 2023
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: HAM-75-1.05 PID 89068
RUN: Design Year Build Alternative I NSA7 8 9
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
NSA7-1 Fire Fighters Memorial	2125	1	69.1	69.6	66	0.5	10	Snd Lvl	62.4	7.2	5	2.2
NSA7-2 Union Baptist Church	2127	1	68.2	70.1	66	1.9	10	Snd Lvl	70.1	0.0	5	-5.0
NSA8-1 Apartment 3rd floor	2129	6	69.2	70.5	66	1.3	10	Snd Lvl	70.0	0.5	5	-4.5
NSA8-2 Apartment 4th floor	2131	6	69.9	71.1	66	1.2	10	Snd Lvl	70.7	0.4	5	-4.6
NSA8-3 Apartment 5th floor	2132	6	70.2	71.3	66	1.1	10	Snd Lvl	71.0	0.3	5	-4.7
NSA8-4 Apartment 6th floor	2134	6	70.5	71.5	66	1.0	10	Snd Lvl	71.2	0.3	5	-4.7
NSA8-5 Apartment 7th floor	2135	6	70.7	71.5	66	0.8	10	Snd Lvl	71.3	0.2	5	-4.8
NSA9-1 Bengals outdoor facility	2139	1	64.9	65.1	66	0.2	10	----	65.1	0.0	5	-5.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	33	0.0	1.1	7.2
All Impacted	32	0.0	1.3	7.2
All that meet NR Goal	1	7.2	7.2	7.2

Lawhon & Associates **30 June 2023**
CMCox **TNM 2.5**

RESULTS: BARRIER DESCRIPTIONS
PROJECT/CONTRACT: **HAM-75-1.05 PID 89068**
RUN: **Design Year Build Alternative I NSA7 8 9**
BARRIER DESIGN: **INPUT HEIGHTS**

Barriers

Name	**Type**	**Heights along Barrier**			**Length**	**If Wall**	**If Berm**			**Cost**
		Min	**Avg**	**Max**		**Area**	**Volume**	**Top Width**	**Run:Rise**	
		ft	ft	ft	ft	sq ft	cu yd	ft	ft:ft	$
NSA 7 Fire fighters memorial	W	11.00	11.00	11.00	299	3290				98689
NSA8	W	10.00	10.00	10.00	595	5954				893073
									Total Cost:	991762

Lawhon & Associates **30 June 2023**
CMCox **TNM 2.5**

INPUT: RECEIVERS
PROJECT/CONTRACT: **HAM-75-1.05 PID 89068**
RUN: **Design Year Build Alternative I NSA7 8 9**

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
NSA7-1 Fire Fighters Memorial	2125	1	5,269,581.5	4,290,625.5	550.00	4.92	69.10	66	10.0	5.0	Y
NSA7-2 Union Baptist Church	2127	1	5,269,338.0	4,290,974.0	548.00	4.92	68.20	66	10.0	5.0	Y
NSA8-1 Apartment 3rd floor	2129	6	5,270,080.5	4,289,663.5	548.00	4.92	69.20	66	10.0	5.0	Y
NSA8-2 Apartment 4th floor	2131	6	5,270,082.0	4,289,667.0	558.00	4.92	69.90	66	10.0	5.0	Y
NSA8-3 Apartment 5th floor	2132	6	5,270,084.0	4,289,670.0	568.00	4.92	70.20	66	10.0	5.0	Y
NSA8-4 Apartment 6th floor	2134	6	5,270,081.5	4,289,673.0	578.00	4.92	70.50	66	10.0	5.0	Y
NSA8-5 Apartment 7th floor	2135	6	5,270,080.0	4,289,677.5	588.00	4.92	70.70	66	10.0	5.0	Y
NSA9-1 Bengals outdoor facility	2139	1	5,269,869.5	4,288,372.0	490.00	4.92	64.90	66	10.0	5.0	Y

Lawhon & Associates				**30 June 2023**																
CMCox				**TNM 2.5**																
INPUT: BARRIERS																				
PROJECT/CONTRACT:	**HAM-75-1.05 PID 89068**																			
RUN:	**Design Year Build Alternative I NSA6**																			
Barrier									**Points**											
Name	**Type**	**Height**		**If Wall**	**If Berm**			**Add'tnl**	**Name**	**No.**	**Coordinates (bottom)**			**Height**	**Segment**					
		Min	**Max**	**$ per**	**$ per**	**Top**	**Run:Rise**	**$ per**			**X**	**Y**	**Z**	**at**	**Seg Ht Perturbs**			**On**	**Important**	
				Unit	**Unit**	**Width**		**Unit**						**Point**	**Incre-**	**#Up**	**#Dn**	**Struct?**	**Reflec-**	
				Area	**Vol.**			**Length**							**ment**				**tions?**		
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft					
NSA 7 Fire fighters memorial	W	5.00	99.99	30.00				0.00	point2595	2595	5,269,617.0	4,290,420.0	548.00	11.00	1.00	3	3			
									point2596	2596	5,269,577.0	4,290,520.0	548.00	11.00	1.00	3	3			
									point2597	2597	5,269,529.5	4,290,609.0	547.00	11.00	1.00	3	3			
									point2598	2598	5,269,482.0	4,290,686.0	547.00	11.00						
NSA8	W	5.00	99.99	150.00				0.00	point2608	2608	5,270,252.0	4,289,370.0	533.00	10.00	1.00	6	5			
									point2606	2606	5,270,202.0	4,289,389.0	535.00	10.00	1.00	6	5	Y		
									point2605	2605	5,270,154.0	4,289,413.0	536.00	10.00	1.00	6	5	Y		
									point2604	2604	5,270,094.0	4,289,450.0	540.00	10.00	1.00	6	5	Y		
									point2599	2599	5,270,034.5	4,289,511.5	546.00	10.00	1.00	6	5	Y		
									point2600	2600	5,269,994.5	4,289,561.5	549.00	10.00	1.00	6	5	Y		
									point2601	2601	5,269,929.0	4,289,642.0	553.00	10.00	1.00	6	5	Y		
									point2602	2602	5,269,893.0	4,289,688.0	557.50	10.00	1.00	6	5	Y		
									point2603	2603	5,269,862.0	4,289,718.0	561.00	10.00	1.00	6	5	Y		
									point2607	2607	5,269,812.0	4,289,756.0	563.00	10.00						

Lawhon & Associates **30 June 2023**
CMCox **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **HAM-75-1.05 PID 89068**
RUN: **Design Year Build Alternative I NSA7 8 9**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Rd45 ; SB Ramp western-SB 75(1)1/1	point1	1	315	35	14	35	21	35	0	0	0	0
	point2	2	315	35	14	35	21	35	0	0	0	0
	point3	3	315	35	14	35	21	35	0	0	0	0
	point4	4	315	35	14	35	21	35	0	0	0	0
	point5	5	315	35	14	35	21	35	0	0	0	0
	point6	6	315	35	14	35	21	35	0	0	0	0
	point7	7	315	35	14	35	21	35	0	0	0	0
	point8	8	315	35	14	35	21	35	0	0	0	0
	point9	9	315	35	14	35	21	35	0	0	0	0
	point10	10										
Rd102 ; NB Off fr Gest to 7th(1)1/1	point140	140	298	35	9	35	13	35	0	0	0	0
	point141	141	298	35	9	35	13	35	0	0	0	0
	point142	142	298	35	9	35	13	35	0	0	0	0
	point143	143	298	35	9	35	13	35	0	0	0	0
	point144	144	298	35	9	35	13	35	0	0	0	0
	point145	145	298	35	9	35	13	35	0	0	0	0
	point146	146	298	35	9	35	13	35	0	0	0	0
	point147	147										
Rd108 ; 9th to NB Off to 75(4)1/1	point168	168	2167	35	16	35	49	35	0	0	0	0
	point169	169	2167	35	16	35	49	35	0	0	0	0
	point170	170	2167	35	16	35	49	35	0	0	0	0
	point171	171	2167	35	16	35	49	35	0	0	0	0
	point172	172	2167	35	16	35	49	35	0	0	0	0

	point173	173										
Rd109 ; W 8th NB Off-SB Off(3)1/1	point174	174	1002	35	61	35	27	35	0	0	0	0
	point175	175										
Rd123 ; NB Freeman 8th-Gest(4)1/1	point196	196	524	35	14	35	32	35	0	0	0	0
	point197	197	524	35	14	35	32	35	0	0	0	0
	point198	198	524	35	14	35	32	35	0	0	0	0
	point199	199	524	35	14	35	32	35	0	0	0	0
	point200	200	524	35	14	35	32	35	0	0	0	0
	point201	201	524	35	14	35	32	35	0	0	0	0
	point202	202	524	35	14	35	32	35	0	0	0	0
	point203	203	524	35	14	35	32	35	0	0	0	0
	point204	204	524	35	14	35	32	35	0	0	0	0
	point205	205										
Rd124 ; NB Freeman @ Gest(4)1/1	point206	206	922	35	11	35	17	35	0	0	0	0
	point207	207										
Rd127 ; SB Freeman @ Gest(4)1/1	point208	208	592	35	7	35	11	35	0	0	0	0
	point209	209										
Rd128 ; SB Freem Gest-8th(4)1/1	point210	210	570	35	15	35	35	35	0	0	0	0
	point211	211	570	35	15	35	35	35	0	0	0	0
	point212	212	570	35	15	35	35	35	0	0	0	0
	point213	213	570	35	15	35	35	35	0	0	0	0
	point214	214	570	35	15	35	35	35	0	0	0	0
	point215	215	570	35	15	35	35	35	0	0	0	0
	point216	216	570	35	15	35	35	35	0	0	0	0
	point217	217	570	35	15	35	35	35	0	0	0	0
	point218	218										
Rd147 ; EB 8th Freeman-Linn(4)1/1	point296	296	470	25	12	25	28	25	0	0	0	0
	point297	297	470	25	12	25	28	25	0	0	0	0
	point298	298	470	25	12	25	28	25	0	0	0	0
	point299	299	470	25	12	25	28	25	0	0	0	0
	point300	300	470	25	12	25	28	25	0	0	0	0
	point301	301										
Rd148 ; EB 8th @ Linn (4)1/1	point302	302	470	25	12	25	28	25	0	0	0	0
	point303	303										
Rd149 ; EB 8th Linn-Ramps(3)1/1	point304	304	432	25	12	25	26	25	0	0	0	0
	point305	305										

Rd151 ; EB 8th Off to 7th(2)1/1	point316	316	240	35	6	35	114	35	0	0	0	0
	point317	317	240	35	6	35	114	35	0	0	0	0
	point318	318	240	35	6	35	114	35	0	0	0	0
	point319	319	240	35	6	35	114	35	0	0	0	0
	point320	320	240	35	6	35	114	35	0	0	0	0
	point321	321	240	35	6	35	114	35	0	0	0	0
	point322	322	240	35	6	35	114	35	0	0	0	0
	point323	323	240	35	6	35	114	35	0	0	0	0
	point324	324	240	35	6	35	114	35	0	0	0	0
	point325	325	240	35	6	35	114	35	0	0	0	0
	point326	326										
Rd152 ; 8th Viad 9th-wb 8th(2)1/1	point327	327	745	35	20	35	45	35	0	0	0	0
	point328	328	745	35	20	35	45	35	0	0	0	0
	point329	329	745	35	20	35	45	35	0	0	0	0
	point330	330	745	35	20	35	45	35	0	0	0	0
	point331	331	745	35	20	35	45	35	0	0	0	0
	point332	332	745	35	20	35	45	35	0	0	0	0
	point333	333										
Rd153 ; WB 8th Via-Linn(3)1/1	point334	334	745	35	20	35	45	35	0	0	0	0
	point335	335										
Rd154 ; WB 8th @ Linn(3)1/1	point336	336	745	35	20	35	45	35	0	0	0	0
	point337	337										
Rd155 ; WB 8th Linn-Freeman(4)1/1	point338	338	745	35	20	35	45	35	0	0	0	0
	point339	339	745	35	20	35	45	35	0	0	0	0
	point340	340	745	35	20	35	45	35	0	0	0	0
	point341	341	745	35	20	35	45	35	0	0	0	0
	point342	342	745	35	20	35	45	35	0	0	0	0
	point343	343	745	35	20	35	45	35	0	0	0	0
	point344	344	745	35	20	35	45	35	0	0	0	0
	point345	345										
Rd159 ; EB Gest Western-Freeman(2)1/1	point360	360	398	35	5	35	7	35	0	0	0	0
	point361	361										
Rd160 ; EB gest @ Freeman(2)1/1	point362	362	398	35	5	35	7	35	0	0	0	0
	point363	363										
Rd163 ; SB Gest 8th On-Und 6th(3)1/1	point364	364	186	35	2	35	2	35	0	0	0	0
	point365	365										

Rd175 ; NB Gest 6th Exp-Off to 7th(2)1/1	point419	419	255	35	2	35	3	35	0	0	0	0
	point420	420										
Rd 180 NB Gest @ Freeman(2)1/1	point421	421	126	35	2	35	2	35	0	0	0	0
	point422	422										
Rd181 ; NB Gest Free-Western(3)1/1	point423	423	126	35	2	35	2	35	0	0	0	0
	point424	424										
Rd211 ; NB Winchell to EB Ezzard(3)1/1	point512	512	420	35	12	35	28	35	0	0	0	0
	point513	513	420	35	12	35	28	35	0	0	0	0
	point514	514	420	35	12	35	28	35	0	0	0	0
	point515	515										
Rd212 ; NB Winhell EB Ezz-WB Ezz(3)1/1	point516	516	530	35	15	35	35	35	0	0	0	0
	point517	517										
Rd213 ; NB Winch Ezz-Off to 75(3)1/1	point518	518	530	35	15	35	35	35	0	0	0	0
	point519	519										
Rd247 ; Western On ramp-EB Ezz(3)1/1	point627	627	330	35	4	35	6	35	0	0	0	0
	point628	628	330	35	4	35	6	35	0	0	0	0
	point629	629	330	35	4	35	6	35	0	0	0	0
	point630	630										
Rd248 ; Western Wb Ezz-Eb Ezz(3)1/1	point631	631	330	35	4	35	6	35	0	0	0	0
	point632	632										
Rd249 ; Western EB Ezz-Off to 75(3)1/1	point633	633	563	35	7	35	10	35	0	0	0	0
	point634	634										
Rd270 ; NB Linn On fr 6th-8th(4)1/1	point728	728	350	35	9	35	21	35	0	0	0	0
	point729	729	350	35	9	35	21	35	0	0	0	0
	point730	730	350	35	9	35	21	35	0	0	0	0
	point731	731	350	35	9	35	21	35	0	0	0	0
	point732	732										
Rd271 ; NB Linn @ W 8th(4)1/1	point733	733	408	35	8	35	14	35	0	0	0	0
	point734	734										
Rd272 ; NB Linn 8th-Court(3)1/1	point735	735	408	35	8	35	14	35	0	0	0	0
	point736	736	408	35	8	35	14	35	0	0	0	0
	point737	737	408	35	8	35	14	35	0	0	0	0
	point738	738										
Rd273 ; NB Linn fr Court(2)1/1	point739	739	408	35	8	35	14	35	0	0	0	0
	point740	740	408	35	8	35	14	35	0	0	0	0
	point741	741	408	35	8	35	14	35	0	0	0	0

	point742	742										
Rd274 ; SB Linn to Court(2)1/1	point743	743	503	35	8	35	19	35	0	0	0	0
	point744	744	503	35	8	35	19	35	0	0	0	0
	point745	745	503	35	8	35	19	35	0	0	0	0
	point746	746										
Rd275 ; SB Linn Court-8th(2)1/1	point747	747	503	35	8	35	19	35	0	0	0	0
	point748	748	349	35	10	35	21	35	0	0	0	0
	point749	749	0	0	0	0	0	0	0	0	0	0
	point750	750										
Rd276 ; SB Linn @ W 8th(2)1/1	point751	751	605	35	18	35	27	35	0	0	0	0
	point752	752										
Rd277 ; SB Linn 8th-Dalton(4)1/1	point753	753	303	35	12	35	15	35	0	0	0	0
	point754	754	303	35	12	35	15	35	0	0	0	0
	point755	755	303	35	12	35	15	35	0	0	0	0
	point756	756	303	35	12	35	15	35	0	0	0	0
	point757	757										
Rd278 ; SB Linn @ Dalton(4)1/1	point758	758	1097	35	33	35	50	35	0	0	0	0
	point759	759										
Rd310 ; NB CD to 75 On(3)1/1	point898	898	3385	35	42	35	63	35	0	0	0	0
	point899	899	3385	35	42	35	63	35	0	0	0	0
	point900	900	3385	35	42	35	63	35	0	0	0	0
	point901	901	3385	35	42	35	63	35	0	0	0	0
	point902	902	3385	35	42	35	63	35	0	0	0	0
	point903	903	3385	35	42	35	63	35	0	0	0	0
	point904	904										
Rd311; Off fr NB CD to 75(2)1/1	point905	905	3185	55	36	55	49	55	0	0	0	0
	point906	906	3185	55	36	55	49	55	0	0	0	0
	point907	907	3185	55	36	55	49	55	0	0	0	0
	point908	908	3185	55	36	55	49	55	0	0	0	0
	point909	909	3185	55	36	55	49	55	0	0	0	0
	point910	910	3185	55	36	55	49	55	0	0	0	0
	point911	911	3185	55	36	55	49	55	0	0	0	0
	point912	912										
Rd316; On fr CD to Winchell(1)1/1	point961	961	200	35	6	35	14	35	0	0	0	0
	point962	962	200	35	6	35	14	35	0	0	0	0
	point963	963	200	35	6	35	14	35	0	0	0	0

	point964	964	200	35	6	35	14	35	0	0	0	0
	point965	965	200	35	6	35	14	35	0	0	0	0
	point966	966	200	35	6	35	14	35	0	0	0	0
	point967	967	200	35	6	35	14	35	0	0	0	0
	point968	968	200	35	6	35	14	35	0	0	0	0
	point969	969	200	35	6	35	14	35	0	0	0	0
	point970	970	200	35	6	35	14	35	0	0	0	0
	point971	971	200	35	6	35	14	35	0	0	0	0
	point972	972										
Rd317; Ramp fr Freeman to Winch(2)1/1	point973	973	922	35	11	35	17	35	0	0	0	0
	point974	974	922	35	11	35	17	35	0	0	0	0
	point975	975	922	35	11	35	17	35	0	0	0	0
	point976	976										
Rd318; Ramp Free-WB Ezz Ch(1)1/1	point977	977	710	35	9	35	21	35	0	0	0	0
	point978	978	710	35	9	35	21	35	0	0	0	0
	point979	979	710	35	9	35	21	35	0	0	0	0
	point980	980	710	35	9	35	21	35	0	0	0	0
	point981	981	710	35	9	35	21	35	0	0	0	0
	point982	982	710	35	9	35	21	35	0	0	0	0
	point983	983	710	35	9	35	21	35	0	0	0	0
	point984	984	710	35	9	35	21	35	0	0	0	0
	point985	985	710	35	9	35	21	35	0	0	0	0
	point986	986	710	35	9	35	21	35	0	0	0	0
	point987	987	710	35	9	35	21	35	0	0	0	0
	point988	988	710	35	9	35	21	35	0	0	0	0
	point989	989	710	35	9	35	21	35	0	0	0	0
	point990	990										
Rd319; Ramp Free to Winch(1)1/1	point991	991	18	35	1	35	1	35	0	0	0	0
	point992	992	18	35	1	35	1	35	0	0	0	0
	point993	993	18	35	1	35	1	35	0	0	0	0
	point994	994	18	35	1	35	1	35	0	0	0	0
	point995	995	18	35	1	35	1	35	0	0	0	0
	point996	996	18	35	1	35	1	35	0	0	0	0
	point997	997	18	35	1	35	1	35	0	0	0	0
	point998	998	18	35	1	35	1	35	0	0	0	0
	point999	999	18	35	1	35	1	35	0	0	0	0

	point1000	1000	18	35	1	35	1	35	0	0	0	0
	point1001	1001										
Rd320; Ramp fr 6th St to Winch(1)1/1	point99	2345	0	0	0	0	0	0	0	0	0	0
	point1002	1002	149	35	4	35	7	35	0	0	0	0
	point1003	1003	149	35	4	35	7	35	0	0	0	0
	point1004	1004	149	35	4	35	7	35	0	0	0	0
	point1005	1005	149	35	4	35	7	35	0	0	0	0
	point1006	1006	149	35	4	35	7	35	0	0	0	0
	point1007	1007	149	35	4	35	7	35	0	0	0	0
	point1008	1008	149	35	4	35	7	35	0	0	0	0
	point1009	1009	149	35	4	35	7	35	0	0	0	0
	point1010	1010	149	35	4	35	7	35	0	0	0	0
	point1011	1011	149	35	4	35	7	35	0	0	0	0
	point1012	1012	149	35	4	35	7	35	0	0	0	0
	point1013	1013	149	35	4	35	7	35	0	0	0	0
	point1014	1014										
Rd321; Ramp 9th to Winch(1)1/1	point1015	1015	200	35	6	35	14	35	0	0	0	0
	point1016	1016	200	35	6	35	14	35	0	0	0	0
	point1017	1017	200	35	6	35	14	35	0	0	0	0
	point1018	1018	200	35	6	35	14	35	0	0	0	0
	point1019	1019	200	35	6	35	14	35	0	0	0	0
	point1020	1020	200	35	6	35	14	35	0	0	0	0
	point1021	1021	200	35	6	35	14	35	0	0	0	0
	point1022	1022	200	35	6	35	14	35	0	0	0	0
	point1023	1023	200	35	6	35	14	35	0	0	0	0
	point1024	1024	200	35	6	35	14	35	0	0	0	0
	point1025	1025										
Rd322; Ramp 6th+9th to Winch(2)1/1	point1026	1026	349	35	10	35	21	35	0	0	0	0
	point1027	1027	349	35	10	35	21	35	0	0	0	0
	point1028	1028										
Rd323; Ramp 6th+9th to Winch(1)1/1	point1029	1029	349	35	10	35	21	35	0	0	0	0
	point1030	1030	349	35	10	35	21	35	0	0	0	0
	point1031	1031	349	35	10	35	21	35	0	0	0	0
	point1032	1032	349	35	10	35	21	35	0	0	0	0
	point1033	1033	349	35	10	35	21	35	0	0	0	0
	point1034	1034	349	35	10	35	21	35	0	0	0	0

	point1035	1035	349	35	10	35	21	35	0	0	0	0
	point1036	1036	349	35	10	35	21	35	0	0	0	0
	point1037	1037	349	35	10	35	21	35	0	0	0	0
	point1038	1038	349	35	10	35	21	35	0	0	0	0
	point1039	1039										
Rd324; NB Winch 6th on-Free On(2)1/1	point1040	1040	364	35	11	35	25	35	0	0	0	0
	point1041	1041										
Rd326; Ramp WB 71-NB CD(1)1/1	point1062	1062	2809	35	85	35	127	35	0	0	0	0
	point1063	1063	2809	35	85	35	127	35	0	0	0	0
	point1064	1064	2809	35	85	35	127	35	0	0	0	0
	point1065	1065	2809	35	85	35	127	35	0	0	0	0
	point1066	1066	2809	35	85	35	127	35	0	0	0	0
	point1067	1067	2809	35	85	35	127	35	0	0	0	0
	point1068	1068										
Rd335; NB 75 to On Fr CD(3)1/1	point1155	1155	3005	55	48	55	147	55	0	0	0	0
	point1156	1156	3005	55	48	55	147	55	0	0	0	0
	point1157	1157	3005	55	48	55	147	55	0	0	0	0
	point1158	1158	3005	55	48	55	147	55	0	0	0	0
	point1159	1159	3005	55	48	55	147	55	0	0	0	0
	point1160	1160	3005	55	48	55	147	55	0	0	0	0
	point1161	1161	3005	55	48	55	147	55	0	0	0	0
	point1162	1162	3005	55	48	55	147	55	0	0	0	0
	point1163	1163	3005	55	48	55	147	55	0	0	0	0
	point1164	1164	3005	55	48	55	147	55	0	0	0	0
	point1165	1165	3005	55	48	55	147	55	0	0	0	0
	point1166	1166	3005	55	48	55	147	55	0	0	0	0
	point1167	1167	3005	55	48	55	147	55	0	0	0	0
	point1168	1168										
Rd352; SB 75 Free Off-CD Off(6)1/1	point1279	1279	6408	55	71	55	488	55	0	0	0	0
	point1280	1280										
Rd353; SB 75 Fr Free Off(3)1/1	point1281	1281	3634	55	32	55	253	55	0	0	0	0
	point1282	1282	3634	55	32	55	253	55	0	0	0	0
	point1283	1283	3634	55	32	55	253	55	0	0	0	0
	point1284	1284	3634	55	32	55	253	55	0	0	0	0
	point1285	1285	3634	55	32	55	253	55	0	0	0	0
	point1286	1286	3634	55	32	55	253	55	0	0	0	0

	point1287	1287	3634	55	32	55	253	55	0	0	0	0
	point1288	1288	3634	55	32	55	253	55	0	0	0	0
	point1289	1289	3634	55	32	55	253	55	0	0	0	0
	point1290	1290	3634	55	32	55	253	55	0	0	0	0
	point1291	1291	3634	55	32	55	253	55	0	0	0	0
	point1292	1292	3634	55	32	55	253	55	0	0	0	0
	point1293	1293	3634	55	32	55	253	55	0	0	0	0
	point1294	1294	3634	55	32	55	253	55	0	0	0	0
	point1295	1295	3634	55	32	55	253	55	0	0	0	0
	point1296	1296	3634	55	32	55	253	55	0	0	0	0
	point1297	1297	3634	55	32	55	253	55	0	0	0	0
	point1298	1298	3634	55	32	55	253	55	0	0	0	0
	point1299	1299	3634	55	32	55	253	55	0	0	0	0
	point1300	1300	3634	55	32	55	253	55	0	0	0	0
	point1301	1301	3634	55	32	55	253	55	0	0	0	0
	point1302	1302										
Rd366; SB Off to Freeman(1)1/1	point1383	1383	592	35	7	35	11	35	0	0	0	0
	point1384	1384	592	35	7	35	11	35	0	0	0	0
	point1385	1385	592	35	7	35	11	35	0	0	0	0
	point1386	1386	592	35	7	35	11	35	0	0	0	0
	point1387	1387	592	35	7	35	11	35	0	0	0	0
	point1388	1388	592	35	7	35	11	35	0	0	0	0
	point1389	1389	592	35	7	35	11	35	0	0	0	0
	point1390	1390	592	35	7	35	11	35	0	0	0	0
	point1391	1391										
Rd367; SB Off To Freeman(2)1/1	point1392	1392	592	35	7	35	11	35	0	0	0	0
	point1393	1393	592	35	7	35	11	35	0	0	0	0
	point1394	1394	592	35	7	35	11	35	0	0	0	0
	point1395	1395	592	35	7	35	11	35	0	0	0	0
	point1396	1396	592	35	7	35	11	35	0	0	0	0
	point1397	1397										
Rd368 ; SB CD to On fr Western(3)1/1	point1398	1398	2948	35	89	35	133	35	0	0	0	0
	point1399	1399	2948	35	89	35	133	35	0	0	0	0
	point1400	1400	2948	35	89	35	133	35	0	0	0	0
	point1401	1401	2948	35	89	35	133	35	0	0	0	0
	point1402	1402	2948	35	89	35	133	35	0	0	0	0

	point1403	1403	2948	35	89	35	133	35	0	0	0	0
	point1404	1404	2948	35	89	35	133	35	0	0	0	0
	point1405	1405	2948	35	89	35	133	35	0	0	0	0
	point1406	1406	2948	35	89	35	133	35	0	0	0	0
	point1407	1407	2948	35	89	35	133	35	0	0	0	0
	point1408	1408	2948	35	89	35	133	35	0	0	0	0
	point1409	1409	2948	35	89	35	133	35	0	0	0	0
	point1410	1410	2948	35	89	35	133	35	0	0	0	0
	point1411	1411	2948	35	89	35	133	35	0	0	0	0
	point1412	1412										
Rd369; SB CD western On-7th Off(4)1/1	point1413	1413	2706	35	81	35	122	35	0	0	0	0
	point1414	1414	2706	35	81	35	122	35	0	0	0	0
	point1415	1415	2706	35	81	35	122	35	0	0	0	0
	point1416	1416	2706	35	81	35	122	35	0	0	0	0
	point1417	1417	2706	35	81	35	122	35	0	0	0	0
	point1418	1418										
Rd370; SB CD 7th of- 5th off(3)1/1	point1419	1419	326	35	10	35	15	35	0	0	0	0
	point1420	1420	326	35	10	35	15	35	0	0	0	0
	point1421	1421	326	35	10	35	15	35	0	0	0	0
	point1422	1422										
Rd371; SB CD 5th Off-3rd Off(2)1/1	point1423	1423	2381	35	72	35	108	35	0	0	0	0
	point1424	1424	2381	35	72	35	108	35	0	0	0	0
	point1425	1425	2381	35	72	35	108	35	0	0	0	0
	point1426	1426	2381	35	72	35	108	35	0	0	0	0
	point1427	1427	2381	35	72	35	108	35	0	0	0	0
	point1428	1428	2381	35	72	35	108	35	0	0	0	0
	point1429	1429	2381	35	72	35	108	35	0	0	0	0
	point1430	1430										
Rd372; SB Cd 3rd Off - 8th On(2)1/1	point1431	1431	2381	35	72	35	108	35	0	0	0	0
	point1432	1432	2381	35	72	35	108	35	0	0	0	0
	point1433	1433	2381	35	72	35	108	35	0	0	0	0
	point1434	1434										
Rd375; SB Off fr CD to 7th(1)1/1	point1451	1451	167	35	5	35	8	35	0	0	0	0
	point1452	1452	167	35	5	35	8	35	0	0	0	0
	point1453	1453	167	35	5	35	8	35	0	0	0	0
	point1454	1454	167	35	5	35	8	35	0	0	0	0

	point1455	1455	167	35	5	35	8	35	0	0	0	0
	point1456	1456	167	35	5	35	8	35	0	0	0	0
	point1457	1457	167	35	5	35	8	35	0	0	0	0
	point1458	1458	167	35	5	35	8	35	0	0	0	0
	point1459	1459	167	35	5	35	8	35	0	0	0	0
	point1460	1460	167	35	5	35	8	35	0	0	0	0
	point1461	1461	167	35	5	35	8	35	0	0	0	0
	point1462	1462	167	35	5	35	8	35	0	0	0	0
	point1463	1463										
Rd377; SB Off fr Cd to 2nd + Free(2)1/1	point1480	1480	960	35	12	35	18	35	0	0	0	0
	point1481	1481	960	35	12	35	18	35	0	0	0	0
	point1482	1482	960	35	12	35	18	35	0	0	0	0
	point1483	1483	960	35	12	35	18	35	0	0	0	0
	point1484	1484	960	35	12	35	18	35	0	0	0	0
	point1485	1485	960	35	12	35	18	35	0	0	0	0
	point1486	1486	960	35	12	35	18	35	0	0	0	0
	point1487	1487	960	35	12	35	18	35	0	0	0	0
	point1488	1488	960	35	12	35	18	35	0	0	0	0
	point1489	1489	960	35	12	35	18	35	0	0	0	0
	point1490	1490										
Rd391; Ramp W 8th-SB CD(1)1/1	point1625	1625	258	35	8	35	14	35	0	0	0	0
	point1626	1626	258	35	8	35	14	35	0	0	0	0
	point1627	1627	258	35	8	35	14	35	0	0	0	0
	point1628	1628	258	35	8	35	14	35	0	0	0	0
	point1629	1629	258	35	8	35	14	35	0	0	0	0
	point1630	1630	258	35	8	35	14	35	0	0	0	0
	point1631	1631	258	35	8	35	14	35	0	0	0	0
	point1632	1632	258	35	8	35	14	35	0	0	0	0
	point1633	1633	258	35	8	35	14	35	0	0	0	0
	point1634	1634	258	35	8	35	14	35	0	0	0	0
	point1635	1635	258	35	8	35	14	35	0	0	0	0
	point1636	1636	258	35	8	35	14	35	0	0	0	0
	point1637	1637	258	35	8	35	14	35	0	0	0	0
	point1638	1638	258	35	8	35	14	35	0	0	0	0
	point1639	1639	258	35	8	35	14	35	0	0	0	0
	point1640	1640	258	35	8	35	14	35	0	0	0	0

	point1641	1641										
Rd393; 7th Via GestOn-SB CD on(2)1/1	point1648	1648	530	35	4	35	12	35	0	0	0	0
	point1649	1649	530	35	4	35	12	35	0	0	0	0
	point1650	1650	530	35	4	35	12	35	0	0	0	0
	point1651	1651	530	35	4	35	12	35	0	0	0	0
	point1652	1652	530	35	4	35	12	35	0	0	0	0
	point1653	1653	530	35	4	35	12	35	0	0	0	0
	point1654	1654	530	35	4	35	12	35	0	0	0	0
	point1655	1655	530	35	4	35	12	35	0	0	0	0
	point1656	1656	530	35	4	35	12	35	0	0	0	0
	point1657	1657										
Rd395; W 7th St (3)1/1	point1662	1662	368	25	10	25	22	25	0	0	0	0
	point1663	1663										
Rd396; W 7th to Central(4)1/1	point1664	1664	368	25	10	25	22	25	0	0	0	0
	point1665	1665	368	25	10	25	22	25	0	0	0	0
	point1666	1666										
Rd404 ; SB Gest - 8th off(2)1/1	point1736	1736	120	35	3	35	7	35	0	0	0	0
	point1737	1737	120	35	3	35	7	35	0	0	0	0
	point1738	1738	120	35	3	35	7	35	0	0	0	0
	point1739	1739	120	35	3	35	7	35	0	0	0	0
	point1740	1740	120	35	3	35	7	35	0	0	0	0
	point1741	1741	120	35	3	35	7	35	0	0	0	0
	point1742	1742	120	35	3	35	7	35	0	0	0	0
	point1743	1743	120	35	3	35	7	35	0	0	0	0
	point1744	1744	120	35	3	35	7	35	0	0	0	0
	point1745	1745	120	35	3	35	7	35	0	0	0	0
	point1746	1746	120	35	3	35	7	35	0	0	0	0
	point1747	1747	120	35	3	35	7	35	0	0	0	0
	point1748	1748	120	35	3	35	7	35	0	0	0	0
	point1749	1749	120	35	3	35	7	35	0	0	0	0
	point1750	1750	120	35	3	35	7	35	0	0	0	0
	point1751	1751	120	35	3	35	7	35	0	0	0	0
	point1752	1752										
Rd405; NB Gest 7th off-3lane(2)1/1	point1753	1753	414	35	11	35	25	35	0	0	0	0
	point1754	1754	414	35	11	35	25	35	0	0	0	0
	point1755	1755	414	35	11	35	25	35	0	0	0	0

	point1756	1756	414	35	11	35	25	35	0	0	0	0
	point1757	1757	414	35	11	35	25	35	0	0	0	0
	point1758	1758	414	35	11	35	25	35	0	0	0	0
	point1759	1759	414	35	11	35	25	35	0	0	0	0
	point1760	1760	414	35	11	35	25	35	0	0	0	0
	point1761	1761	414	35	11	35	25	35	0	0	0	0
	point1762	1762	414	35	11	35	25	35	0	0	0	0
	point1763	1763	414	35	11	35	25	35	0	0	0	0
	point1764	1764	414	35	11	35	25	35	0	0	0	0
	point1765	1765	414	35	11	35	25	35	0	0	0	0
	point1766	1766										
Rd406; NB Gest to Freeman(3)1/1	point1767	1767	414	35	11	35	25	35	0	0	0	0
	point1768	1768										
Rd431; SB Off Fro CD(1)1/1	point1783	1783	167	35	5	35	8	35	0	0	0	0
	point1784	1784	167	35	5	35	8	35	0	0	0	0
	point1785	1785										
Rd434; NB 75 On Fr CD - 6 lane(5)1/1	point1791	1791	6740	55	84	55	196	55	0	0	0	0
	point1792	1792	6740	55	84	55	196	55	0	0	0	0
	point1793	1793	6740	55	84	55	196	55	0	0	0	0
	point1794	1794	6740	55	84	55	196	55	0	0	0	0
	point1795	1795	6740	55	84	55	196	55	0	0	0	0
	point1796	1796										
Rd309; NB CD to CDunder w8th(1)1/1-2	point885	2386	437	35	13	35	20	35	0	0	0	0
	point2025	2025	437	35	13	35	20	35	0	0	0	0
	point888	888	437	35	13	35	20	35	0	0	0	0
	point889	889	437	35	13	35	20	35	0	0	0	0
	point890	890	437	35	13	35	20	35	0	0	0	0
	point891	891	437	35	13	35	20	35	0	0	0	0
	point892	892	437	35	13	35	20	35	0	0	0	0
	point893	893	437	35	13	35	20	35	0	0	0	0
	point894	894	437	35	13	35	20	35	0	0	0	0
	point895	895	437	35	13	35	20	35	0	0	0	0
	point896	896	437	35	13	35	20	35	0	0	0	0
	point897	897										
I-75 nb New lower	point1130	2026	3560	55	44	55	352	55	0	0	0	0
	point1131	2027	3560	55	44	55	352	55	0	0	0	0

	point1132	2028	3560	55	44	55	352	55	0	0	0	0
	point1133	2029	3560	55	44	55	352	55	0	0	0	0
	point1134	2030	3560	55	44	55	352	55	0	0	0	0
	point1135	2031	3560	55	44	55	352	55	0	0	0	0
	point1136	2032	3560	55	44	55	352	55	0	0	0	0
	point1137	2033	3560	55	44	55	352	55	0	0	0	0
	point1138	2034	3560	55	44	55	352	55	0	0	0	0
	point1139	2035	3560	55	44	55	352	55	0	0	0	0
	point1140	2036	3560	55	44	55	352	55	0	0	0	0
	point1141	2037	3560	55	44	55	352	55	0	0	0	0
	point1142	2038	3560	55	44	55	352	55	0	0	0	0
	point1143	2039	3560	55	44	55	352	55	0	0	0	0
	point1144	2040	3560	55	44	55	352	55	0	0	0	0
	point1145	2041	3560	55	44	55	352	55	0	0	0	0
	point1146	2042	3560	55	44	55	352	55	0	0	0	0
	point1147	2043	3560	55	44	55	352	55	0	0	0	0
	point1148	2044	3560	55	44	55	352	55	0	0	0	0
	point1149	2045	3560	55	44	55	352	55	0	0	0	0
	point1150	2046	3560	55	44	55	352	55	0	0	0	0
	point1151	2047	3560	55	44	55	352	55	0	0	0	0
	point1152	2048	3560	55	44	55	352	55	0	0	0	0
	point1153	2049	3560	55	44	55	352	55	0	0	0	0
	point1154	2050										
rd355 SB75	point1303	2051	2430	55	30	55	240	55	0	0	0	0
	point1304	2052	2430	55	30	55	240	55	0	0	0	0
	point1305	2053	2430	55	30	55	240	55	0	0	0	0
	point1306	2054	2430	55	30	55	240	55	0	0	0	0
	point1307	2055	2430	55	30	55	240	55	0	0	0	0
	point1308	2056	2430	55	30	55	240	55	0	0	0	0
	point1309	2057	2430	55	30	55	240	55	0	0	0	0
	point1310	2058	2430	55	30	55	240	55	0	0	0	0
	point1311	2059	2430	55	30	55	240	55	0	0	0	0
	point1312	2060	2430	55	30	55	240	55	0	0	0	0
	point1313	2061	2430	55	30	55	240	55	0	0	0	0
	point1314	2062	2430	55	30	55	240	55	0	0	0	0
	point1315	2063	2430	55	30	55	240	55	0	0	0	0

	point1316	2064	2430	55	30	55	240	55	0	0	0	0
	point1317	2065	2430	55	30	55	240	55	0	0	0	0
	point1318	2066	2430	55	30	55	240	55	0	0	0	0
	point1319	2067	2430	55	30	55	240	55	0	0	0	0
	point1320	2068	2430	55	30	55	240	55	0	0	0	0
	point1321	2069	2430	55	30	55	240	55	0	0	0	0
	point1322	2070	2430	55	30	55	240	55	0	0	0	0
	point1323	2071	2430	55	30	55	240	55	0	0	0	0
	point1324	2072	2430	55	30	55	240	55	0	0	0	0
	point1325	2073	2430	55	30	55	240	55	0	0	0	0
	point1326	2074	2430	55	30	55	240	55	0	0	0	0
	point1327	2075	2430	55	30	55	240	55	0	0	0	0
	point1328	2076										
Rd 402SB71 upper	point1717	2077	2821	55	35	55	279	55	0	0	0	0
	point1718	2078	2821	55	35	55	279	55	0	0	0	0
	point1719	2079	2821	55	35	55	279	55	0	0	0	0
	point1720	2080	2821	55	35	55	279	55	0	0	0	0
	point1721	2081	2821	55	35	55	279	55	0	0	0	0
	point1722	2082	2821	55	35	55	279	55	0	0	0	0
	point1723	2083	2821	55	35	55	279	55	0	0	0	0
	point1724	2084	2821	55	35	55	279	55	0	0	0	0
	point1725	2085	2821	55	35	55	279	55	0	0	0	0
	point1726	2086	2821	55	35	55	279	55	0	0	0	0
	point1727	2087	2821	55	35	55	279	55	0	0	0	0
	point1728	2088	2821	55	35	55	279	55	0	0	0	0
	point1729	2089	2821	55	35	55	279	55	0	0	0	0
	point1730	2090	2821	55	35	55	279	55	0	0	0	0
	point1731	2091	2821	55	35	55	279	55	0	0	0	0
	point1732	2092	2821	55	35	55	279	55	0	0	0	0
	point1733	2093	2821	55	35	55	279	55	0	0	0	0
	point1734	2094	2821	55	35	55	279	55	0	0	0	0
	point1735	2095										
Rd491 WB71	point1714	2096	2821	55	35	55	279	55	0	0	0	0
	point1715	2097	2821	55	35	55	279	55	0	0	0	0
	point1716	2098										
Rd300 NB71 CD	point822	2099	2190	55	19	55	152	55	0	0	0	0

	point823	2100	2190	55	19	55	152	55	0	0	0	0
	point824	2101	2190	55	19	55	152	55	0	0	0	0
	point825	2102	2190	55	19	55	152	55	0	0	0	0
	point826	2103	2190	55	19	55	152	55	0	0	0	0
	point827	2104	2190	55	19	55	152	55	0	0	0	0
	point828	2105	2190	55	19	55	152	55	0	0	0	0
	point829	2106	2190	55	19	55	152	55	0	0	0	0
	point830	2107	2190	55	19	55	152	55	0	0	0	0
	point831	2108	2190	55	19	55	152	55	0	0	0	0
	point832	2109	2190	55	19	55	152	55	0	0	0	0
	point833	2110	2190	55	19	55	152	55	0	0	0	0
	point834	2111	2190	55	19	55	152	55	0	0	0	0
	point835	2112	2190	55	19	55	152	55	0	0	0	0
	point836	2113	2190	55	19	55	152	55	0	0	0	0
	point837	2114	2190	55	19	55	152	55	0	0	0	0
	point838	2115	2190	55	19	55	152	55	0	0	0	0
	point839	2116	2190	55	19	55	152	55	0	0	0	0
	point840	2117										
Rd301 NB75	point841	2118	4361	55	38	55	303	55	0	0	0	0
	point842	2119	4361	55	38	55	303	55	0	0	0	0
	point843	2120	4361	55	38	55	303	55	0	0	0	0
	point844	2121										
Rd393 NB from CD	point848	2122	660	35	20	35	30	35	0	0	0	0
	point849	2123	660	35	20	35	30	35	0	0	0	0
	point850	2124	660	35	20	35	30	35	0	0	0	0
	point851	2125	660	35	20	35	30	35	0	0	0	0
	point852	2126	660	35	20	35	30	35	0	0	0	0
	point853	2127	660	35	20	35	30	35	0	0	0	0
	point854	2128										
Rd304 NB from CD	point855	2129	660	35	20	35	30	35	0	0	0	0
	point856	2130	660	35	20	35	30	35	0	0	0	0
	point857	2131										
rd315 NB off fromCD	point949	2132	400	35	12	35	18	35	0	0	0	0
	point950	2133	400	35	12	35	18	35	0	0	0	0
	point951	2134	400	35	12	35	18	35	0	0	0	0
	point952	2135	400	35	12	35	18	35	0	0	0	0

	point953	2136	400	35	12	35	18	35	0	0	0	0
	point954	2137	400	35	12	35	18	35	0	0	0	0
	point955	2138	400	35	12	35	18	35	0	0	0	0
	point956	2139	400	35	12	35	18	35	0	0	0	0
	point957	2140	400	35	12	35	18	35	0	0	0	0
	point958	2141	400	35	12	35	18	35	0	0	0	0
	point959	2142	400	35	12	35	18	35	0	0	0	0
	point960	2143										
Rd287 NB42/127 to 2nd	point795	2144	0	0	0	0	0	0	0	0	0	0
	point796	2145	0	0	0	0	0	0	0	0	0	0
	point797	2146	372	35	11	35	17	35	0	0	0	0
	point798	2147	372	35	11	35	17	35	0	0	0	0
	point802	2148	0	0	0	0	0	0	0	0	0	0
	point803	2149										
Rd290 Smith SB	point804	2150	1023	35	31	35	46	35	0	0	0	0
	point805	2151	1023	35	31	35	46	35	0	0	0	0
	point806	2152	1023	35	31	35	46	35	0	0	0	0
	point808	2153	0	0	0	0	0	0	0	0	0	0
	point809	2154	0	0	0	0	0	0	0	0	0	0
	point810	2155										
Rd58 Rose EB	point24	2156	0	0	0	0	0	0	0	0	0	0
	point25	2157	0	0	0	0	0	0	0	0	0	0
	point26	2158	0	0	0	0	0	0	0	0	0	0
	point27	2159	0	0	0	0	0	0	0	0	0	0
	point29	2160	0	0	0	0	0	0	0	0	0	0
	point31	2161	0	0	0	0	0	0	0	0	0	0
	point32	2162	0	0	0	0	0	0	0	0	0	0
	point33	2163	0	0	0	0	0	0	0	0	0	0
	point34	2164	0	0	0	0	0	0	0	0	0	0
	point35	2165	0	0	0	0	0	0	0	0	0	0
	point36	2166	0	0	0	0	0	0	0	0	0	0
	point37	0										
Rd61 Rose WB	point38	2168	0	0	0	0	0	0	0	0	0	0
	point39	2169	0	0	0	0	0	0	0	0	0	0
	point40	2170	0	0	0	0	0	0	0	0	0	0
	point41	2171	0	0	0	0	0	0	0	0	0	0

	point42	2172	0	0	0	0	0	0	0	0	0	0
	point43	2173	0	0	0	0	0	0	0	0	0	0
	point44	2174	0	0	0	0	0	0	0	0	0	0
	point45	2175	0	0	0	0	0	0	0	0	0	0
	point46	2176	0	0	0	0	0	0	0	0	0	0
	point47	2177	0	0	0	0	0	0	0	0	0	0
	point49	2178	0	0	0	0	0	0	0	0	0	0
	point50	2179	0	0	0	0	0	0	0	0	0	0
	point51	2180	0	0	0	0	0	0	0	0	0	0
	point53	2181	0	0	0	0	0	0	0	0	0	0
	point54	2182	0	0	0	0	0	0	0	0	0	0
	point55	2183										
Rd305 NBfrCD	point858	2196	260	35	8	35	12	35	0	0	0	0
	point859	2197	260	35	8	35	12	35	0	0	0	0
	point860	2198	260	35	8	35	12	35	0	0	0	0
	point861	2199	260	35	8	35	12	35	0	0	0	0
	point862	2200	260	35	8	35	12	35	0	0	0	0
	point863	2201	260	35	8	35	12	35	0	0	0	0
	point864	2202	260	35	8	35	12	35	0	0	0	0
	point865	2203	260	35	8	35	12	35	0	0	0	0
	point866	2204										
Rd69 EB71	point56	2205	4618	55	40	55	321	55	0	0	0	0
	point57	2206	4618	55	40	55	321	55	0	0	0	0
	point58	2207										
Rd 55 2nd to SB75	point11	2208	1841	25	55	25	83	25	0	0	0	0
	point12	2209	1841	25	55	25	83	25	0	0	0	0
	point13	2210	1841	25	55	25	83	25	0	0	0	0
	point14	2211	1841	25	55	25	83	25	0	0	0	0
	point16	2212	1841	25	55	25	83	25	0	0	0	0
	point17	2213	1841	25	55	25	83	25	0	0	0	0
	point19	2214	1841	25	55	25	83	25	0	0	0	0
	point20	2215	1841	25	55	25	83	25	0	0	0	0
	point21	2216	1841	25	55	25	83	25	0	0	0	0
	point22	2217	1841	25	55	25	83	25	0	0	0	0
	point23	2218										
Rd80 WB71	point96	2219	5943	55	52	55	413	55	0	0	0	0

	point97	2220	5943	55	52	55	413	55	0	0	0	0
	point98	2221	5943	55	52	55	413	55	0	0	0	0
	point1770	2222	0	0	0	0	0	0	0	0	0	0
	point1711	2223	0	0	0	0	0	0	0	0	0	0
	point1712	2224	0	0	0	0	0	0	0	0	0	0
	point1713	2225										
Rd430 WB71 ramp to SB CD	point1771	2226	298	35	9	35	13	35	0	0	0	0
	point1772	2227	298	35	9	35	13	35	0	0	0	0
	point1773	2228	298	35	9	35	13	35	0	0	0	0
	point1774	2229	298	35	9	35	13	35	0	0	0	0
	point1775	2230	298	35	9	35	13	35	0	0	0	0
	point1776	2231	298	35	9	35	13	35	0	0	0	0
	point1777	2232	298	35	9	35	13	35	0	0	0	0
	point1778	2233	298	35	9	35	13	35	0	0	0	0
	point1779	2234	298	35	9	35	13	35	0	0	0	0
	point1780	2235	298	35	9	35	13	35	0	0	0	0
	point1781	2236	298	35	9	35	13	35	0	0	0	0
	point1782	2237										
Rd399 w3rd to SB CD	point1688	2238	1717	35	21	35	32	35	0	0	0	0
	point1689	2239	1717	35	21	35	32	35	0	0	0	0
	point1690	2240	1717	35	21	35	32	35	0	0	0	0
	point1691	2241	1717	35	21	35	32	35	0	0	0	0
	point1692	2242	1717	35	21	35	32	35	0	0	0	0
	point1693	2243	1717	35	21	35	32	35	0	0	0	0
	point1694	2244	1717	35	21	35	32	35	0	0	0	0
	point1695	2245	1717	35	21	35	32	35	0	0	0	0
	point1696	2246	1717	35	21	35	32	35	0	0	0	0
	point1697	2247	1717	35	21	35	32	35	0	0	0	0
	point1698	2248	1717	35	21	35	32	35	0	0	0	0
	point1699	2249	1717	35	21	35	32	35	0	0	0	0
	point1700	2250	1717	35	21	35	32	35	0	0	0	0
	point1701	2251	1717	35	21	35	32	35	0	0	0	0
	point1702	2252	1717	35	21	35	32	35	0	0	0	0
	point1703	2253	1717	35	21	35	32	35	0	0	0	0
	point1704	2254	1717	35	21	35	32	35	0	0	0	0
	point1705	2255	1717	35	21	35	32	35	0	0	0	0

	point1706	2256	1717	35	21	35	32	35	0	0	0	0
	point1707	2257	1717	35	21	35	32	35	0	0	0	0
	point1708	2258	1717	35	21	35	32	35	0	0	0	0
	point1709	2259	1717	35	21	35	32	35	0	0	0	0
	point1448	2260	4520	35	56	35	84	35	0	0	0	0
	point1449	2261	4520	35	56	35	84	35	0	0	0	0
	point1450	2262	4520	35	56	35	84	35	0	0	0	0
	point1787	2263	4520	35	56	35	84	35	0	0	0	0
	point1788	2264										
Rd376 SB off to 5th	point1464	2281	255	25	2	25	3	25	0	0	0	0
	point1465	2282	167	35	5	35	8	35	0	0	0	0
	point1466	2283	167	35	5	35	8	35	0	0	0	0
	point1467	2284	167	35	5	35	8	35	0	0	0	0
	point1468	2285	167	35	5	35	8	35	0	0	0	0
	point1469	2286	167	35	5	35	8	35	0	0	0	0
	point1470	2287	167	35	5	35	8	35	0	0	0	0
	point1471	2288	167	35	5	35	8	35	0	0	0	0
	point1472	2289	167	35	5	35	8	35	0	0	0	0
	point1473	2290	167	35	5	35	8	35	0	0	0	0
	point1474	2291	167	35	5	35	8	35	0	0	0	0
	point1475	2292	167	35	5	35	8	35	0	0	0	0
	point1476	2293	167	35	5	35	8	35	0	0	0	0
	point1477	2294	167	35	5	35	8	35	0	0	0	0
	point1478	2295	167	35	5	35	8	35	0	0	0	0
	point1479	2296	255	25	2	25	3	25	0	0	0	0
	point1559	2299	255	25	2	25	3	25	0	0	0	0
	point1560	2300	529	25	4	25	6	25	0	0	0	0
	point103	2301	529	25	4	25	6	25	0	0	0	0
	point104	2302	823	25	7	25	10	25	0	0	0	0
	point106	2303	823	25	7	25	10	25	0	0	0	0
	point107	2304										
Rd312 NB to Eb5th	point913	2305	260	35	8	35	12	35	0	0	0	0
	point914	2306	260	35	8	35	12	35	0	0	0	0
	point915	2307	260	35	8	35	12	35	0	0	0	0
	point916	2308	260	35	8	35	12	35	0	0	0	0
	point917	2309	260	35	8	35	12	35	0	0	0	0

	point918	2310	260	35	8	35	12	35	0	0	0	0
	point919	2311	260	35	8	35	12	35	0	0	0	0
	point920	2312	260	35	8	35	12	35	0	0	0	0
	point921	2313	0	0	0	0	0	0	0	0	0	0
	point923	2314	0	0	0	0	0	0	0	0	0	0
	point924	2315	260	35	8	35	12	35	0	0	0	0
	point925	2316	260	35	8	35	12	35	0	0	0	0
	point926	2317	260	35	8	35	12	35	0	0	0	0
	point927	2318	260	35	8	35	12	35	0	0	0	0
	point928	2319	260	35	8	35	12	35	0	0	0	0
	point929	2320	260	35	8	35	12	35	0	0	0	0
	point930	2321	260	35	8	35	12	35	0	0	0	0
	point931	2322										
Rd3254th to NB	point2021	2323	1404	35	42	35	63	35	0	0	0	0
	point2022	2324	1404	35	42	35	63	35	0	0	0	0
	point2023	2325	1404	35	42	35	63	35	0	0	0	0
	point1043	2326	1404	35	42	35	63	35	0	0	0	0
	point1044	2327	1404	35	42	35	63	35	0	0	0	0
	point1045	2328	1404	35	42	35	63	35	0	0	0	0
	point1046	2329	1404	35	42	35	63	35	0	0	0	0
	point1047	2330	1404	35	42	35	63	35	0	0	0	0
	point1048	2331	1404	35	42	35	63	35	0	0	0	0
	point1049	2332	1404	35	42	35	63	35	0	0	0	0
	point1050	2333	1404	35	42	35	63	35	0	0	0	0
	point1051	2334	1404	35	42	35	63	35	0	0	0	0
	point1052	2335	1404	35	42	35	63	35	0	0	0	0
	point1053	2336	1404	35	42	35	63	35	0	0	0	0
	point1054	2337	1404	35	42	35	63	35	0	0	0	0
	point1055	2338	1404	35	42	35	63	35	0	0	0	0
	point1056	2339	1404	35	42	35	63	35	0	0	0	0
	point1057	2340	1404	35	42	35	63	35	0	0	0	0
	point1058	2341	1404	35	42	35	63	35	0	0	0	0
	point1059	2342	1404	35	42	35	63	35	0	0	0	0
	point1060	2343	1404	35	42	35	63	35	0	0	0	0
	point1061	2344										
Rd 392 w8th NB	point1642	2346	784	25	6	25	10	25	0	0	0	0

	point1643	2347	784	25	6	25	10	25	0	0	0	0
	point1644	2348	784	25	6	25	10	25	0	0	0	0
	point1645	2349	784	25	6	25	10	25	0	0	0	0
	point1646	2350	784	25	6	25	10	25	0	0	0	0
	point1647	2351	784	25	6	25	10	25	0	0	0	0
	point123	2352	1581	35	20	35	29	35	0	0	0	0
	point124	2353	1581	35	20	35	29	35	0	0	0	0
	point125	0 9	1581	35	20	35	29	35	0	0	0	0
	point126	2355										
Rd306 NB CD	point867	2374	1469	35	44	35	66	35	0	0	0	0
	point868	2375	1469	35	44	35	66	35	0	0	0	0
	point869	2376	1469	35	44	35	66	35	0	0	0	0
	point870	2377	1469	35	44	35	66	35	0	0	0	0
	point871	2378	1469	35	44	35	66	35	0	0	0	0
	point872	2379										
Roadway357	point873	2385	1209	35	36	35	55	35	0	0	0	0
	point875	2380	1209	35	36	35	55	35	0	0	0	0
	point876	2381	1209	35	36	35	55	35	0	0	0	0
	point877	2382	1209	35	36	35	55	35	0	0	0	0
	point878	2383	1209	35	36	35	55	35	0	0	0	0
	point879	2384										
Rd398 Ramp w3rd-SB CD	point1672	2389	1407	35	17	35	26	35	0	0	0	0
	point1673	2390	1407	35	17	35	26	35	0	0	0	0
	point1674	2391	1407	35	17	35	26	35	0	0	0	0
	point1675	2392	1407	35	17	35	26	35	0	0	0	0
	point1676	2393	1407	35	17	35	26	35	0	0	0	0
	point1677	2394	1407	35	17	35	26	35	0	0	0	0
	point1678	2395	1407	35	17	35	26	35	0	0	0	0
	point1679	2396	1407	35	17	35	26	35	0	0	0	0
	point1680	2397	1407	35	17	35	26	35	0	0	0	0
	point1681	2398	1407	35	17	35	26	35	0	0	0	0
	point1682	2399	1407	35	17	35	26	35	0	0	0	0
	point1683	2400	1407	35	17	35	26	35	0	0	0	0
	point1684	2401	1407	35	17	35	26	35	0	0	0	0
	point1685	2402	1407	35	17	35	26	35	0	0	0	0
	point1686	2403	1407	35	17	35	26	35	0	0	0	0

	point1687	2404										
Rd 329 Ramp wb71-nb	point1073	2405	0	0	0	0	0	0	0	0	0	0
	point1074	2406	0	0	0	0	0	0	0	0	0	0
	point1075	2407	0	0	0	0	0	0	0	0	0	0
	point1076	2408	0	0	0	0	0	0	0	0	0	0
	point1077	2409	0	0	0	0	0	0	0	0	0	0
	point1078	2410	0	0	0	0	0	0	0	0	0	0
	point1079	2411	0	0	0	0	0	0	0	0	0	0
	point1080	2412	0	0	0	0	0	0	0	0	0	0
	point1081	2413	0	0	0	0	0	0	0	0	0	0
	point1082	2414	0	0	0	0	0	0	0	0	0	0
	point1083	2415	0	0	0	0	0	0	0	0	0	0
	point1084	2416	0	0	0	0	0	0	0	0	0	0
	point1085	2417	0	0	0	0	0	0	0	0	0	0
	point1086	2418	0	0	0	0	0	0	0	0	0	0
	point1087	2419	0	0	0	0	0	0	0	0	0	0
	point1088	2420	0	0	0	0	0	0	0	0	0	0
	point1089	2421	0	0	0	0	0	0	0	0	0	0
	point1090	2422										
Rd 328 BN Ramp 71	point1069	2423	0	0	0	0	0	0	0	0	0	0
	point1070	2424	0	0	0	0	0	0	0	0	0	0
	point1071	2425	0	0	0	0	0	0	0	0	0	0
	point1072	2426										
Mc Farland Street	point2021	2427	0	0	0	0	0	0	0	0	0	0
	point2022	2428	0	0	0	0	0	0	0	0	0	0
	point2023	2429										
Central Ave	point2434	2434	0	0	0	0	0	0	0	0	0	0
	point2430	2430	0	0	0	0	0	0	0	0	0	0
	point2431	2431	0	0	0	0	0	0	0	0	0	0
	point2432	2432	0	0	0	0	0	0	0	0	0	0
	point2433	2433										

APPENDIX C

Noise Barrier Design Tables

HAM-75-1.08 (89068) NSA2 Revised Noise Barrier NSA2 at a Height of 10 feet					
Noise barrier station	X	Y	Z (bottom)	Barrier Height	Z (top)
0+0	5,265,887.5	4,296,206.0	517.0	10.0	527.0
0+40	5,265,866.5	4,296,240.0	516.5	10.0	526.5
0+80	5,265,846.0	4,296,274.5	515.7	10.0	525.7
1+80	5,265,794.0	4,296,359.5	514.0	10.0	524.0
2+80	5,265,742.0	4,296,445.0	512.5	10.0	522.5
3+80	5,265,690.0	4,296,530.5	511.0	10.0	521.0
4+80	5,265,638.0	4,296,615.5	510.0	10.0	520.0
5+60	5,265,596.5	4,296,684.0	508.5	10.0	518.5
6+60	5,265,557.5	4,296,776.0	509.7	10.0	519.7
7+60	5,265,518.5	4,296,868.0	511.0	10.0	521.0
8+60	5,265,483.0	4,296,961.5	513.0	10.0	523.0
9+60	5,265,447.5	4,297,055.0	515.0	10.0	525.0
9+80	5,265,440.0	4,297,074.0	515.7	10.0	525.7
10+20	5,265,432.0	4,297,113.0	516.5	10.0	526.5
10+60	5,265,424.0	4,297,152.5	517.0	10.0	527.0
11+00	5,265,416.0	4,297,191.5	517.5	10.0	527.5
11+15	5,265,413.0	4,297,206.0	518.0	10.0	528.0

HAM-75-1.08 (113361) NSA3 Revised Noise Barrier NSA3 at a Height of 10 feet					
Noise barrier station	X	Y	Z (bottom)	Barrier Height	Z (top)
0+00	5,266,452.5	4,295,216.0	524.0	10.0	534.0
0+40	5,266,436.5	4,295,253.0	524.5	10.0	534.5
0+80	5,266,421.0	4,295,290.0	524.8	10.0	534.8
1+80	5,266,380.5	4,295,381.5	525.7	10.0	535.7
2+80	5,266,334.0	4,295,470.0	525.9	10.0	535.9
3+80	5,266,283.0	4,295,556.0	525.7	10.0	535.7
4+80	5,266,232.0	4,295,642.0	525.9	10.0	535.9
5+80	5,266,180.5	4,295,728.0	525.5	10.0	535.5
6+60	5,266,139.0	4,295,796.5	525.5	10.0	535.5
7+00	5,266,118.0	4,295,830.5	524.5	10.0	534.5
7+40	5,266,097.0	4,295,864.5	524.0	10.0	534.0
7+67	5,266,083.5	4,295,887.0	523.5	10.0	533.5

HAM-75-1.08 (89068) NSA4 Revised Noise Barrier NSA4 at a Height of 10 feet					
Noise barrier station	X	Y	Z (bottom)	Barrier Height	Z (top)
0+00	5,266,607.0	4,293,880.0	503.0	10.0	513.0
1+80	5,266,609.0	4,293,930.0	502.8	10.0	512.8
2+80	5,266,612.5	4,294,030.0	502.5	10.0	512.5
3+80	5,266,614.0	4,294,130.0	502.3	10.0	512.3
4+80	5,266,615.0	4,294,229.5	502.0	10.0	512.0
5+80	5,266,600.5	4,294,328.5	501.5	10.0	511.5
6+40	5,266,592.0	4,294,389.0	501.5	10.0	511.5
7+40	5,266,589.0	4,294,489.0	504.0	10.0	514.0
8+40	5,266,586.0	4,294,589.0	506.6	10.0	516.6
9+40	5,266,586.0	4,294,589.0	506.6	10.0	516.6
10+20	5,266,579.5	4,294,688.5	510.0	10.0	520.0
11+00	5,266,574.0	4,294,768.5	512.0	10.0	522.0
11+80	5,266,562.5	4,294,847.5	516.0	10.0	526.0
12+29	5,266,548.5	4,294,926.5	517.5	10.0	527.5

HAM-75-1.08 (89068) NSA5 Revised Noise Barrier NSA5 at a Height of 10 feet					
Noise barrier station	X	Y	Z (bottom)	Barrier Height	Z (top)
0+00	5,266,805.0	4,292,539.0	502.5	10.0	512.5
0+40	5,266,788.5	4,292,575.5	502.0	10.0	512.0
0+80	5,266,774.5	4,292,613.0	501.5	10.0	511.5
2+00	5,266,738.5	4,292,727.5	500.5	10.0	510.5
3+20	5,266,709.5	4,292,844.0	499.5	10.0	509.5
4+36	5,266,682.5	4,292,957.0	499.0	10.0	509.0
5+56	5,266,655.5	4,293,074.0	499.50	10.0	509.0
6+76	5,266,640.5	4,293,193.0	499.50	10.0	509.0
7+16	5,266,635.5	4,293,232.5	499.50	10.0	509.5
7+96	5,266,632.0	4,293,312.5	500.00	10.0	509.5
8+76	5,266,630.5	4,293,392.5	500.50	10.0	509.7
9+35	5,266,631.0	4,293,452.0	501.00	10.0	510.0

HAM-75-1.08 (89068) NSA6 Revised Noise Barrier NSA6 at a Height of 10 feet					
Noise barrier station	X	Y	Z (bottom)	Barrier Height	Z (top)
0+00	5,267,974.5	4,291,652.0	521.0	10.0	531.0
0+40	5,267,938.5	4,291,669.0	519.5	10.0	529.5
0+80	5,267,902.5	4,291,686.5	518.0	10.0	528.0
1+60	5,267,830.5	4,291,721.5	514.5	10.0	524.5
2+60	5,267,742.0	4,291,767.5	513.0	10.0	523.0
3+60	5,267,653.0	4,291,814.0	511.0	10.0	521.0
4+40	5,267,582.0	4,291,851.0	511.0	10.0	521.0
5+40	5,267,493.5	4,291,897.5	512.0	10.0	522.0
6+40	5,267,405.0	4,291,943.5	513.5	10.0	523.0

APPENDIX D
Names and Addresses of Benefited Receptors For Public Involvement

Noise Barrier NSA 2 Names and Addresses for Public Involvement				
TNM Number	Dwelling Units	Name	Site Address	Mail Address (if different than site address)
NSA2-2	2	Yossef Haver & Babiacki Lital	1120 Garden Street Cincinnati OH 45214	2712 Erie Avenue Cincinnati, OH 45208
NSA2-4	2	Clarence Harris & Joseph Tipton Tr.	1112 Garden Street Cincinnati, OH 45214	1122 Garden Street Cincinnati, OH 45214
NSA2-5	1	Lashonda Knighten	1132 Dayton Street Cincinnati, OH 45214	1128 Dayton Street Cincinnati, OH 45214
NSA2-6	1	Lashonda Knighten	1128 Dayton Street Cincinnati, OH 45214	
NSA2-6	1	Rosemary Byes	1126 Dayton Street Cincinnati, OH 45214	1308 Ryland Ave Cincinnati, OH 45237
NSA2-7	1	Perline Haywood	1124 Dayton Street Cincinnati, OH 45214	
NSA2-7	1	Angalet Fallen	1122 Dayton Street Cincinnati, OH 45214	
NSA2-8	1	Jonathan Killings	1120 Dayton Street Cincinnati, OH 45214	
NSA2-8	1	Thelma Lee Thomas Tr.	1118 Dayton Street Cincinnati, OH 45214	
NSA2-8	1	David Daniels	1116 Dayton Street Cincinnati, OH 45214	2366 Vera Avenue Cincinnati, OH 45237
NSA2-8	1	Rose Harris	1114 Dayton Street Cincinnati, OH 45214	
NSA2-8	1	L&M Investments	1112 Dayton Street Cincinnati, OH 45214	921 Findlay Street Cincinnati, OH 45214
NSA2-11	1	Terry & Mark Allen	1127 Dayton Street Cincinnati, OH 45214	1114 Sunnyslope Cincinnati, OH 45214
NSA2-12	1	Kyairah Jones	1123 Dayton Street Cincinnati, OH 45214	
NSA2-12	1	1121 Dayton Street LLC	1121 Dayton Street Cincinnati, OH 45214	3040 Westbourne Dr, Cincinnati, OH 45248
NSA2-12	1	Property Values Solutions LLC	1119 Dayton Street Cincinnati, OH 45214	7416 Montgomery Road Cincinnati OH 45236
NSA2-13	1	Joseph Harris	1117 Dayton Street Cincinnati, OH 45214	POB 6727 Cincinnati, OH 45206
NSA2-13	1	Ralph Moon	1115 Dayton Street Cincinnati, OH 45214	3001 Hackberry Road Irving, TX 75063
NSA2-13	1	Rose Harris	1113 Dayton Street Cincinnati, OH 45214	Corelogic 3001 Hackberry Road Irving, TX 75063
NSA2-14	1	1111 Dayton Street LLC	1111 Dayton Street Cincinnati, OH 45214	Corelogic 3001 Hackberry Road Irving, TX 75063
NSA2-14	1	Willie Dotson	1109 Dayton Street Cincinnati, OH 45214	469 W. McMillen Ave Cincinnati, OH 45214
NSA2-15	1	John & Edna Black	1108 ½ York Street Cincinnati, OH 45214	5002 Laconia Cincinnati, OH 45237

Noise Barrier NSA 2 Names and Addresses for Public Involvement				
NSA2-15	1	Marv Harrington	1911 Colerain Avenue	Lereta LLC 901 Corporate Center Drive Pamona, CA 91768
NSA2-16	1	Martin Media	1116 York Street Cincinnati, OH 45214	TLC Properties Inc. 1260 Edison Drive Cincinnati, OH 45216
NSA2-17	1	Michael McCall	1114 York Street Cincinnati, OH 45214	9890 Zig Zag Road Cincinnati, OH 45242
NSA2-17	1			
NSA2-22	2	Cincy Plus Inc.	1105 Dayton Street Cincinnati, OH 45214	2806 Colerain Ave Cincinnati, OH 45225
NSA2-23	2	Kathy R Jones	1907 Colerain Ave Cincinnati OH 45214	
NSA2-23	1	Dara Development LLC	1905 Colerain Ave Cincinnati OH 45214	1835 Baymiller St. Cincinnati, OH 45214
NSA2-23	1	Abigail Apartments Limited Partnership	1903 Colerain Ave Cincinnati OH 45214	21 West 13th St Cincinnati OH 45202
NSA2-24	3	York Street Property Group LLC	1110 York Street Cincinnati, OH 45214	6067 Hedge Ave Cincinnati, OH 45213
NSA2-24	3	Ronnie Black	1108 York Street Cincinnati, OH 45214	5002 Laconia Ave Cincinnati, OH 45237
NSA2-25	2	Abigail Apartments Limited Partnership	1901-1 Colerain Ave Cincinnati OH 45214	21 West 13th St Cincinnati OH 45202
NSA2-25	2	John & Edna Black	1108 York Street Cincinnati, OH 45214	5002 Laconia Ave Cincinnati, OH 45237
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Noise Barrier NSA 3 Names and Addresses for Public Involvement				
TNM Number	Dwelling Units	Name	Site Address	Mail Address (if different than site address)
NSA3-2	1	Godfrey S Mukasa	1711 Freeman Ave Cincinnati, OH 41214	
NSA3-2	2	Richard & Carolyn Folden	1709 Freeman Ave Cincinnati, OH 41214	
NSA3-2	1	Abdelhadi Benghanem	1707 Freeman Ave Cincinnati, OH 41214	9105 Wisteria Ct. Florence, KY 41042
NSA3-3	1	Madeline Winters	1703 Freeman Ave Cincinnati, OH 41214	
NSA3-3	1	Madeline Winters	1701 Freeman Ave Cincinnati, OH 41214	1703 Freeman Ave Cincinnati, OH 41214
NSA3-4	1	Resident	932 Malden Walk Cincinnati, OH 41214	Property owner: Cincinnati Metropolitan Housing Authority 897 Poplar Street Cincinnati, OH 41214
	1	Resident	934 Malden Walk Cincinnati, OH 41214	
	1	Resident	936 Malden Walk Cincinnati, OH 41214	
	1	Resident	936 Malden Walk Cincinnati, OH 41214	
	1	Resident	940 Malden Walk Cincinnati, OH 41214	
	1	Resident	941 Malden Walk Cincinnati, OH 41214	
NSA3-6	2	Emma Sue Long	1720 Freeman Ave Cincinnati, OH 41214	
NSA3-6	2	Richard & Katherine Cole	1718 Freeman Ave Cincinnati, OH 41214	
NSA3-8	1	Resident	1645 Lockhurst Ln. Cincinnati, OH 41214	Property owner: Cincinnati Metropolitan Housing Authority 897 Poplar Street Cincinnati, OH 41214
	1	Resident	1647 Lockhurst Ln. Cincinnati, OH 41214	
	1	Resident	1649 Lockhurst Ln. Cincinnati, OH 41214	
	1	Resident	1651 Lockhurst Ln. Cincinnati, OH 41214	
	1	Resident	1653 Lockhurst Ln. Cincinnati, OH 41214	
	1	Resident	1655 Lockhurst Ln. Cincinnati, OH 41214	
NSA3-10	65	Sands Senior Apartments	940 Freeman Ave Cincinnati, OH 41214	333 North Pennsylvania St Indianapolis, IN 46204
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Noise Barrier NSA 4 Names and Addresses for Public Involvement				
TNM Number	Dwelling Units	Name	Site Address	Mail Address (if different than site address)
NSA4-4	8	Residents	Building 1540	Property Owner: Park Town Co-op Homes No.1 858 Wade Walk Cincinnati, OH 45214
NSA4-5	8	Residents	Building 1520	
NSA4-6	4	Residents	Building 1508	
NSA4-7	4	Residents	Building 1502	
NSA4-8	4	Residents	Building 1490	
NSA4-9	4	Residents	Building 1482	
NSA4-12	6	Residents	Building 880	
NSA4-15	8	Residents	Building 1528	
NSA4-16	4	Residents	Building 1516	
NSA4-17	4	Residents	Building 1512	
NSA4-22	8	Residents	Building 1532	
	62			

Noise Barrier NSA 5 Names and Addresses for Public Involvement				
TNM Number	Dwelling Units	Name	Site Address	Mail Address (if different than site address)
NSA5-1	12	Residents	Building 885	Property Owner: BH New Arts LP 8902 North Meridan Indianapolis, IN 46260
NSA5-2	12	Residents	Building 877	
NSA5-3	12	Residents	Building 862	
NSA5-4	12	Residents	Building 870	
NSA5-5	12	Residents	Building 864	
NSA5-6	12	Residents	Building 865	
	72			

Noise Barrier NSA 6 Names and Addresses for Public Involvement				
TNM Number	Dwelling Units	Name	Site Address	Mail Address (if different than site address)
NSA1-1	6 (Equivalent)	Queens Gate Park	707 Court Street Cincinnati, OH 45203	City of Cincinnati 801 Plum Street Cincinnati, OH 45202-5704
	6			