500 West Big Beaver
Troy, MI 48084
troymi.gov

FROM THE OFFICE OF THE CITY MANAGER

February 22, 2021

To: Mayor and City Council Members

From: Mark F. Miller, City Manager
Robert J. Bruner, Assistant City Manager
Sarah Ames, Assistant to the City Manager

Subject: City Council Agenda Questions & Answers – 2.22.21

The following are communications that City Administration would like Council to be made aware of. In order to ensure that all questions are received and answered, all City Council Questions should be sent to the CITY MANAGER DISTRIBUTION GROUP e-mail address.

From: Ethan Baker
Sent: Saturday, February 20, 2021 9:53 AM
To: City Manager Distribution Group <CityManager@troymi.gov>
Subject: I-5

When can we expect an update on the Master Plan update process and community engagement from Carlisle Wortman?

Will Ben be there at meeting? Can he provide an update as to what they've done so far?

Answer: Mark Miller, City Manager

Yes, both Brent and Ben will give a verbal update regarding the Master Plan.

From: Rebecca A. Chamberlain-Creangă
Sent: Sunday, February 21, 2021 10:52 PM
To: City Manager Distribution Group <CityManager@troymi.gov>
Subject: Council agenda questions

Hello, here are my questions for Monday's Council meeting:

I-05 SPR8 BEST VALUE AWARD - COMMUNITY PLANNING AND CONSULTING SERVICES

- Why is Carlisle Wortman's work on amending the Master Plan (recalling our approval at the Nov. 23 Council meeting) a separate contract from this overall three-year community planning and consulting services contract (which references the Master Plan work)?

Answers: Brent Savidant, Community Development Director

City Council approved a Master Plan proposal and scope of services on November 23, 2020. A contract for the work was not approved. That work will be performed under the Planning and Consulting Services contract. The decision was made to use Carlisle Wortman for the Master Plan project for many reasons: (1) We have a long-standing contractual relationship with the firm; (2) They helped Troy prepare the 2008 Master Plan, the 2016 amendment and the 2011 Zoning Ordinance rewrite; and, (3) They are knowledgeable about Troy and the region.

- How will regular office hours work during Covid? How are office hours working now?

During Covid, the Planning Department works mostly remotely. Staff goes into City Hall when needed to perform tasks that cannot be performed remotely such as scan files or mail notice. The exception is Code Enforcement inspectors, who are required to go into City Hall daily because they generate significant written correspondence that must be mailed.

It should be noted, in 2008 the City hired Zucker Systems to evaluate Troy's development review processes. This was done to identify ways that Troy could remain competitive locally, regionally and globally. The Zucker Report made a number of recommendations involving the implementation of Best Management Practices. These BMP's included electronic plan submittal, paperless Planning Commission agendas, electronic plan review and the use of large monitors for plan review. The Planning Department implemented most of the recommended BMP's. The BMP's that were implemented to help Troy remain competitive also helped the Planning Department to transition to working remotely during Covid.

- How is Carlisle Wortman incorporating future of work insights (e.g., see recent McKinsey Global Institute report, ULI Michigan webinar last week) into its support of municipalities –specifically those undergoing Master Plan updates – and especially municipalities with considerable office space like ours?

Appropriate literature and studies related to the office market will be researched and referenced. The Master Plan is a policy document that guides land use and development. One of the keys to staying competitive during periods of change is flexibility and a market driven approach to zoning. This concept was introduced by the Master Plan in 2008 and incorporated into the comprehensive Zoning Ordinance update in 2011. Many of our Zoning Districts (including the Big Beaver Zoning District) permit the repurposing of office space to residential by right. This means that conversion can occur simply via the building permit process. This helps to ensure predictability and reduce risk. We will study other districts in the City to ensure that there is similar market flexibility moving forward.

- For background knowledge - because I've been asked by a resident - do most municipalities of our size and level of development have a community planning and consulting service partner like Carlisle Wortman?

The use of Planning consultants varies from community to community. Troy has a population of 80,000+ people. Prior to the Great Recession, the Planning Department was comprised of 5 full time employees. Today there are only 2 full time employees dedicated to performing Planning and Zoning functions. Most communities the size of Troy have significantly larger Planning staffs. With such a small department, a Planning consultant is necessary to perform daily functions. The alternative to using consultants is hiring more employees. Keep in mind, applicants pay an Escrow Fee that is used to compensate the Planning consultant for performing development review. This way, developers pay for review services and not the Troy taxpayer.

N-01 COUNCIL REFERRAL FROM COUNCIL MEMBER ELLEN HODOREK - PROCLAMATION REQUESTING ASSISTANCE FROM FEDERAL AND STATE ELECTED OFFICIALS TO ADDRESS TWO ISSUES FROM THE MODERNIZE I-75 PROJECT

I am very support of this proclamation on the agenda. To help us advocate with the elected officials mentioned, I wonder if the City (or MDOT?) has more detailed information on any of the following:

- Where exactly on I-75 in Troy were the trees and brush? The second paragraph just states they were there. And then later in the fifth paragraph it mentions the areas most impacted. Do we need to clarify where with regards to the brush and tree removal in the second paragraph?
- How high were the former trees and brush before cut?
- When were they cut?
- What type of plantings have replaced it? And how long will it take for these new plantings to grow back to the height they once were before being removed?
- When were the impacted neighborhoods abutting I-75 (e.g., Beach Forest and others) built? And does any entity know the I-75 noise decibel levels when they were built? And the state of brush/plantings to offset noise when the neighborhood was built?
- What were the noise decibel readings – before and after the brush was cut with Modernize 75? (I don't presume we know this, but it would be useful to have this information.)
- What is MDOT's noise decibel threshold for building a wall?
- What was MDOT/Modernize 75's community engagement process with Troy neighborhoods, businesses and organizations along I-75? – given that those who wanted walls, did not get them, and those who didn't want walls, got them.
- What criteria did Modernize 75/MDOT use for determining which areas got a wall or not?
- Regarding federal regulations on timing, when did the decibel readings need to have taken place for decisions on walls to be made?

Answer: Bill Huotari, City Engineer

The latest I-75 Segment 2 Landscaping Plans, MDOT Noise Wall Location, and Noise Report are attached below. Final plans are to be submitted on March 10, 2021 for a May 7, 2021 MDOT bid letting. Plantings are anticipated to start in Fall 2021. Additional plantings anticipated to start in Spring of 2022 and Fall 2022. Years 1 & 2 are for planting and years 3-5 are for watering, cultivating, and replacements as necessary. Construction cost are $4.3M.

I know it may not be possible to get all of this information now, which is completely understandable. I ask these questions because the move evidence we all have, the better equipped we are to make a case to protect our Troy neighborhoods when speaking with senior officials.

O-02D CITY OF TROY'S SNOW AND ICE CONTROL PROCEDURE- SERVICE LEVEL REPORT

- Did I read correctly that increasing the service level, if there was a demand, would cost an additional $1,000,000 a year ($700,000 in capital expenditures and $300,000 in personnel costs) – but only be 1 ½ hours faster? If so, it is clear to me that our current system is working well, especially with the number of snow events we normally have in southeastern Michigan (albeit we've had more than usual this year). Well done, DPW! I'm grateful for all you do for Troy to keep the roads clear and safe!

Answer: Kurt Bovensiep, Public Works Director

Correct. The first year's expenditures would be $1,000,000 and approximately $300,000 annually after that for wages. Adding to this, equipment and staff would increase our service level approximately 10% and, based on my calculations and using many outside variables, would increase our efficiency by 1.5 hours on a storm with 6" of accumulation or less.

Thank you and all very best, Rebecca

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION.

PHYSICAL ROAD NUMBER (PR#) & MILEPOST (MP) DATA ARE FROM MICHIGAN GEOGRAPHIC FRAMEWORK VERSION # 17.

MICHIGAN DEPARTMENT OF TRANSPORTATION

ROUTE: I-75

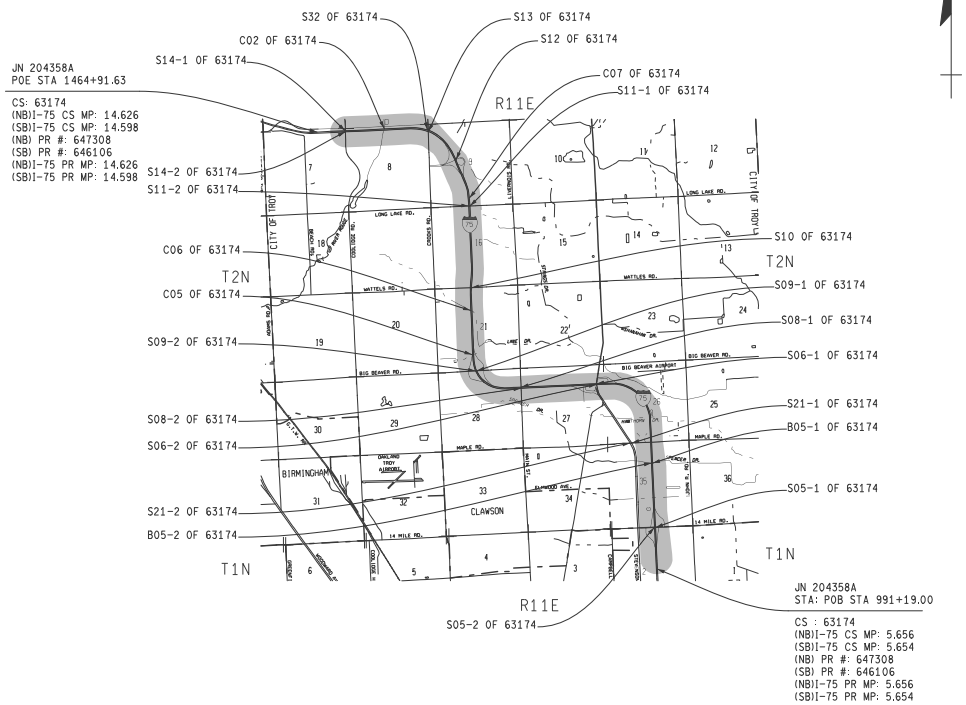
CITIES OF TROY & MADISON HEIGHTS

OAKLAND COUNTY

SECTION	CONTROL SEC	JOB NO.	FED AID PROJ
1	63174	204358A	YES

COUNTY KEY

ROAD	YEAR	TRAFFIC DATA ADT	DHV	COMM	SPEED DATA DESIGN	POSTED	LIMITS
I-75	2016	158500		8%	70	70	S OF 14 MILE RD TO W OF COOLIDGE HWY
	2040	192200		12%	70	70	
14 MILE RD	2016	40000		7%	40	45	UNDER I-75
	2040	74000		7%	40	45(DDI-25)	
MAPLE ROAD	2016	27500		6%	40	45	UNDER I-75
	2040	33000		6%	40	45	
ROCHESTER	2016	58000		5%	40	45	UNDER I-75
	2040	58000		5%	40	45	
LIVERNOIS	2016	13000		4%	45	50	UNDER I-75
	2040	27000		4%	45	50	
BIG BEAVER	2016	51000		3%	45	50	UNDER I-75
	2040	70000		3%	45	50(DDI-25)	
WATTLES RD	2016	15500		3%	40	45	OVER I-75
	2040	15500		3%	40	45	
LONG LAKE	2016	22400		3%	45	50	UNDER I-75
	2040	34000		3%	45	50	
COOLIDGE HWY	2016	4300		2%	40	45	UNDER I-75
	2040	9000		2%	40	45	



N

STATION EQUATION:
SB STA 1138+97.07 BK = STA 1140+17.38 AH
LINE SHORTENS 120.31'

STATION EQUATION:
SB STA 1238+22.92 BK = STA 1237+09.55 AH
LINE LENGTHENS 113.37'

STATION EQUATION:
SB STA 1281+07.72 BK = STA 1281+00.26 AH
LINE LENGTHENS 7.46'

STATION EQUATION:
SB STA 1298+08.39 BK = STA 1298+16.11 AH
LINE SHORTENS 7.72'

STATION EQUATION:
SB STA 1353+79.92 BK = STA 1354+10.11 AH
LINE SHORTENS 30.19'

STATION EQUATION:
SB STA 1405+54.32 BK = STA 1406+39.04 AH
LINE LENGTHENS 84.72'

MICHIGAN DEPARTMENT OF TRANSPORTATION
PAUL C. AJEGBA, P.E. - DIRECTOR

MILES: 8.9
CONTRACT FOR:
LANDSCAPING FOR I-75 MODERNIZATION, SEGMENT 2
CM/GC CONTRACT.

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

ROWE PROFESSIONAL SERVICES COMPANY

MDOT Michigan Department of Transportation

NO SCALE

FILE: 204358 I75 TITLE.DGN

DATE: 02/08/21
DESIGN UNIT: KOTSONIS
TSC: OAKLAND

CS: 63174
JN: 204358A

TITLE SHEET
I-75 MODERNIZATION LANDSCAPE, SEGMENT 2

DRAWING: I-75 TITLE 001
SHEET: SECT 1

PUBLIC UTILITIES

The existing utilities listed below and shown on these plans represent the best information available as obtained on our surveys. This information does not relieve the contractor of the responsibility to be satisfied as to it's accuracy and the location of existing utilities.

Name Of Owner	Type Of Utility
AT&T Attention: Diane Roehm 54 North mill St Box 32 Pontiac, Michigan 48342 Phone: (248)456-0829 Mobile: (248)4941194 Email: g25564@att.com	Communications
Charter Township of Bloomfield Attention: Olivia Budry 4200 Telegraph Rd. PO Box 489 Bloomfield Hills, MI 48303 Email: oolsztyn-budry@bloomfieldtwp.org	Other
Great Lakes Water Authority Attention: Anupam Kumar North Administration Building – CSF 6425 Huber St Detroit, MI 48211 Phone: (313)267-3698 Mobile: (313)402-2707 Email: permits@glwater.org	Water
Consumers Energy Attention: Cheri Payne 4601 Coolidge Hwy Royal Oak, MI 48073 Phone: (248)433-5618 Mobile: (248)497-5771 Email: CHERI.PAYNE@cmsenergy.com	Gas
DTE Electric Attention: Samer Youkhana One Energy Plaza Detroit, MI 48226 Phone: (313)235-0281 Mobile: (586)553-5582 Email: samer.youkhana@dteenergy.com	Electric
Oakland County Water Resources Attention: Dan Butkus One Pub Works Building #95W Waterford Twp, MI 48328 Phone: (248)858-2089 Email: Butkusdf@oakgov.com	County Drain/ Sanitary Sewer
SEMTOC Attention: Ray Klucens 1060 W. Fort St Detroit, MI 48226 Phone: (313)256-8231 Ext. 315 Email: Klucensr@michigan.gov	MITS
Sunoco Logistics L.P. Attention: Debbie Check 7155 Inkster Rd Taylor, MI 48180 Phone: (313)292-9840 Email: dmcheck@sunocologistics.com	Gas
City of Troy Attention: Bill Huotari 500 West Big Beaver Troy, MI 48084 Phone: (248)524-3387 Email: huotariwj@troymi.gov	Water

NOTES APPLYING TO STANDARD PLANS

Where the following items are called for on plans, they are to be constructed according to the standard plan given below opposite each item unless otherwise indicated.

Title	Plan No.
ROAD	
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	R-96-E
WORK ZONE DEVICES	
GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS	WZD-100-A
TEMPORARY TRAFFIC ONTROL DEVICES	WZD-125-E

*** Denotes Special Detail**

SHEET INDEX

FUNDING CATEGORIES

JN 204358 Project Description
Category 0001 = Road Work Fed

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

ROWE PROFESSIONAL SERVICES COMPANY

MDOT Michigan Department of Transportation

NO SCALE

DATE: 02/08/21
DESIGN UNIT: KOTSONIS
FILE: 204358_I75_Proj001.doc
TSC: OAKLAND

CS: 63174
JN: 204358A

PROJECT INFORMATION SHEET
I-75 MODERNIZATION LANDSCAPE, SEGMENT 2

DRAWING: I-75 PROJ 001
SHEET: SECT 1

SURVEY

GENERAL

- ALIGNMENT POINT MONUMENT
- MONUMENT BOX

CONTROL

- CP CONTROL POINT
- BM BENCHMARK
- REFERENCE - GPS
- REFERENCE - NGS
- REFERENCE - USGS

BOUNDARY

- CITY LIMIT - MAP
- CITY LIMIT
- PARCEL-L — PARCEL - LEGAL
- PARCEL-NL — PARCEL - NON-LEGAL
- PLAT-L — PLAT - LEGAL
- PLAT-NL — PLAT - NON-LEGAL
- ROW - FREE ACCESS
- ROW - LIMITED ACCESS
- SEC — SECTION LINE
- SEC 1/4 — SECTION LINE - QUARTER
- SEC 1/8 — SECTION LINE - EIGHTH
- SEC 1/16 — SECTION LINE - SIXTEENTH
- TOWNSHIP LINE (MAP)
- CONCRETE MONUMENT
- CONTIGUOUS PROPERTY SYMBOL
- PC PARCEL CORNER - CAPPED IRON
- PARCEL CORNER - IRON PIN
- PARCEL CORNER - IRON PIPE
- PARCEL CORNER - NO ID
- 123456 PARCEL NUMBER BOX
- PLAT CORNER
- PROPERTY OWNERSHIP ARROW
- PROPERTY OWNERSHIP ARROW - DOUBLE
- ROW ROW MONUMENT
- SECTION CORNER - CENTER
- SECTION CORNER - MEANDER
- SECTION CORNER - QUARTER
- SECTION CORNER - QUARTER-HALF
- SECTION CORNER - SECTION
- SECTION CORNER - SECTION-HALF
- SECTION CORNER - SIXTEENTH
- SECTION CORNER - WITNESS

MONUMENT PRESERVATION

- (PRESERVE) PRESERVE MONUMENT
- (PROTECT) PROTECT MONUMENT

GENERAL LABELING

GENERAL

- LEFT TURN ARROW
- TRAFFIC FLOW ARROW

REMOVAL

- (A) ABANDON
- (B) BULKHEAD
- (C) CLEARING
- (R) REMOVE
- (SALV) SALVAGE
- (S) SAVE

CONSTRUCTION

- (ADJ) ADJUST
- (ADJ-B) ADJUST - STRUC COVER WITH TYPE
- (ADJ-B/O) ADJUST - BY OTHERS

REMOVAL AND CONSTRUCTION

- (REL-1) RELOCATE - WITH CASE NUMBER
- (REL-B/O) RELOCATE - BY OTHERS

CONSTRUCTION LIMITS

- SSL — SSL SLOPE STAKE LINE

BORINGS

- ⊗BH# BORING

STRUCTURES

- BEAM UNDERCLEARANCE
- REFERENCE POINT
- S01 OF 12345 STRUCTURE NO. + CONTROL SEC. LABEL

VEGETATION

- BRUSH LINE
- HEDGE LINE
- TREE LINE - CANOPY OR TRUNK
- TREE LINE - TRUNK
- TRUNK LINE
- SHRUB
- TREE - CONIFER
- TREE - DECIDUOUS
- TREE - STUMP

ENVIRONMENTAL

- 26 EROSION CONTROL - SILT FENCE
- WETLAND - LEGAL
- WETLAND - NON-LEGAL
- CONTAMINATION - MONITORING WELL
- 12 EROSION CONTROL NUMBER
- EROSION CONTROL - RIPRAP
- W.T. 12' WATER TABLE - PLAN NOTE
- WETLAND - SPOT EL
- POTENTIALLY CONTAMINATED SITE

ROADSIDE / SITE

- ANTENNA
- BIG ROCK
- FLAG POLE
- PICNIC STOVE
- PICNIC TABLE
- SATELLITE DISH

NOTE:

EXISTING ITEMS ARE REPRESENTED BY THIN LINE WEIGHTS.
PROPOSED ITEMS ARE REPRESENTED BY HEAVIER LINE WEIGHTS.

RAILROAD

- TRACK
- CROSSING - GATE
- RR CROSSING - SIGNAL BOX
- CROSSING - SIGNAL FLASHING
- CROSSING - SYMBOL

SIGNS

- POST - DOUBLE
- POST - SINGLE
- STRUCTURE - CANTILEVER (EXISTING)
- STRUCTURE - CANTILEVER
- STRUCTURE - TRUSS (EXISTING)
- STRUCTURE - TRUSS
- SS SUSPENDED (EXISTING)

MAINTAINING TRAFFIC

- TYPE III BARRICADE
- CHANNELIZING DEVICE - CONE
- CHANNELIZING DEVICE - DRUM
- LIGHT - HIGH INTENSITY TYPE B
- LIGHT - STEADY BURN TYPE C
- LIGHTED ARROW PANEL - BAR
- LIGHTED ARROW PANEL
- PORTABLE CHANGEABLE MESSAGE SIGN
- TRAFFIC REGULATOR
- TEMPORARY SIGN
- TEMPORARY TRAFFIC SIGNAL
- WORK AREA

BARRIERS

- CABLE BARRIER - NOT TO SCALE
- CABLE BARRIER - TRUE SCALE
- CONCRETE BARRIER - DOUBLE FACE
- CONCRETE BARRIER - SINGLE FACE
- FENCE
- GUARDRAIL - NOT TO SCALE
- GUARDRAIL - TRUE SCALE
- NOISE BARRIER
- FENCE POST
- 123 GUARDRAIL RUN NUMBER
- IMPACT ATTENUATOR
- POST - MAILBOX
- POST - NO ID

SURFACING

REMOVAL

- CONCRETE RUBBLIZING OR HMA CRUSH & SHAPE
- HMA COLDMILLING
- HMA SURFACE REMOVAL AND / OR PAVEMENT REMOVAL

PROPOSED

- AGGREGATE APPROACH
- BRIDGE APPROACH
- HMA APPROACH
- MISCELLANEOUS CONCRETE

SIDEWALK

- SIDEWALK - REMOVAL
- SIDEWALK - CONCRETE RAMP
- SIDEWALK - DETECT. WARNING SURF.
- SIDEWALK - LANDING
- SWR-F SIDEWALK - RAMP LABEL

TYPICAL SECTION

- CONCRETE - PROPOSED
- HMA - PROPOSED

CURB & GUTTER

- CURB & GUTTER REMOVAL

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ROWE PROFESSIONAL SERVICES COMPANY

MDOT Michigan Department of Transportation

NO SCALE

DATE: 02/08/21
DESIGN UNIT: KOTSONIS
FILE: 204358 I-75 LEGEND.DGN
TSC: OAKLAND

CS: 63174
JN: 204358A

LEGEND SHEET
I-75 MODERNIZATION LANDSCAPE, SEGMENT 2

DRAWING: I-75 LEG 001
SHEET: SECT 1

UTILITIES

COMBINED SEWER

- COMBINED SEWER
- COMBINED SEWER - OUT OF SERVICE
- COMBINED SEWER - TO BE TAKEN OUT OF SERVICE
- COMBINED SEWER - TO BE REMOVED

COMMUNICATION

- FIBER OPTIC
- FIBER OPTIC - OUT OF SERVICE
- FIBER OPTIC - OVERHEAD
- FIBER OPTIC MARKER
- CABLE
- CABLE - OUT OF SERVICE
- CABLE - OVERHEAD
- CABLE MARKER
- CABLE PEDESTAL
- TELEPHONE
- TELEPHONE - OUT OF SERVICE
- TELEPHONE - OVERHEAD
- TELEPHONE BOX
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL

FUEL / PETROLEUM

- GASOLINE FILLER PIPE
- GASOLINE PUMP
- GASOLINE UNDERGROUND TANK
- PETROLEUM PIPELINE
- PETROLEUM PIPELINE - OUT OF SERVICE
- PETROLEUM PIPELINE MARKER
- PETROLEUM WELL
- PROPANE TANK

NATURAL GAS

- GAS LINE
- GAS LINE - OUT OF SERVICE
- MARKER
- VALVE
- WELL

SANITARY SEWER

- MANHOLE WITH COVER (DIA VARIES)
- SEWER
- SEWER - OUT OF SERVICE
- SEWER - TO BE TAKEN OUT OF SERVICE
- SEWER - TO BE REMOVED

WATER

- FIRE HYDRANT
- GATE VALVE AND BOX
- GATE VALVE IN WELL
- IRRIGATION CONTROL VALVE
- IRRIGATION SPRINKLER HEAD
- SERVICE METER
- SERVICE SHUTOFF
- WATER WELL
- IRRIGATION
- WATER MAIN
- WATER MAIN - OUT OF SERVICE
- WATER MAIN - TO BE TAKEN OUT OF SERVICE
- WATER MAIN - TO BE REMOVED

STEAM

- STEAM MANHOLE COVER
- STEAM MANHOLE (DIA VARIES)
- STEAM
- STEAM - OUT OF SERVICE

GENERIC EXISTING UTILITIES

- CATCH BASIN COVER
- MANHOLE COVER
- MARKER
- PEDESTAL
- SEWER CLEANOUT ACCESS
- STRUCTURE BOTTOM (DIA VARIES)
- UTILITY BOX
- UTILITY

DRAINAGE

- CATCH BASIN W/ COVER (DIA VARIES)
- DRAINAGE STRUCTURE NUMBER
- DRAIN CASTING
- DROP INLET
- END SECTION (SIZE VARIES)
- FLOW DIRECTION ARROW
- HEADWALL (SIZE VARIES)
- MANHOLE W/ COVER (DIA VARIES)
- MANHOLE BASE W/ COVER (SIZE VARIES)
- MANHOLE TEE W/ COVER (SIZE VARIES)
- OUTLET HEADWALL (SIZE VARIES)
- CULVERT - EXISTING
- CULVERT (SIZE VARIES)
- DITCH CENTERLINE
- STORM SEWER - EXISTING
- STORM SEWER
- STORM SEWER - TO BE REMOVED
- UNDERDRAIN
- WATER EDGE

NOTE:

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LEGEND SHEET
I-75 MODERNIZATION LANDSCAPE, SEGMENT 2

DRAWING: I-75 LEG 002
SHEET: SECT 1

ELECTRICAL

- CONTROLLER CABINET - PAD MOUNTED
- HANDHOLE
- MANHOLE
- POLE UTILITY - EXISTING
- POLE UTILITY
- TRANSFORMER - PAD MOUNTED
- TRANSFORMER - POLE MOUNTED
- CABLE
- CABLE - TO BE REMOVED
- CABLE OVERHEAD
- CABLE OVERHEAD - TO BE REMOVED
- CABLE IN CONDUIT
- CABLE IN CONDUIT - TO BE REMOVED
- CABLE IN CONDUIT - DIRECTIONAL BORE

ARCHITECTURAL

- EXIT SIGN WITH EMERGENCY LIGHT
- LIGHT RECESSED FIXTURE
- MOTOR
- OUTLET BOX
- OUTLET SINGLE
- OUTLET TELEPHONE
- SERVICE DISCONNECT
- SERVICE METER
- SWITCH
- SWITCH THREE WAY
- WALL BRACKET FIXTURE

LIGHTING

- CONTROL PANEL - EXISTING
- CONTROL PANEL
- LIGHT STANDARD EXISTING - TO BE REMOVED & SALVAGED
- LIGHT STANDARD DOUBLE ARM - EXISTING
- LIGHT STANDARD DOUBLE ARM
- LIGHT STANDARD POST TOP - EXISTING
- LIGHT STANDARD POST TOP
- LIGHT STANDARD SINGLE ARM - EXISTING
- LIGHT STANDARD SINGLE ARM
- LIGHT POLE - TEMPORARY
- LUMINAIRE WALL MOUNTED UNDERBRIDGE - EXISTING
- LUMINAIRE WALL MOUNTED UNDERBRIDGE
- TOWER LIGHTING UNIT - EXISTING
- TOWER LIGHTING UNIT

ITS / SIGNALS

- DYNAMIC MESSAGE SIGN - EXISTING
- DYNAMIC MESSAGE SIGN
- ENVIRONMENTAL SENSOR STATION SITE
- FIBER OPTIC SPLICE CABINET
- HANDHOLE, ROUND, 3 FOOT DIAMETER
- HANDHOLE, ROUND, COMMUNICATIONS
- HANDHOLE, ROUND, ELECTRIC
- HANDHOLE, TYPE D
- ITS CABINET - EXISTING
- ITS CABINET
- MICROWAVE VEHICLE DETECTION SYSTEM - EXISTING
- MICROWAVE VEHICLE DETECTION SYSTEM
- MICROWAVE VEHICLE DETECTION SYSTEM ZONE COVERAGE - EXISTING
- MICROWAVE VEHICLE DETECTION SYSTEM ZONE COVERAGE
- SPUN CONCRETE POLE - EXISTING
- SPUN CONCRETE POLE
- SURVEILLANCE SYSTEM - EXISTING
- SURVEILLANCE SYSTEM
- WIRELESS LINK - EXISTING
- WIRELESS LINK
- ITS — COMMUNICATIONS CABLE IN CONDUIT
- ITS — COMMUNICATIONS CABLE IN CONDUIT - TO BE REMOVED

- ANTENNA
- CASE SIGN (1-WAY OR 2-WAY)
- CASE SIGN (4-WAY)
- DEDICATED SHORT RANGE COMMUNICATIONS
- CONTROLLER CABINET - POLE MOUNTED
- CONTROL EMERGENCY PREEMPTION OPTICOM
- DILEMMA ZONE DETECTION
- GLOBAL POSITIONING SYSTEM MODULE
- GUY ANCHOR
- PEDESTRIAN PEDESTAL
- PEDESTRIAN PUSHBUTTON
- POLE MAST ARM (LENGTH VARIES) - EXISTING
- POLE MAST ARM (LENGTH VARIES)
- POLE STRAIN
- ROAD SIGN W/ FLASHING SIGN OPTICAL (1-WAY)
- SIGNAL HANDHOLE - POLYMER CONCRETE
- SIGNAL HANDHOLE - 2 FOOT ROUND
- SIGNAL HANDHOLE - 3 FOOT ROUND
- SIGNAL HANDHOLE - 2 FOOT SQUARE
- SIGNAL HANDHOLE - 4 FOOT SQUARE
- SIGNAL HEAD PEDESTRIAN - EXISTING
- SIGNAL HEAD PEDESTRIAN 1-WAY
- SIGNAL HEAD PEDESTRIAN 2-WAY
- SIGNAL HEAD VEHICLE 1-WAY - EXISTING
- SIGNAL HEAD VEHICLE 2-WAY - EXISTING
- SIGNAL HEAD VEHICLE 3-WAY - EXISTING
- SIGNAL HEAD VEHICLE 4-WAY - EXISTING
- SIGNAL HEAD VEHICLE 1-WAY
- SIGNAL HEAD VEHICLE 2-WAY
- SIGNAL HEAD VEHICLE 3-WAY
- SIGNAL HEAD VEHICLE 4-WAY
- SIGNAL HEAD VEHICLE BAGGED
- SIGNAL HEAD VEHICLE PROGRAMMABLE
- VEHICLE DETECTION CAMERA
- VEHICLE DETECTION CAMERA - HEMISPHERICAL
- VEHICLE DETECTION LOOP
- VEHICLE DETECTION - RADAR
- WIRELESS VEHICLE DETECTION RADIO RECEIVER
- WIRELESS VEHICLE DETECTION RADIO REPEATER
- WIRELESS VEHICLE DETECTION SENSOR - EXISTING
- WIRELESS VEHICLE DETECTION SENSOR

CABLING / WIRING DIAGRAM

- CIRCUIT BREAKER
- COILED WIRE
- FUSE
- FUSE SWITCH
- GROUND
- ILLUMINATED CASE SIGN
- METER
- SERVICE DISCONNECT
- SIGNAL HEAD

NOTE:

EXISTING ITEMS ARE REPRESENTED BY THIN LINE WEIGHTS.
PROPOSED ITEMS ARE REPRESENTED BY HEAVIER LINE WEIGHTS.

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

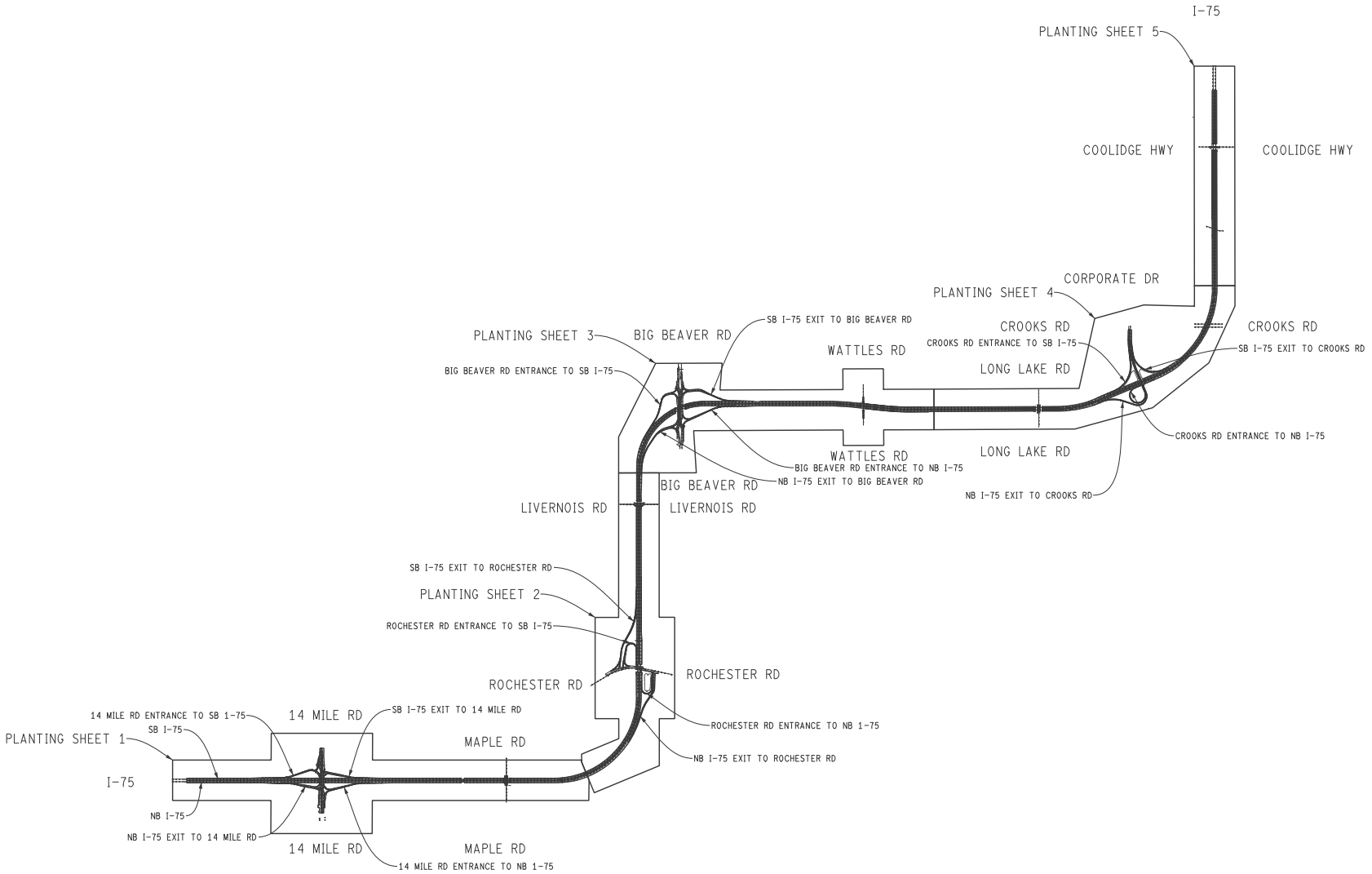
ROWE PROFESSIONAL SERVICES COMPANY

MDOT Michigan Department of Transportation

NO SCALE

	DATE: 02/08/21	CS: 63174	LEGEND SHEET
	DESIGN UNIT: KOTSONIS	JN: 204358A	I-75 MODERNIZATION LANDSCAPE, SEGMENT 2
FILE: 204358 I-75 LEGEND.DGN	TSC: OAKLAND		

DRAWING	SHEET
I-75 LEG 003	SECT 1



FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

ROWE PROFESSIONAL SERVICES COMPANY

MDOT Michigan Department of Transportation

0 HORZ. (FT) 3000

FILE: 204358 I75 VICMAP.DGN

DATE: 02/08/21
DESIGN UNIT: KOTSONIS
TSC: OAKLAND

CS: 63174
JN: 204358A

VICINITY MAP
I-75 MODERNIZATION LANDSCAPE, SEGMENT 2

DRAWING	SHEET
I-75 VICMAP 001	SECT 1

GENERAL NOTES

UTILITIES

MISS DIG/UNDERGROUND UTILITY NOTIFICATION
For the protection of underground utilities and in conformance with Public Act 174 of 2013, the Contractor shall contact MISS DIG System, Inc. by phone at 811 or 800-482-7171 or via the web at either elocate.missdig.org for single address or rte.missdig.org, a minimum of 3 business days prior to excavating, excluding weekends and holidays.

MDOT's roadway lighting system, Intelligent Transportation Systems (ITS) and other miscellaneous electrical systems are not a part of Miss Dig. Contractors shall contact the following at least 5 business days in advance for staking requests. Note that these are not emergency contacts for damage to utilities.

MDOT ITS system includes traffic cameras, changeable message signs, detection equipment, fiber optic cable, other sensors and related communication cables and equipment in, over, or along the roadway.
ITS staking requests per the Special Provision for Protect ITS Infrastructure should be Emailed on MDOT Form 5300 (http://mdotcf.state.mi.us/public/webforms/public/5300.pdf) to: MDOT-ITS-Staking-Metro@michigan.gov

MDOT MAINTENANCE FREEWAY LIGHTING COORDINATOR:
Metro Region: (313) 908-3160

MDOT FREEWAY ITS OPERATIONS CENTER:
Metro: (313) 256-9800 ext 310 or (313) 965-0777

MDOT ELECTRICAL SYSTEMS
Contractors shall contact the maintenance representative at the MDOT Region / TSC Office to have MDOT electrical systems staked.

ENVIRONMENTAL

PROTECTED TURTLES
Historical records for protected turtles exist within or near this project. These turtle species warrant special consideration as they are rare in Michigan. In the event turtles are observed within the construction zone, move the turtle(s) into adjacent vegetative cover, away from physical work activities. If possible, please take a photo and immediately contact the Engineer.

VENOMOUS SNAKES
Historical records for the Eastern Massasauga Rattlesnake exist within or near this project. This venomous snake is listed as federally threatened and is protected by law. In the event that this species is discovered within the construction zone, immediately move personnel away from the snake and contact the Engineer.

PROJECT SPECIFIC NOTES

The Contactor will also be referred to as Construction Manager/General Contractor (CM/GC).

EARTHWORK

EARTH DISTURBANCE LIMITS
Earthwork for the the project is limited to preparing tree holes for immediate planting. The CM/GC shall submit an earth change plan for any work beyond the approved limits to the MDOT Project Manager to review for approval prior to the disturbance. All costs for obtaining and executing an approved earth change plan, including restoration, shall be at the CM/GC's expense.

LANDSCAPING

Existing trees shall not be damaged during construction operations, per the 2012 Standard Specifications for Construction.

Storage of equipment and materials will be restricted to areas designated by the Engineer. No equipment is permitted within the drip line of existing trees to remain.

CM/GC shall promptly restore any property damage at no expense to MDOT.

All excavated material will become the property of the CM/GC. Any excavated material not used on the project will be removed from the site and disposed of in accordance with section 205.03.P. of the 2012 Standard Specification for Construction and any applicable state and/or local ordinances.

Slope restoration in areas damaged by planting efforts exceeding the quantity included for the staging area will be completed as part of the planting pay items and not paid for separately.

Protect existing sidewalks and pavement from damage.

Plant material, soil, fertilizer and mulch will be inspected/approved by the Engineer/Region Resource Specialist or the Landscape Architect prior to installation. Plant inspection may occur at the nursery source or when plants arrive on site.

Trees will be mulched with shredded hardwood bark mulch, per detail.

Watering and Cultivating, First, Second and Third Season, Min will be included in this contract. A separate extended maintenance contract will include Watering and Cultivating, Third, Fourth and Fifth Season. Trees and shrubs planted in the spring of 2022 will be watered and cultivated through the summer of 2026. Trees and shrubs planted in the fall of 2022 will be watered and cultivated through the summer of 2027.

Remove unacceptable plants that fail inspection. Remove entire plant (including root ball) and dispose of offsite. Restore planting hole to existing conditions according to Sections 107.7 and 816 of the 2012 Standard Specifications for Construction. Remove dead plants prior to replanting. Remove dead evergreens prior to winter. Plant all replacement plants before 6/10/2023 for first season spring plantings and 6/10/2024 for first season fall plantings. Water replacement plants, at the same time and in the same manner as the fall plantings receiving their second watering.

Staking of plant material will be completed by CM/GC. GPS coordinates will be taken for all planted trees along with species and variety.

Final staking may be adjusted to avoid conflicts with utilities and legally permitted billboards. Plants shall be located per plans or as approved by the Engineer/Region Specialist or Landscape Architect. Plants will not be placed in clear vision areas, as shown on the plans.
Trees will be located at minimum spacing identified on planting tables. Trees will be a minimum of 10' from centerline of ditches and existing walls/fences and a minimum of 20' from any utility.

Planting and maintenance will follow International Society of Arboriculture and American National standards Institute Standards where there are differences between specifications. In absence of direction, MDOT Section 815 will be followed.

Trees stored onsite prior to planting will be watered prior to the end of each work day. When planted, the trees will be watered as part of installation.

SOIL EROSION MEASURES
Appropriate soil erosion and sedimentation control measures shall be in place prior to earth-disturbing activities. Place turf establishment items as soon as possible on potential erodible slopes as directed by the Engineer.

TURF ESTABLISHMENT

SEED MIXTURE
The symbol for the permanent turf seed mixture on this project is symbol TUF. To be applied within 20' of road edge along areas disturbed by planting and within staging areas. Winter Rye may be used after October 15th.

TREE PROTECTION
No machinery, vehicles (work or personal), equipment, stock piles of any material and/or aggregate shall be stored or staged within the drip line of any tree that will not be removed as part of this job. Nothing is to be placed within the drip line of the trees of remaining trees. All remaining trees are to be protected.

MISCELLANEOUS QUANTITIES

The following items of work shall be done as they apply throughout the project. These items are included on the plan sheet for information only.

SEASONS 1 & 2
PROJECT WIDE

JN 204358A CAT 0001		
1	LSUM	Mobilization, Max
1	LSUM	Project Cleanup
1	LSUM	Minor Traf Devices
1	LSUM	Contractor Staking
27	Hr	Staking Plan Errors and Extras, One Person
11	Hr	Staking Plan Errors and Extras, Two Person
16	Hr	Staking Plan Errors and Extras, Three Person

MAINTAINING TRAFFIC

JN 204358A CAT 0001		
2	Ea	Lighted Arrow, Type C, Furn
2	Ea	Lighted Arrow, Type C, Oper
1	Ea	Mobile Attenuator
900	Ea	Plastic Drum, Fluorescent, Furn
900	Ea	Plastic Drum, Fluorescent, Oper
20	Ea	Sign Cover
2000	Sft	Sign, Type B, Temp, Prismatic, Furn
2000	Sft	Sign, Type B, Temp, Prismatic, Oper

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

JN 204358A CAT 0001		
5000	Ft	Erosion Control, Silt Fence

TURF ESTABLISHMENT

JN 204358A CAT 0001		
15000	Syd	Slope Restoration, Type B

LANDSCAPING

JN 204358A CAT 0001		
1	LSUM	Site Preparation, Max
1	LSUM	Watering and Cultivating, First Season, Min
1	LSUM	Watering and Cultivating, Second Season, Min
124	Ea	Acer rubrum, 1 1/2 inch
87	Ea	Acer x freemanii Autumn Blaze, 1 1/2 inch
120	Ea	Betula nigra, 1 1/2 inch clump, 3 stem
222	Ea	Catalpa speciosa, 1 1/2 inch
118	Ea	Celtis occidentalis, 1 1/2 inch
512	Ea	Cornus amomum, #5 cont.
560	Ea	Cornus racemosa, #5 cont.
102	Ea	Crataegus viridis Winter King, 1 1/2 inch
121	Ea	Ginko biloba Autumn Gold, 1 1/2 inch
123	Ea	Gleditsia triacanthos inermis Skyline, 1 1/2 inch
128	Ea	Gymnocladus dioicus, 1 1/2 inch
130	Ea	Malus Snowdrift, 1 1/2 inch
159	Ea	Malus Spring Snow, 1 1/2 inch
125	Ea	Malus Sugar Tyme, 1 1/2 inch
282	Ea	Picea abies, 4 foot
270	Ea	Picea omorika, 4 foot
191	Ea	Pinus nigra, 4 foot
149	Ea	Platanus x acerifolia Liberty 1 1/2 inch
167	Ea	Quercus bicolor, 1 1/2 inch
139	Ea	Quercus imbricaria, 1 1/2 inch
161	Ea	Quercus robur, 1 1/2 inch
520	Ea	Rhus glabra, #5 cont.
518	Ea	Rhus typhina, #5 cont.
97	Ea	Syringa reticulata Ivory Silk, 1 1/2 inch
108	Ea	Taxodium distichum, 1 1/2 inch
106	Ea	Tilia americana, 1 1/2 inch
121	Ea	Tilia cordata Greenspire, 1 1/2 inch
89	Ea	Ulmus parvifolia Dynasty, 1 1/2 inch
100	Ea	Zelkova serratta Village Green, 1 1/2 inch
107	Ea	Aesculus flava, 1 1/2 inch
113	Ea	Aesculus x carnia briotii, 1 1/2 inch
170	Ea	Crataegus crus-galli 'Inermis'
176	Ea	Crataegus crus-galli Inermis, 1 1/2 inch
179	Ea	Juniperus virginiana 'Canaertii', 4 foot
143	Ea	Malus 'Adirondack', 1 1/2 inch
168	Ea	Malus x 'JFS-KW5', 1 1/2 inch
224	Ea	Pinus flexilis, 4 foot
140	Ea	Quercus Muehlenbergii, 1 1/2 inch
105	Ea	Ulmus americana Frontier, 1 1/2 inch
111	Ea	Ulmus parvifolia JFS Barrett, 1 1/2 inch
87	Ea	Ulmus x 'Morton' Accolade, 1 1/2 inch
100	Ea	Ulmus x 'Valley Forge', 1 1/2 inch

SEASONS 3-5
PROJECT WIDE

JN 204358A CAT 0001		
1	LSUM	Mobilization, Max
1	LSUM	Project Cleanup
1	LSUM	Minor Traf Devices

MAINTAINING TRAFFIC

JN 204358A CAT 0001		
2	Ea	Lighted Arrow, Type C, Furn
2	Ea	Lighted Arrow, Type C, Oper
1	Ea	Mobile Attenuator
900	Ea	Plastic Drum, Fluorescent, Furn
900	Ea	Plastic Drum, Fluorescent, Oper
20	Ea	Sign Cover
2000	Sft	Sign, Type B, Temp, Prismatic, Furn
2000	Sft	Sign, Type B, Temp, Prismatic, Oper

LANDSCAPING

JN 204358A CAT 0001		
1	LSUM	Watering and Cultivating, Fifth Season, Min 21%
1	LSUM	Watering and Cultivating, Fourth Season, Min 21%
1	LSUM	Watering and Cultivating, Third Season, Min 21%

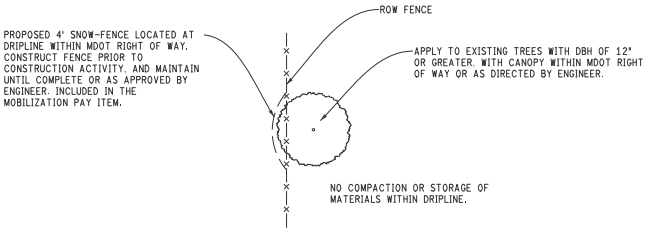
TYPICAL TREE PLANTING

GENERAL NOTES: TREE PLANTING GUIDELINES

ASSUMPTIONS: ALL PLANT MATERIAL COMPLIES WITH AMERICAN STANDARD FOR NURSERY STOCK ANSI Z60.1. ALL PLANT MATERIAL HAS BEEN SELECTED BASED ON SITE CONDITIONS AND CONSTRAINTS.

PLANTING BALLED AND BURLAPPED TREES:

- DIG TREE HOLE GENERALLY TWO TIMES WIDER THAN THE ROOT BALL OR AS DIRECTED BY THE ENGINEER OR LANDSCAPE ARCHITECT BASED ON SOIL CONDITIONS, WITH SIDES SLOPED TO AN UNEXCAVATED OR FIRM UNDISTURBED BASE. DIG HOLE TO A DEPTH SO THE TRUNK FLARE AT THE FIRST ORDER LATERAL ROOT WILL BE AT FINISHED GRADE.
- WITH CLEAN, SHARP PRUNING TOOLS, PRUNE OFF ANY BROKEN BRANCHES AND CO-DOMINANT LEADERS BEFORE THE TREE IS UPRIGHT AND IN THE PLANTING HOLE.
- LIFT WITH CARE SO AS TO NOT TO COMPROMISE THE INTEGRITY OF THE ROOT BALL. POSITION TREE ON FIRM BASE OF UNDISTURBED SOIL SO THAT IT IS STRAIGHT AND TOP OF TRUNK FLARE IS LEVEL WITH THE SURROUNDING SOIL.
- LEAVE BURLAP AND WIRE BASKET IN PLACE WHEN PLANTING: REMOVE TOP ROPE, FOLD BACK THE BURLAP AND WIRE BASKET AND CUT EXCESS FROM TOP ⅓ OF ROOT-BALL: REMOVE ANY PLASTIC OR SYNTHETIC MATERIAL FROM THE PLANTING HOLE.
- WITH CLEAN, SHARP PRUNING TOOLS, PRUNE OFF ANY SECONDARY/ADVENTITIOUS, GIRDLING, AND POTENTIALLY GIRDLING ROOTS. REMOVE ROPE AND/OR FLAGGING FROM THE TREE CANOPY AND BRANCHES.
- BACKFILL PLANTING HOLE WITH EXISTING NATIVE SOIL, POLYMER HYDROGEL, AND NUTRIENT SUPPLEMENTS AS NEEDED. FIRM SOIL AROUND ROOT BALL IN 6-INCH LIFTS AND THOROUGHLY WATER.
- INDIVIDUAL TREES AND SHRUBS WILL BE MULCHED WITH MULCH RING DIAMTER DEPENDENT UPON THE SIZE OF THE ROOT-BALL. A MINIMUM OF 4' DIAMETER RING WILL BE USED ON 1 TO 2 INCH CALIPER TREES. MULCH WILL CONSIST OF SHREDDED HARDWOOD MULCH APPLIED NO LESS THAN 3 INCHES DEEP AND NO MORE THAN 4 INCHES DEEP, LEAVING 3 INCHES ADJACENT TO THE TREE TRUNK FREE OF MULCH.
- INSTALL A TREE BARK PROTECTOR TO COVER THE LOWER 4' OF TRUNK OR TO THE FIRST LATERAL BRANCHES OF THE INSTALLED TREES (WHICHEVER IS LOWER).



TREE PROTECTION DETAIL

NTS

GENERAL NOTES: TREE AND SHRUB PLANTING GUIDELINES

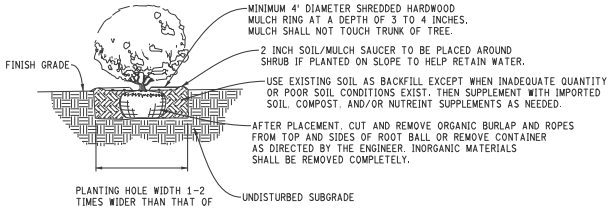
PLANTING CONTAINERIZED OR BALLED AND BURLAP TREES OR SHRUBS:

- IF NOT READILY APPARENT, LOCATE TRUNK FLARE BY REMOVING EXCESS SOIL.
- DIG TREE OR SHRUB HOLE LARGER THAN THE CONTAINER. DIG HOLE TO A DEPTH SO THE LOCATED TRUNK FLARE AT THE FIRST ORDER LATERAL ROOT WILL BE AT FINISHED GRADE.
- REMOVE PLANT FROM CONTAINER AND COMPLETELY TEASE APART ROOT SYSTEM, REPOSITIONING ANY GIRDLING OR POTENTIALLY GIRDLING ROOTS AND PLACE IN PLANTING HOLE SO THAT TRUNK FLARE IS AT FINISHED GRADE AND THE TREE/SHRUB IS STRAIGHT. IF POT BOUND OR HAVING CIRCLING ROOTS, WITH A SHARP KNIFE, SCORE DOWN THE ROOT BALL IN EACH QUADRANT AROUND THE ENTIRE PERIMETER OF THE ROOT BALL. PLACE IN PLANTING HOLE SO THAT TRUNK FLARE IS AT FINISHED GRADE AND THE TREE IS STRAIGHT.
- WITH CLEAN, SHARP PRUNING TOOLS, PRUNE OFF ANY SECONDARY/ADVENTITIOUS, GIRDLING, POTENTIALLY GIRDLING ROOTS, BROKEN BRANCHES AND/OR CO-DOMINANT LEADERS.
- BACKFILL PLANTING HOLE WITH EXISTING NATIVE SOIL, POLYMER HYDROGEL, AND NUTRIENT SUPPLEMENTS AS NEEDED. FIRM SOIL AROUND ROOT BALL AND THOROUGHLY WATER.
- INDIVIDUAL TREES AND SHRUBS WILL BE MULCHED WITH MULCH RING DIAMTER DEPENDENT UPON THE SIZE OF THE ROOT-BALL. A MINIMUM OF 4' DIAMETER RING WILL BE USED ON 1 TO 2 INCH CALIPER TREES. MULCH WILL CONSIST OF SHREDDED HARDWOOD MULCH APPLIED NO LESS THAN 3 INCHES DEEP AND NO MORE THAN 4 INCHES DEEP, LEAVING 3 INCHES ADJACENT TO THE TREE TRUNK FREE OF MULCH.

TREE BARK PROTECTORS SHALL BE INSTALLED ON THE LARGE CALIPER SINGLE STEM TREES TO PROTECT THIS MATERIAL FROM ANIMAL AS WELL AS MECHANICAL DAMAGE AFTER INSTALLATION.

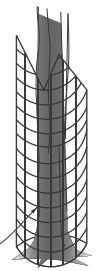
CONSTRUCTED OF RIGID PLASTIC MESH: SIZE IS $^{3}/_{4}$-INCH X $^{3}/_{4}$-INCH, STRANDS ARE APPROXIMATELY $^{1}/_{8}$-INCH X $^{1}/_{8}$-INCH X $^{1}/_{8}$-INCH AND COME IN SIZES IN 1-FOOT INCREMENTS FROM 1 TO 4 FEET. AND ARE UP TO 60 INCHES TALL AND 4 INCHES IN DIAMETER.

- PROTECTS TRUNKS WITH AN OPEN MESH, PREVENTING MOISTURE, AND MILDEW BUILDUP.
- DETERS DEER RUBBING AND INHIBITS GNAWING FROM LARGER RODENTS.
- CAN PREVENT MECHANICAL DAMAGE FROM STRING TRIMMERS AND TURF MAINTENANCE EQUIPMENT.
- WILL NOT HARBOR INSECTS OR ANIMALS, AND WILL NOT INHIBIT GROWTH. SHOULD BE CHECKED ANNUALLY. CM/GC TO REMOVE AFTER 2 GROWING SEASONS.
- FLEXIBLE AND EASY TO INSTALL CAN BE SECURED BY SEVERAL UV-RESISTANT ZIP TIES DEPENDING ON HEIGHT.
- CM/GC TO REMOVE AFTER 2 GROWING SEASONS UNLESS IT IS RECOMMENED BY THE RESTORATION SPECIALIST TO LEAVE ON LONGER DUE TO DEER PRESSURE. IF LEFT ON LONGER, THE MAINTAINENCE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING THE TREE GUARDS PRIOR TO THE END OF THEIR CONTRACT.



SHRUB/TREE CONTAINER PLANTING

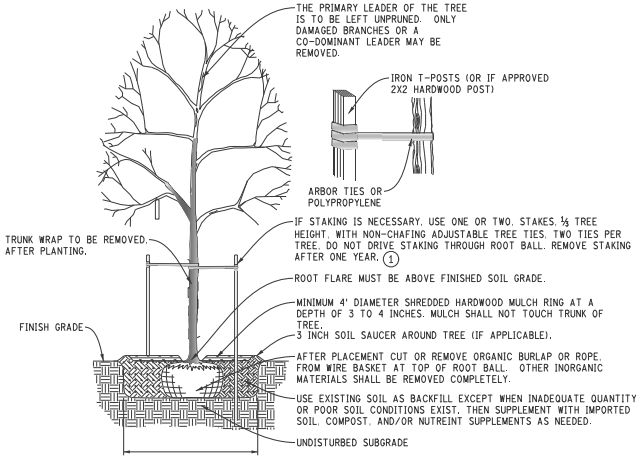
NTS



THE TREE BARK PROTECTOR WILL BE SECURED CLOSED USING A 8-INCH BLACK UV RESISTANT ZIP TIES THROUGH 2 ADJACENT INTACT MESH OPENINGS. TIES WILL BE INSTALLED 4 TO 6-INCHES FROM THE TOP AND BOTTOM WITH 1 CENTRALLY LOCATED. INCLUDED IN TREE PAY ITEM.

TREE BARK PROTECTOR

NTS



TREE PLANTING AND STAKING (IF NEEDED)

NTS (NOT TO SCALE)

(1) STAKING IS GENERALLY NOT RECOMMENDED AND WILL BE USED WHEN NEEDED. STAKING IS TYPICALLY NOT PERFORMED ON ORNAMENTAL TREES OR SHRUBS. STAKING IS TYPICALLY NEEDED ON: EVERGREENS, LARGE CROWNED SHADE TREES, TREES TALL FOR THIER ROOT SIZE, AND TREES ON STEEP SLOPES.

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

ROWE PROFESSIONAL SERVICES COMPANY

MDOT Michigan Department of Transportation

NO SCALE

FILE: 204358 I75 MSCDET001.DGN

DATE: 02/08/21

DESIGN UNIT: KOTSONIS

TSC: OAKLAND

CS: 63174

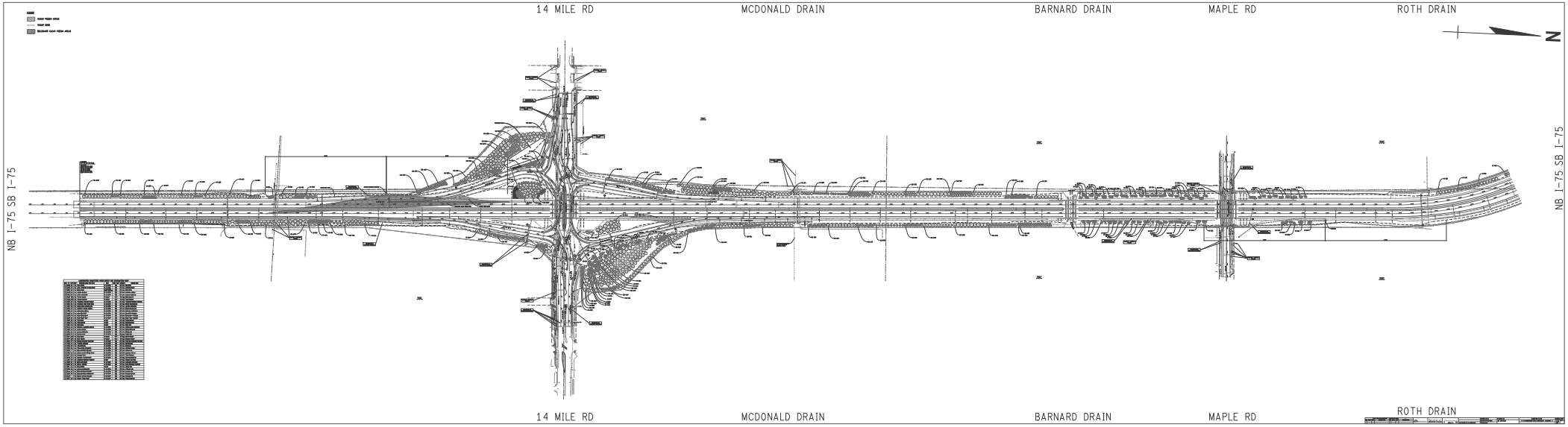
JN: 204358A

PLANTING DETAILS

I-75 MODERNIZATION LANDSCAPE, SEGMENT 2

DRAWING: I-75 MSCDET 001

SHEET: SECT 1


14 MILE RD
MCDONALD DRAIN
BARNARD DRAIN
MAPLE RD
ROTH DRAIN
N
NB I-75 SB I-75
NB I-75 SB I-75
14 MILE RD
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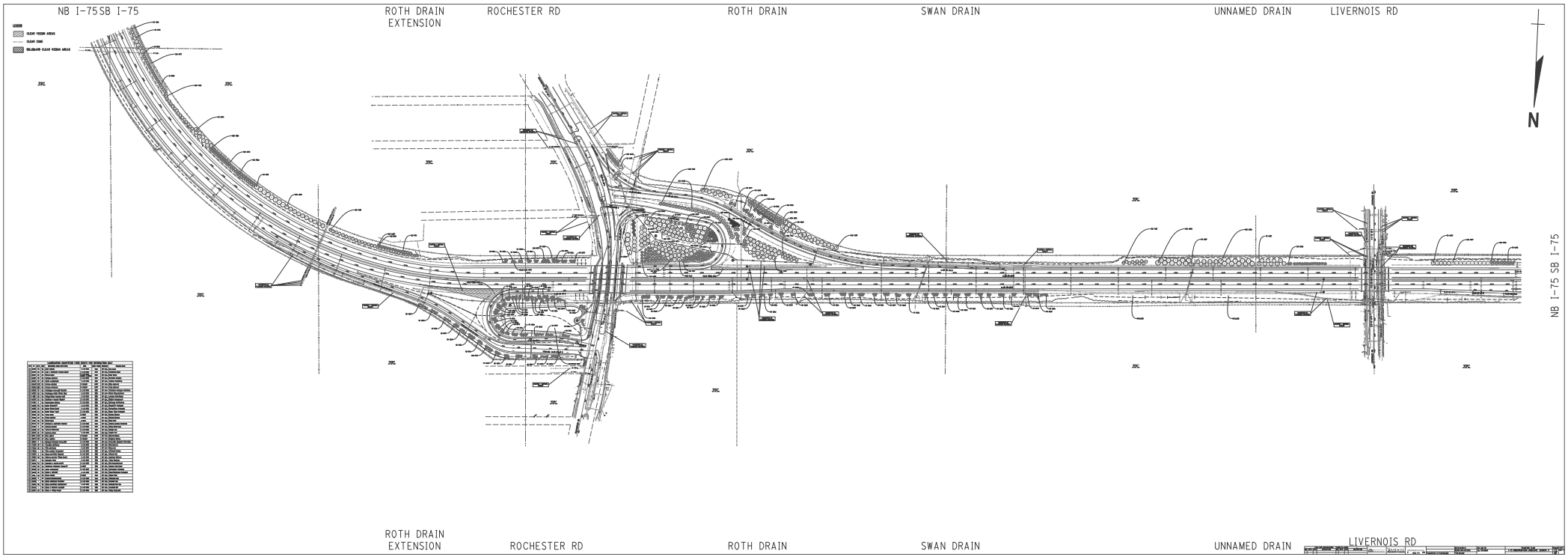
BARNARD DRAIN
MAPLE RD
ROTH DRAIN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SB I-75
ROTH DRAIN EXTENSION
ROCHESTER RD
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SWAN DRAIN
UNNAMED DRAIN
LIVERNOIS RD
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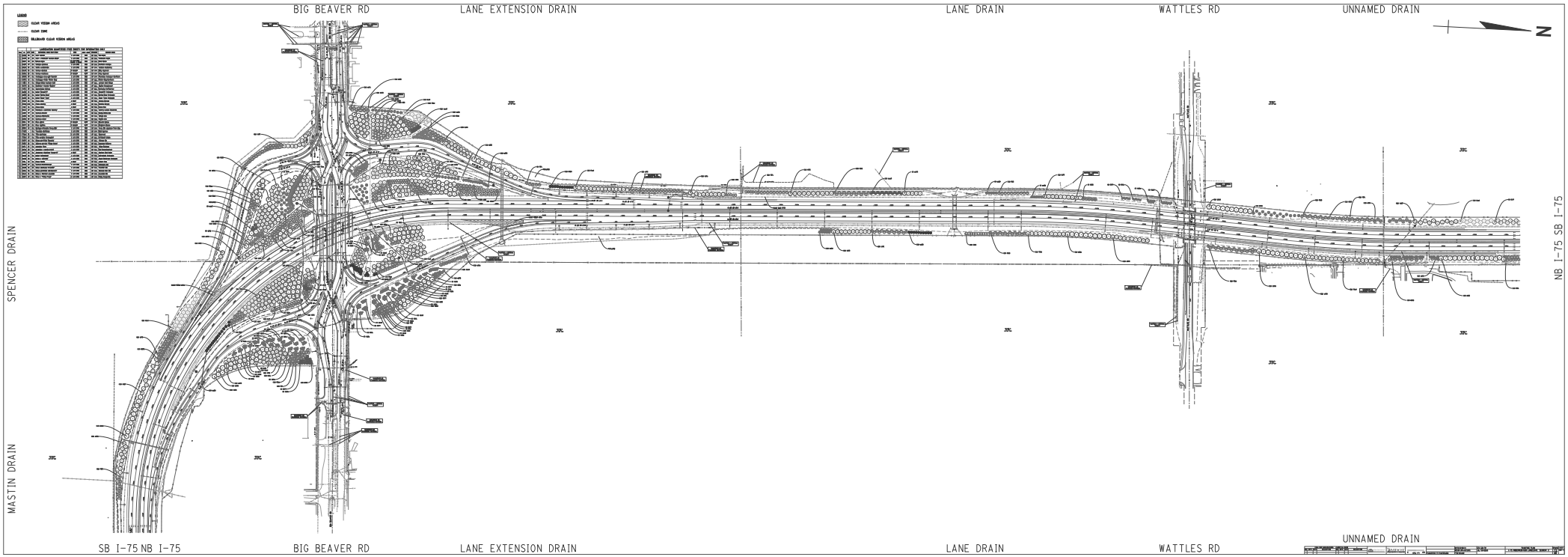
SWAN DRAIN
UNNAMED DRAIN
LIVERNOIS RD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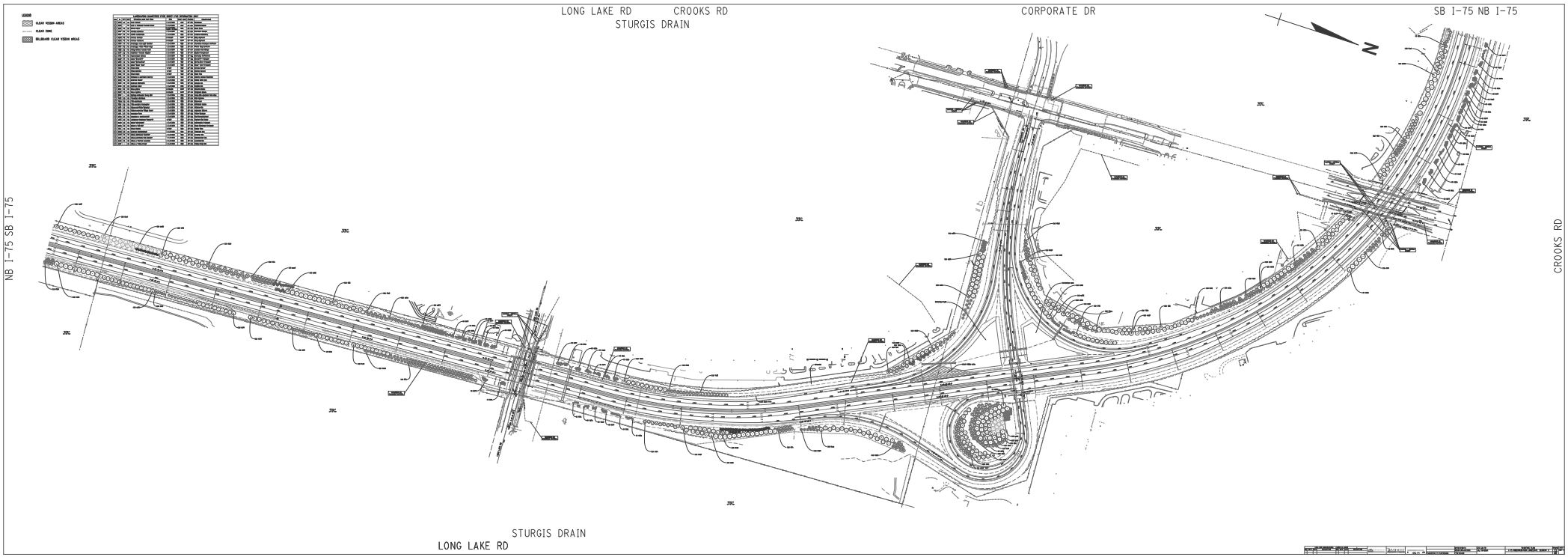
LANE EXTENSION DRAIN
LANE DRAIN
WATTLES RD
UNNAMED DRAIN
N
SPENCER DRAIN
MASTIN DRAIN
NB I-75 SB I-75
SB I-75 NB I-75
BIG BEAVER RD
LANE EXTENSION DRAIN
LANE DRAIN
WATTLES RD
UNNAMED DRAIN


LONG LAKE RD
CROOKS RD
STURGIS DRAIN
CORPORATE DR
SB I-75 NB I-75
NB I-75 SB I-75
CROOKS RD
STURGIS DRAIN
LONG LAKE RD

SPRAGUE DRAIN

COOLIDGE HWY

LEGEND

CLEAR VISION AREAS

CLEAR ZONE

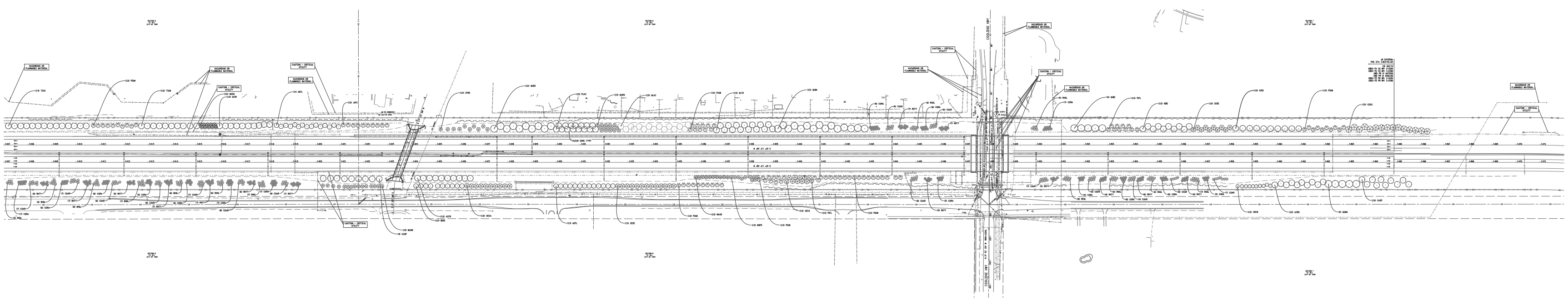
BILLBOARD CLEAR VISION AREAS

LANDSCAPING QUANTITIES (THIS SHEET) FOR INFORMATION ONLY

SYM	ID	QTY	UNIT	BOTANICAL NAME (PAY ITEM)	SIZE	ROOT COND	SPACING	COMMON NAME
	ACRU	10	EA	Acer rubrum	1 1/2 INCH	B&B	25' O.C.	Red Maple
	ACFR	10	EA	Acer x freemanii 'Autumn Blaze'	1 1/2 INCH	B&B	25' O.C.	Freeman's Maple
	BENI	10	EA	Betula nigra	1 1/2 INCH CLUMP, 3 STEM	B&B	20' O.C.	River Birch
	CASP	19	EA	Catalpa speciosa	1 1/2 INCH	B&B	25' O.C.	Northern Catalpa
	CEOC	15	EA	Celtis occidentalis	1 1/2 INCH	B&B	25' O.C.	Common Hackberry
	COAM	93	EA	Cornus amomum	5 GALLON	CONT	10' O.C.	Silky dogwood
	CORA	93	EA	Cornus racemosa	5 GALLON	CONT	10' O.C.	Gray dogwood
	CRCR	10	EA	Crataegus crus-galli 'Inermis'	1 1/2 INCH	B&B	15' O.C.	Thornless Cockspur Hawthorn
	CRVI	-	EA	Crataegus viridis 'Winter King'	1 1/2 INCH	B&B	15' O.C.	Winter King Hawthorn
	GIBI	10	EA	Ginkgo biloba 'Autumn Gold'	1 1/2 INCH	B&B	25' O.C.	Autumn Gold Ginkgo
	GLTR	15	EA	Gleditsia t. inermis 'Skyline'	1 1/2 INCH	B&B	25' O.C.	Skyline Honeylocust
	GYDI	10	EA	Gymnocladus dioicus	1 1/2 INCH	B&B	25' O.C.	Kentucky Coffeetree
	MASN	15	EA	Malus 'Snowdrift'	1 1/2 INCH	B&B	15' O.C.	Snowdrift Crabapple
	MSPS	10	EA	Malus 'Spring Snow'	1 1/2 INCH	B&B	15' O.C.	Spring Snow Crabapple
	MASU	10	EA	Malus 'Sugar Tyme'	1 1/2 INCH	B&B	15' O.C.	Sugar Tyme Crabapple
	PIAB	30	EA	Picea abies	4 FOOT	B&B	20' O.C.	Norway Spruce
	PIOM	30	EA	Picea omorika	4 FOOT	B&B	20' O.C.	Serbian Spruce
	PINI	-	EA	Pinus nigra	4 FOOT	B&B	20' O.C.	Black Pine
	PLAC	15	EA	Platanus x acerifolia 'Liberty'	1 1/2 INCH	B&B	25' O.C.	Liberty London Planetree
	QUBI	5	EA	Quercus bicolor	1 1/2 INCH	B&B	30' O.C.	Swamp White Oak
	QUIM	15	EA	Quercus imbricaria	1 1/2 INCH	B&B	30' O.C.	Shingle Oak
	QURO	10	EA	Quercus robur	1 1/2 INCH	B&B	30' O.C.	English Oak
	RHGL	79	EA	Rhus glabra	5 GALLON	CONT	10' O.C.	Smooth Sumac
	RHTY	88	EA	Rhus typhina	5 GALLON	CONT	10' O.C.	Staghorn Sumac
	SYRE	10	EA	Syringa reticulata 'Ivory Silk'	1 1/2 INCH	B&B	15' O.C.	Ivory Silk Japanese Tree Lilac
	TADI	-	EA	Taxodium distichum	1 1/2 INCH	B&B	20' O.C.	Bald Cypress
	TIAM	10	EA	Tilia americana	1 1/2 INCH	B&B	25' O.C.	Basswood
	TICO	14	EA	Tilia cordata 'Greenspire'	1 1/2 INCH	B&B	25' O.C.	Littleleaf Linden
	ULPD	10	EA	Ulmus parvifolia 'Dynasty'	1 1/2 INCH	B&B	25' O.C.	Chinese Elm
	ZESE	23	EA	Zelkova serrata 'Village Green'	1 1/2 INCH	B&B	20' O.C.	Japanese Zelkova
	AEFL	20	EA	Aesculus flava	1 1/2 INCH	B&B	20' O.C.	Yellow Buckeye
	AECA	20	EA	Aesculus x carnia briotii	1 1/2 INCH	B&B	20' O.C.	Red Horsechestnut
	JUVI	10	EA	Juniperus virginiana 'Canaertii'	4 FOOT	B&B	20' O.C.	Eastern Red Cedar
	MAAD	10	EA	Malus 'Adirondack'	1 1/2 INCH	B&B	15' O.C.	Adirondack Crabapple
	MARD	15	EA	Malus x 'JFS-KW5'	1 1/2 INCH	B&B	15' O.C.	Royal Raindrops Crabapple
	PIFL	20	EA	Pinus flexilis	4 FOOT	B&B	25' O.C.	Limber Pine
	QUMU	5	EA	Quercus Muehlenbergii	1 1/2 INCH	B&B	30' O.C.	Chinkapin Oak
	ULAM	-	EA	Ulmus americana 'Frontier'	1 1/2 INCH	B&B	25' O.C.	Frontier Elm
	ULPA	-	EA	Ulmus parvifolia 'JFS Barrett'	1 1/2 INCH	B&B	25' O.C.	Emerald Flair Elm
	ULAC	15	EA	Ulmus x 'Morton' Accolade	1 1/2 INCH	B&B	25' O.C.	Accolade Elm
	ULVF	-	EA	Ulmus x 'Valley Forge'	1 1/2 INCH	B&B	25' O.C.	Valley Forge Elm

N

NB I-75 SB I-75



NB I-75 SB I-75

SPRAGUE DRAIN

COOLIDGE HWY

FINAL ROW PLAN REVISIONS				SUBMITTAL DATE:			
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

ROWE PROFESSIONAL SERVICES COMPANY

MDOT Michigan Department of Transportation

0 HORZ. (FT) 100

FILE: 204358 I75 PLANT005.DGN

DATE: 02/08/21

DESIGN UNIT: ROTSONIS

TSC: OAKLAND

CS: 63174

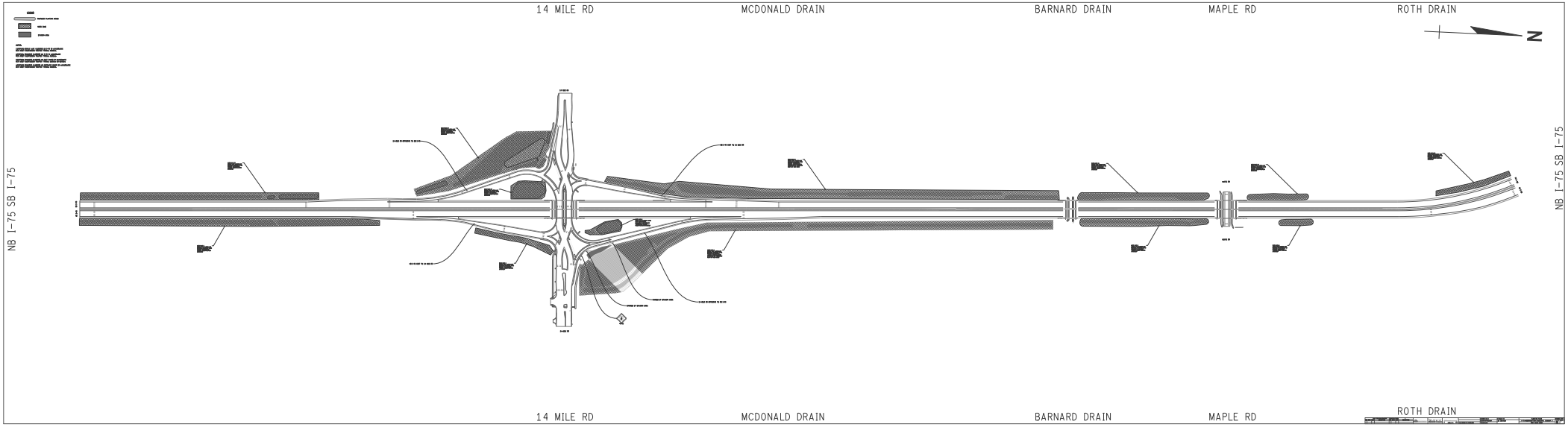
JN: 204358A

PLANTING PLAN

I-75 MODERNIZATION LANDSCAPE, SEGMENT 2

DRAWING: I-75 PLANT 005

SHEET: SECT 1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BARNARD DRAIN
MAPLE RD
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NB I-75 SB I-75
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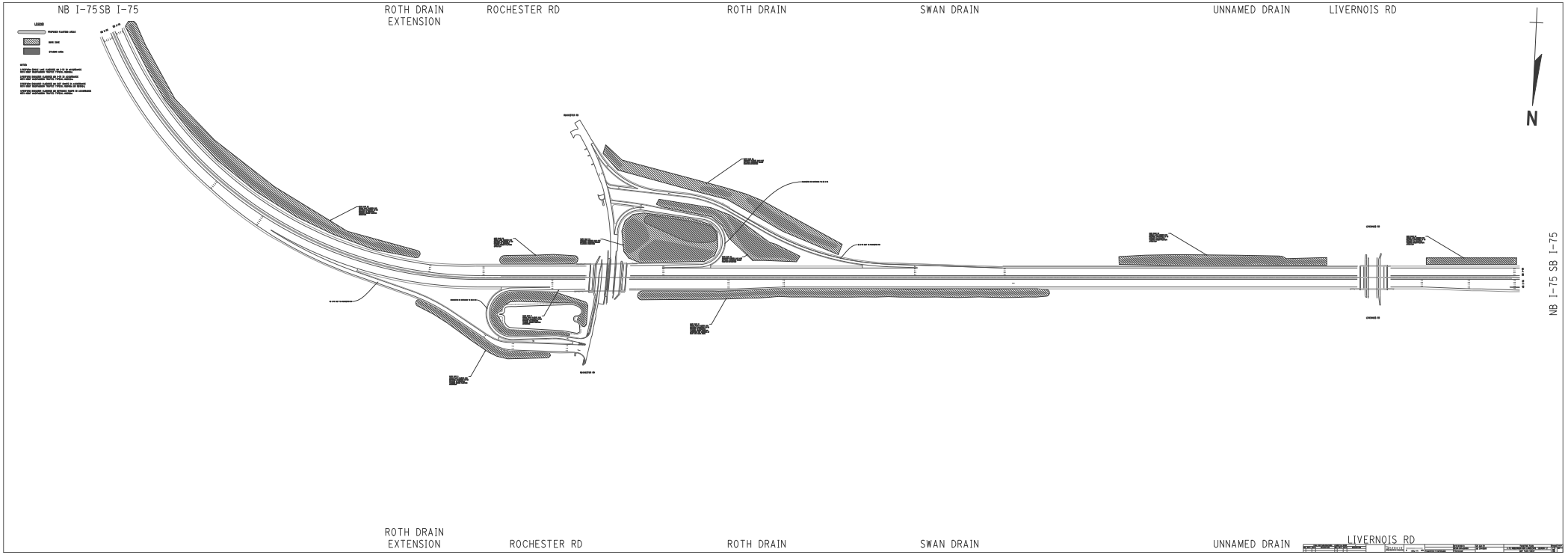
BARNARD DRAIN
MAPLE RD
ROTH DRAIN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SWAN DRAIN
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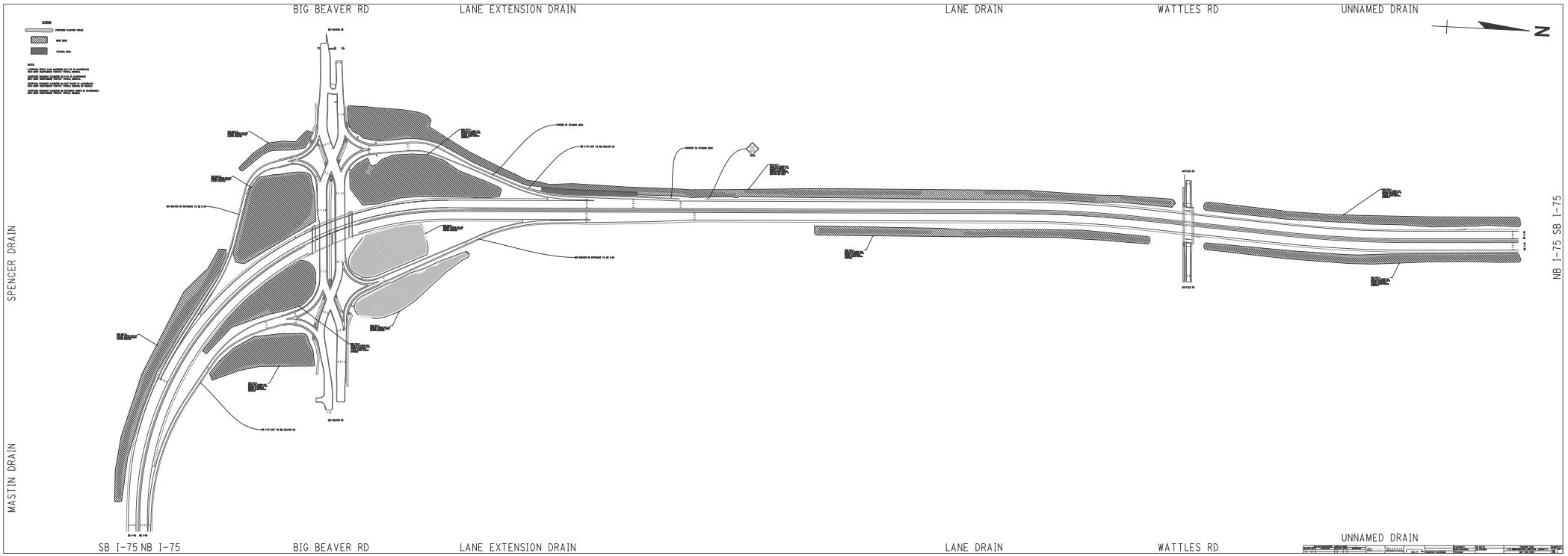
LIVERNOIS RD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WATTLES RD
UNNAMED DRAIN
N
SPENCER DRAIN
NB I-75 SB I-75
MASTIN DRAIN
SB I-75 NB I-75
BIG BEAVER RD
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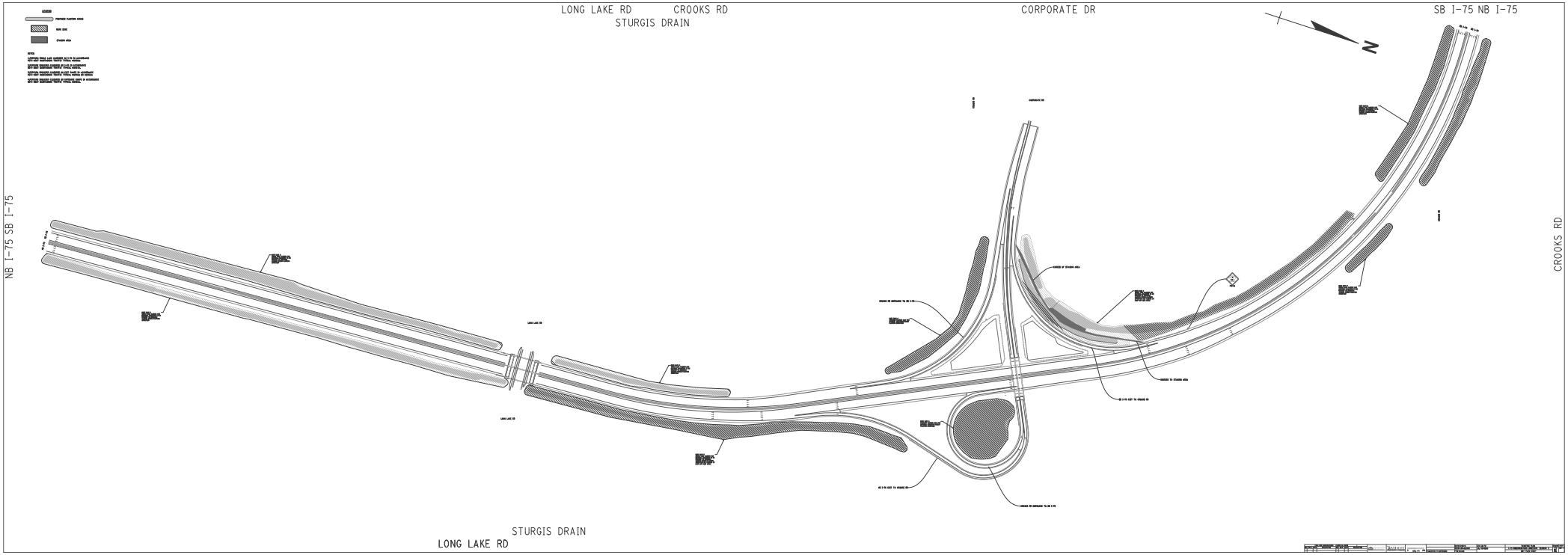
LANE DRAIN
WATTLES RD
UNNAMED DRAIN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CROOKS RD
STURGIS DRAIN
CORPORATE DR
SB I-75 NB I-75
NB I-75 SB I-75
CROOKS RD
N
STURGIS DRAIN
LONG LAKE RD

SPRAGUE DRAIN

COOLIDGE HWY

LEGEND

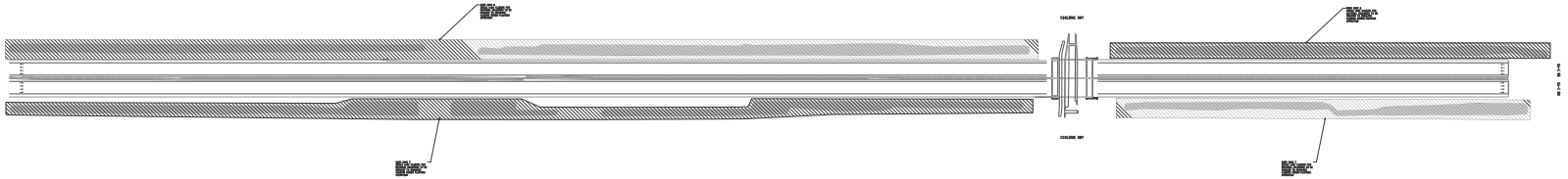
PROPOSED PLANTING AREAS

WORK ZONE

STAGING AREA

NOTES

N



NB I-75 SB I-75

NB I-75 SB I-75

SPRAGUE DRAIN

COOLIDGE HWY

Milestone Checklist

Job Number(s) 204358

Date 2/8/2021

FPC	Included	Comments	Order #	Description
		PLANS		
X	YES			PLANS
		RID		
X	N/A			RID
X	N/A			RID Checklist
X	N/A			RID Index
		PROPOSAL		
X	YES		1	Progress Clause
X	YES		3	MOT Special Provision
X	YES		5	Traffic Typical and Work Zone Device Special Details
X	N/A		6	Permits
X	YES		7	Unique Special Provisions (All placed in order of Spec Book Section)
X	YES		8	Checklist for Special Provisions - Frequently Used (2012)
X	YES		10	Checklist for Notice to Bidders (2012)
X	N/A		12	Unique Notice to Bidders
X	YES		13	Project Coordination Clause
X	N/A		15	Utility Status Report
X	N/A		16	Utility Coordination Clause
X	YES		18	Checklist for Supplemental Specifications (2012)
X	N/A		20	Log of Plans
X	N/A		21	Notice to Bidder -- Contact Information
		SUPPORTING DOCUMENTS		
X	YES		1	Design Plan Submittal Form; Place a PDF copy in the Design Submittlal folder for the Base, Plan and FPC Milestone reviews.
X	YES		2	Milestone Checklist - Place a PDF copy in the milestone plan review folder for the Base, Plan and FPC Milestone . Except 6 - Plans and Proposal folder.
X	YES		3	List of Outstanding Questions and/or Considerations
X	NO	provided separately to MDOT (CM/GC)	4	Preconstruction Cost Summary at Proposal Level including all projects
X	N/A		8	Bridge Lump Sum Worksheet (2911)
X	N/A		9	Project Cost Estimating Checklist (0268)
X	N/A		10	Environmental Classification /Certification
X	N/A		11	ROW Certification (The Region Real Estate Agent and Project Manager have reviewed the final plans and right-of-way certification and confirm the two are consistent)
X	N/A		12	PACS Report
X	N/A		13	Proprietary Item Certification (PIC) and Public Interest Finding (PIF) Form (0304)
X	N/A		14	Innovative Contracting Work Plans
X	N/A		15	Warranty (List each Warranty FUSP)
X	N/A		16	Buy America Documentation
X	N/A		17	Scope Verification Report and/or Plan Review Report
X	N/A		18	Design Exceptions/Variances (DE26/DV26 include approved copies)
X	NO	CMGC	19	Landscaping Waiver (Wild Flower waiver for Federally Funded projects)
X	N/A		20	Pavement Design Recommendation and/or Approved Life Cycle Cost Analysis
X	NO	CMGC	21	Utility Conflict List
X	N/A		22	Crash Analysis and Safety Review
X	N/A		26	Constructability Review Checklist form (1961 @ Plan Review or 1960 @ FPC)
X	N/A		27	Critical Path Network
X	N/A		28	20 Year Capacity Analysis
X	N/A		29	Value Engineering Results (over $50 million)
X	N/A		30	Access Justification Approval
X	N/A		31	ITS Letter (Form 2560)
X	N/A		32	Incentive/Disincentive Project
X	N/A		33	Guardrail Worksheets
X	N/A		34	Exception Risk Analysis (2912)
X	N/A		35	Exception Risk Analysis - Special Provision (2908)
X	N/A		36	Transportation Management Plan

OEC Submittal

ROWE PROFESSIONAL SERVICES COMPANY

MICHIGAN DEPARTMENT OF TRANSPORTATION – METRO REGION
Landscape Design
I-75 Modernization Project; Coolidge Highway to South Boulevard, Segment 2
CS 63174 - JN 204358
Date: 2-8-21

Attn: Spiro Kotsonis. PE, MDOT
From: Doug Schultz, PLA, ROWE
Cheryl Gregory, PE, ROWE, Matt Seitz, PE, ROWE (QAQC)

The following OEC submittal is provided for your use as the basis for a negotiated fee proposal from The Davey Tree Resource Group (DRG) as Construction Manager / General Contractor (CM/GC). We have prepared the submittal based on comments from our January 20, 2021 plan review meeting and a follow meeting on January 25, 2021 with DRG, ROWE and MDOT roadside development staff to confirm plant types, sizing and locations.

This submittal includes final plans based on field investigations and input from DRG, and ROWE Professional Services Company. This submittal has been through ROWE's approved QA/QC plan. The project opinion of construction cost is based on MDOT unit pricing and was prepared separately from the CM/GC and ICE firms.

This submittal includes the following Proposal and Plan package prepared by ROWE:

- Final Plans based on base information provided by MDOT, using proposed design-build information to represent as-built conditions and existing utilities. This is a project PDF deliverable.
  - Planting Plans include a count of 7,293 plants (5,202 trees and 2,091 shrubs). The target is a 6,548 mitigation count for 3,274 tree removals based on a 2:1 ratio.
  - MOT Plans that identify work zones for planting as well as watering and cultivating operations.
  - Clear vision areas were re-defined; reduced from previous plan submittals.. Clear vision area at the freeway entrance ramps was determined using MDOT Geometric Design Guide GEO-300-D. The design speed used on I-75 is 70 mph, and the DS along the ramp is variable, per the I-75 Segment2 Design-Build plans and calcs. The measurement is from the 2 ft point of the gore.
- An Engineers Opinion of Costs and a separate file of just pay items and quantities for reference by AECOM as the ICE independent estimator. PQS and excel file is provided. Based on input from Mark Dubay the contract and pay items have been separated into two categories: 1) work associated with planting and care for two seasons and 2) work associated with work for the extended three years.
- A draft MOT special provision based on input from DRG. A work zone traffic control plan will be provided separately by DRG that identifies various planting areas utilizing standard details.
- A draft Progress Clause that includes planting times beyond seasonal restrictions as approved by the MDOT project manager. Planting will be split into 3 stages and include an extended maintenance period.
- A draft CM/GC special provision
- A draft Landscape special provision for non-standard plant items and CM/GC practices based on the previous segment.
- An approved Slope Restoration special provision.
- Completed FUSP, milestone checklist and associated information.

Information provided by DRG:

- MOT and plant selection / location is based on preferred staging locations and work zones provided DRG.

- DRG has provided planting details that vary slightly from MDOT standards based on their preference due to the potential role for long term maintenance of these items. (mulch depth, use of tree guards, staking methods). These details are included as part of this submittal.

- DRG provided direction on location of trees and proposed plant types in response to the 70% meeting comments.

Items to be addressed prior to final plan turn-in:

- How to address remediation of soil areas from the previous road project. Do special provisions need to be included for Compacted Soil Restoration, if so which one, will it be a variable item in the CM/GC Special Provision?

- Securing final signing plans from the previous road project to include on the proposed plans and verify there are no obstructed views based on proposed landscape.

Thank you for the opportunity to assist with this project. Please notify ROWE with any questions or assistance with next steps.

DGN Name I75_MSCQTY_001

1500001	Mobilization, Max	1	LSUM
2080036	Erosion Control, Silt Fence	5000	Ft
2090001	Project Cleanup	1	LSUM
8120140	Lighted Arrow, Type C, Furn	2	Ea
8120141	Lighted Arrow, Type C, Oper	2	Ea
8120170	Minor Traf Devices	1	LSUM
8120180	Mobile Attenuator	1	Ea
8120252	Plastic Drum, Fluorescent, Furn	900	Ea
8120253	Plastic Drum, Fluorescent, Oper	900	Ea
8120310	Sign Cover	20	Ea
8120350	Sign, Type B, Temp, Prismatic, Furn	2000	Sft
8120351	Sign, Type B, Temp, Prismatic, Oper	2000	Sft
8150001	Site Preparation, Max	1	LSUM
8150002	Watering and Cultivating, First Season, Min	1	LSUM
8150003	Watering and Cultivating, Second Season, Min	1	LSUM
8150146	Acer rubrum, 1 1/2 inch	123	Ea
8150220	Acer x freemanii Autumn Blaze, 1 1/2 inch	87	Ea
8150544	Betula nigra, 1 1/2 inch clump, 3 stem	120	Ea
8150765	Catalpa speciosa, 1 1/2 inch	222	Ea
8150778	Celtis occidentalis, 1 1/2 inch	118	Ea
8150957	Cornus amomum, #5 cont.	506	Ea
8151025	Cornus racemosa, #5 cont.	552	Ea
8151175	Crataegus virdis Winter King, 1 1/2 inch	102	Ea
8151630	Ginko biloba Autumn Gold, 1 1/2 inch	121	Ea
8151658	Gleditsia triacanthos inermis Skyline, 1 1/2 inch	123	Ea
8151674	Gymnocladus dioicus, 1 1/2 inch	128	Ea
8152328	Malus Snowdrift, 1 1/2 inch	130	Ea
8152331	Malus Spring Snow, 1 1/2 inch	159	Ea
8152334	Malus Sugar Tyme, 1 1/2 inch	125	Ea
8152740	Picea abies, 4 foot	282	Ea
8152786	Picea omorika, 4 foot	270	Ea
8152841	Pinus nigra, 4 foot	191	Ea
8152886	Platanus x acerifolia Liberty 1 1/2 inch	149	Ea
8153042	Quercus bicolor, 1 1/2 inch	167	Ea
8153070	Quercus imbricaria, 1 1/2 inch	139	Ea
8153111	Quercus robur, 1 1/2 inch	160	Ea
8153182	Rhus glabra, #5 cont.	520	Ea
8153198	Rhus typhina, #5 cont.	513	Ea
8153716	Syringa reticulata Ivory Silk, 1 1/2 inch	97	Ea
8153744	Taxodium distichum, 1 1/2 inch	108	Ea
8153841	Tilia americana, 1 1/2 inch	106	Ea
8153860	Tilia cordata Greenspire, 1 1/2 inch	121	Ea
8153936	Ulmus parvifolia Dynasty, 1 1/2 inch	89	Ea
8154208	Zelkova seratta Village Green, 1 1/2 inch	118	Ea
8157050	Crataegus crus-galli Inermis, 1 1/2 inch	170	Ea
8157050	Juniperus virginiana 'Canaertii', 4 foot	179	Ea
8157050	Malus x 'JFS-KW5', 1 1/2 inch	168	Ea
8157050	Malus 'Adirondack', 1 1/2 inch	143	Ea
8157050	Quercus Muehlenbergii, 1 1/2 inch	140	Ea
8157050	Ulmus x 'Morton' Accolade, 1 1/2 inch	87	Ea
8157050	Ulmus x 'Valley Forge', 1 1/2 inch	100	Ea
8157050	Ulmus parvifolia JFS Barrett, 1 1/2 inch	111	Ea
8157050	Ulmus americana Frontier, 1 1/2 inch	105	Ea
8157050	Aesculus flava, 1 1/2 inch	107	Ea
8157050	Aesculus x carnia briotii, 1 1/2 inch	113	Ea
8157050	Pinus flexilis, 4 foot	224	Ea
8157050	Crataegus crus-galli 'Inermis'	170	Ea
8160101	Slope Restoration, Type B	15000	Syd
8240001	Contractor Staking	1	LSUM
8240020	Staking Plan Errors and Extras, One Person	29	Hr
8240021	Staking Plan Errors and Extras, Two Person	12	Hr
8240022	Staking Plan Errors and Extras, Three Person	17	Hr

DGN Name I75_MSCQTY_001

1500001	Mobilization, Max	1	LSUM
2090001	Project Cleanup	1	LSUM
8120140	Lighted Arrow, Type C, Furn	2	Ea
8120141	Lighted Arrow, Type C, Oper	2	Ea
8120170	Minor Traf Devices	1	LSUM
8120180	Mobile Attenuator	1	Ea
8120252	Plastic Drum, Fluorescent, Furn	900	Ea
8120253	Plastic Drum, Fluorescent, Oper	900	Ea
8120310	Sign Cover	20	Ea
8120350	Sign, Type B, Temp, Prismatic, Furn	2000	Sft
8120351	Sign, Type B, Temp, Prismatic, Oper	2000	Sft
8157051	Watering and Cultivating, Fifth Season, Min 21%	1	LSUM
8157051	Watering and Cultivating, Fourth Season, Min 21%	1	LSUM
8157051	Watering and Cultivating, Third Season, Min 21%	1	LSUM

I-75 Modernization Corridor
Construction Segment 2
Draft Noise Report

Oakland County, Michigan

June 2018

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1.0 PROJECT STUDY AREA AND PREVIOUS TRAFFIC NOISE ANALYSIS HISTORICAL BACKGROUND

The proposed I-75 roadway improvement project, identified as the I-75 Modernization Corridor, is in Oakland County, Michigan. The proposed roadway improvements cover a 17-mile portion of I-75 from approximately 8 Mile Road on its most southern extent to Square Lake Road on its most northern terminus. This noise study represents a re-evaluation of the proposed reconstruction of the I-75 corridor that was completed in January 2005 and at that time many sound barriers were recommended and were part of the project Record of Decision (ROD). More recently the project construction limits were extending further northward to the Clinton River Trail. The new traffic noise study maintains the previous analysis format of delineating the I-75 Modernization Improvement Corridor into defined study area segments which consists of the 12 original 2005 segments plus two additional segments covering the area between the Clinton River Trail and South Blvd. Therefore the noise analysis was conducted for the entire 14 study area segments. Construction Segment 1 extents from the Clinton River Trail on its northern extent to Coolidge Highway there were no previously recommended sound barriers. Construction Segment 2 extends from Coolidge Highway to 13 Mile Road and Construction Segment 3 extends from 13 Mile Road to 8 Mile Road on its southern project limits. This present report Design Build Segment (DBS) focuses, on Construction Segment 2 as illustrated Figure 1.

In December 2010, revisions to the Federal Highway Administration (FHWA) traffic noise regulations defined in 23 CFR 772, were formulated and became effective nationally in July 2011. In Michigan the traffic noise impact and abatement process procedures and requirements are contained in the Michigan Department of Transportation (*MDOT) Highway Noise Analysis and Abatement Handbook* (dated July 2011). Therefore, the present noise study was completed to confirm the abatement measures recommended in the January 2005 ROD are maintained based on the 23 CFR 772 revisions as defined in MDOT noise abatement policy requirements. The most noteworthy changes in 23 CFR 772 included expanding the Noise Abatement Criteria (NAC) from five to seven land use categories, how dwelling unit equivalents (DUE) are calculated, and how "feasibility and reasonableness" are determined. Furthermore, this updated analysis used the mandated and latest version of the FHWA Traffic Noise Model (TNM), Version 2.5, rather than Version 2.1 which was used during the 2005 traffic noise study. This newer version has been widely vetted and found to be more accurate than the earlier versions. In addition, the new noise analysis includes the latest changes to the proposed highway design improvements. The horizontal and vertical design of the proposed roadway improvements have changed since the completion of the 2005 FEIS. As a consequence of these improvements, future traffic volume projections have increased; free flowing travel speeds and speed limits are generally projected higher throughout the corridor resulting in a higher future predicted ambient noise environment. Previously recommended sound barriers are maintained in the new impact and abatement analysis and in many cases the 2005 recommended barriers are extended to provide greater noise reduction to adjacent properties not impacted in the 2005 study. However, in all cases the 2005 recommended sound barriers are optimized to provide the best possible noise reduction under the new proposed

highway design. This noise analysis focused on updating the traffic noise impacts and abatement results based on the 2040 Build Year traffic projections and the latest proposed roadway improvements.

1.1 Summary of Abatement Analysis Findings Segment 7

A pre-final highway design noise analysis was completed for Segment 7 using 2040 Design Build Year traffic projections to determine noise impacts and abatement measures for noise sensitive properties adjacent to northbound lanes along I-75. Land uses adjacent to the southbound lanes consist primarily of industrial land use where traffic noise impacts are not addressed for abatement. In the 2005 traffic noise study, the proposed northbound sound barrier location was approved in the 2005 Record of Decision (ROD). However, in this new analysis the proposed northbound sound barrier was moved closer to I-75 shoulder resulting in better noise reduction and a lower barrier height needed to provide abatement. The present study, improves upon that previous analysis by optimizing the sound barrier length to provide greater traffic noise reduction relief to the southernmost residential properties by extending the northbound Sound Barrier NB1 over the I-75 overpass at 13 Mile Road. Similarly, the Sound Barrier NB1 was extended further northward to provide increased noise reduction for the residential properties at the northern terminus of the Segment 7. The sound barrier extensions are needed to provide greater noise reduction under projected 2040 Design Build Year traffic projections. Furthermore, a sound barrier designed at or near the shoulder will require a permanent crash barrier for protection. Additionally, maintenance of the property behind the wall will need to be considered as far as access and who will be the responsible party for maintaining this land. The abatement analysis findings, using the Build year 2040 traffic projections, found that NB1 at an average height of 13.6 feet would provide a noise reduction of 5 dB(A) or more at 98% of the impacted properties at unit cost of $8,856 dollars per benefiting dwelling. Therefore, the viewpoints of the affected property owners and residents located behind this barrier must be considered during the upcoming public involvement phase.

1.2 Summary of Abatement Analysis Findings Segment 8

A pre-final highway design noise analysis was completed for Segment 8 using 2040 Design Build Year traffic projections to determine noise impacts and abatement measures for noise sensitive properties adjacent to the southbound lanes along I-75. Land uses adjacent to the northbound direction consist primarily of industrial land uses where traffic noise impacts are not addressed for abatement. In the 2005 traffic noise study, one southbound proposed sound barrier, identified as Southbound SB1, located adjacent to the trailer park was found feasible and reasonable as part of the 2005 Record of Decision (ROD). The present noise analysis, improves upon the previous analysis by optimizing the current barrier length and height while using the latest proposed highway design improvements. In the present analysis, the southbound Sound Barrier 1 (SB1) was extended at each end to better mitigate flanking noise. Using the 2040 Design Build year traffic projections, a 5-decibel noise reduction was achieved at 97% or more of the impacted properties at a cost per benefiting dwelling of were estimated to be $23,573. Therefore, southbound Sound Barrier SB1, should be considered during final design and as part of the public involvement stage where the viewpoints of the property owners and residents living behind the proposed barrier are considered.

1.3 Summary of Abatement Analysis Findings Segment 9

A pre-final highway design noise analysis was completed for Segment 9 using 2040 Design Build Year traffic projections to determine noise impacts and abatement measures for noise sensitive properties adjacent to the southbound and northbound lanes along I-75. In the 2005 traffic noise study, multiple sound barrier segments were identified and evaluated in both the northbound and southbound directions. In 2005 all proposed sound barriers were found to be feasible and reasonable and were approved as part of the 2005 Record of Decision (ROD). The present 2040 traffic noise analysis, improves upon that previous analysis by consolidating the number of sound barriers into one single sound wall in each direction. The 2005 ROD approved sound barriers were optimized under the 2040 Design Build traffic conditions to achieve greater noise reduction. In addition, where necessary, the barrier ending points were extended to prevent flanking of traffic noise at residential properties near the proposed sound barrier terminus location. In the present study, northbound Sound Barrier 1 (NB1) achieved a 5-decibel noise reduction or greater at 86% of the impacted properties. Similarly in the southbound direction Sound Barrier 1 (SB1) achieved a 5-decibel noise reduction or more at 88% of the impacted residential properties. Furthermore, the cost per benefited dwelling for the Northbound NB1 and Southbound SB1 were well below the MDOT $45,942 maximum allowable cost per benefiting dwelling limit. Therefore, both Northbound Sound Barrier NB1 and Southbound South Barrier SB1 should be considered in the final design stage where the viewpoints of property owners and residents behind these two recommended barriers are considered as part of the public involvement process.

1.4 Summary of Abatement Analysis Findings Segment 10

A pre-final highway design noise analysis was completed for Segment 10 using 2040 Design Build Year traffic projections to determine noise impacts and abatement measures for noise sensitive properties adjacent to the southbound and northbound lanes of I-75. In the 2005 traffic noise study, the proposed southbound sound barrier was found to be both feasible and reasonable and was approved for construction as part of the 2005 Record of Decision (ROD). The southbound ROD approved sound barrier was optimized to achieve greater noise reduction under the 2040 traffic projections. Furthermore, the present noise analysis, improves upon the previous analysis by including a feasibility and reasonableness assessment of an additional sound barrier in the northbound direction, which is identified as Northbound Sound Barrier NB1.

In the present study, new proposed Northbound Sound Barrier NB1 achieved a 5-decibel noise reduction or greater at 100% of the impacted properties (5 single family residences), plus provided abatement to 9 additional non-impacted residential properties. However, Northbound Sound Barrier NB1 was found to exceed MDOT maximum cost per benefitted unit limit and therefore is not recommended.

On the southbound side, the ROD approved Southbound Sound Barrier 1 (SB1) achieved a 5-decibel noise reduction or more at 90% of the impacted residential properties, providing abatement to 70 benefiting dwellings at a unit cost of $23,766 per benefited dwelling. Therefore, based on these findings only Southbound Sound Barrier 1 (SB1) will move forward to the final design stage where the opinions of the affected property owners and residents are considered as part of the public involvement process.

1.5 Summary of Abatement Analysis Findings Segment 11A

A pre-final highway design noise analysis was completed for Segment 11A using 2040 Design Build Year traffic projections to determine noise impacts and abatement measures for noise sensitive properties adjacent to the southbound and northbound lanes of I-75. In the 2005 Record of Decision (ROD) traffic noise study, there were no approved sound barriers within Segment 11A for construction. In the present noise analysis, a new feasible and reasonable barrier was identified in the southbound direction consisting of approximately 1,647 feet in length providing abatement to 55 total benefiting dwellings at unit cost of $22,908 per benefited unit. A second sound barrier in the northbound direction was also considered, but failed to achieve adequate noise reduction at a reasonable cost. Therefore, based on these findings only Southbound Sound Barrier (SB1) should move forward to the final design stage where the viewpoints of the affected property owners and residents are considered as part of the public involvement process.

1.6 Summary of Abatement Analysis Findings Segment 11

Using 70% final highway design plans and 2040 traffic volume projections, noise impact and abatement analysis was completed for Segment 11 which extends from Cooks Road to Coolidge Highway. The final design effort focused on the abatement requirements only for sensitive properties adjacent to southbound lanes of I-75. Residential properties adjacent to the northbound side were assessed for impact and abatement in a previous preliminary effort which found that the proposed northbound sound barriers exceeded MDOT maximum reasonable cost limits and thus have been dropped from further consideration.

In previous 2005 noise study, the two proposed southbound sound barriers were approved as part of the ROD. In the present study new noise impacts extend throughout the southbound side are projected to occur under build year 2040 traffic projections and therefore the lengths of the ROD recommended sound barriers have been extended an additional 1,750 feet in the present study, resulting in about 4,370 total linear feet of sound wall. The present study findings found that longer sound barrier walls are necessary because of new residential impacts projected under 2040 Build Year traffic projections that were not anticipated during the 2005 ROD approval period. The present proposed combined sound barriers will cost approximately $2.3 million dollars and provide abatement at a unit cost of $28,059 per benefitting receptor unit (CPBU). Furthermore, the two combined southbound sound barriers provided benefit to 82 total dwellings with a noise reduction of 5 dB(A) and 7 dB(A) achieved at 88% and 63% of the impacted receptors respectively. Furthermore, three of these benefiting dwellings are projected to experience a 10 dB(A) noise reduction. Therefore, the viewpoints of the affected property owners and residents located behind these two-sound barriers, must be considered during the upcoming public involvement phase.

Figure 1 – Construction Segment 2 Study Area

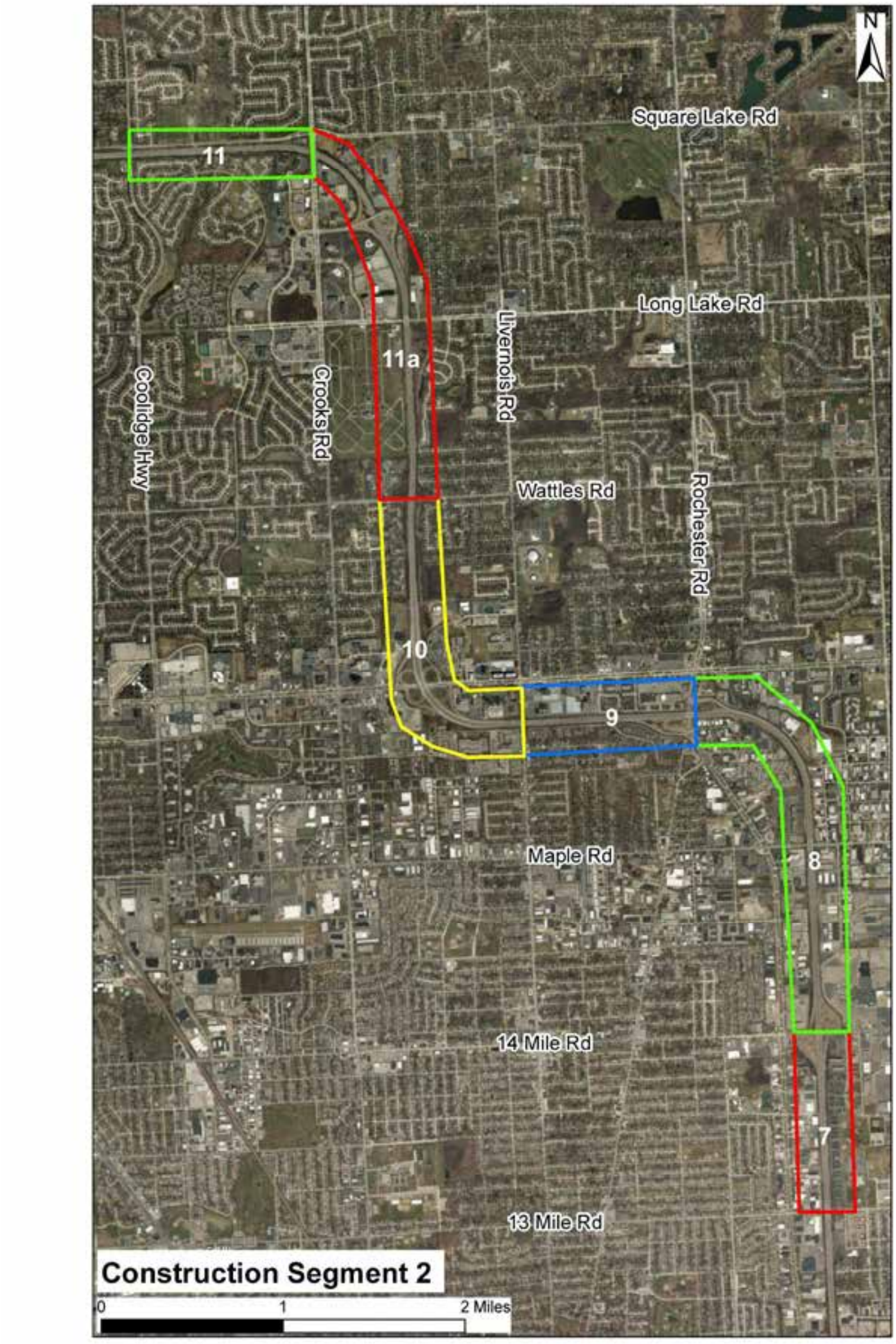


Figure 2 – Segment 7 Study Area Limits

Figure 3 – Segment 8 Study Area Limits

Figure 4 – Segment 9 Study Area Limits

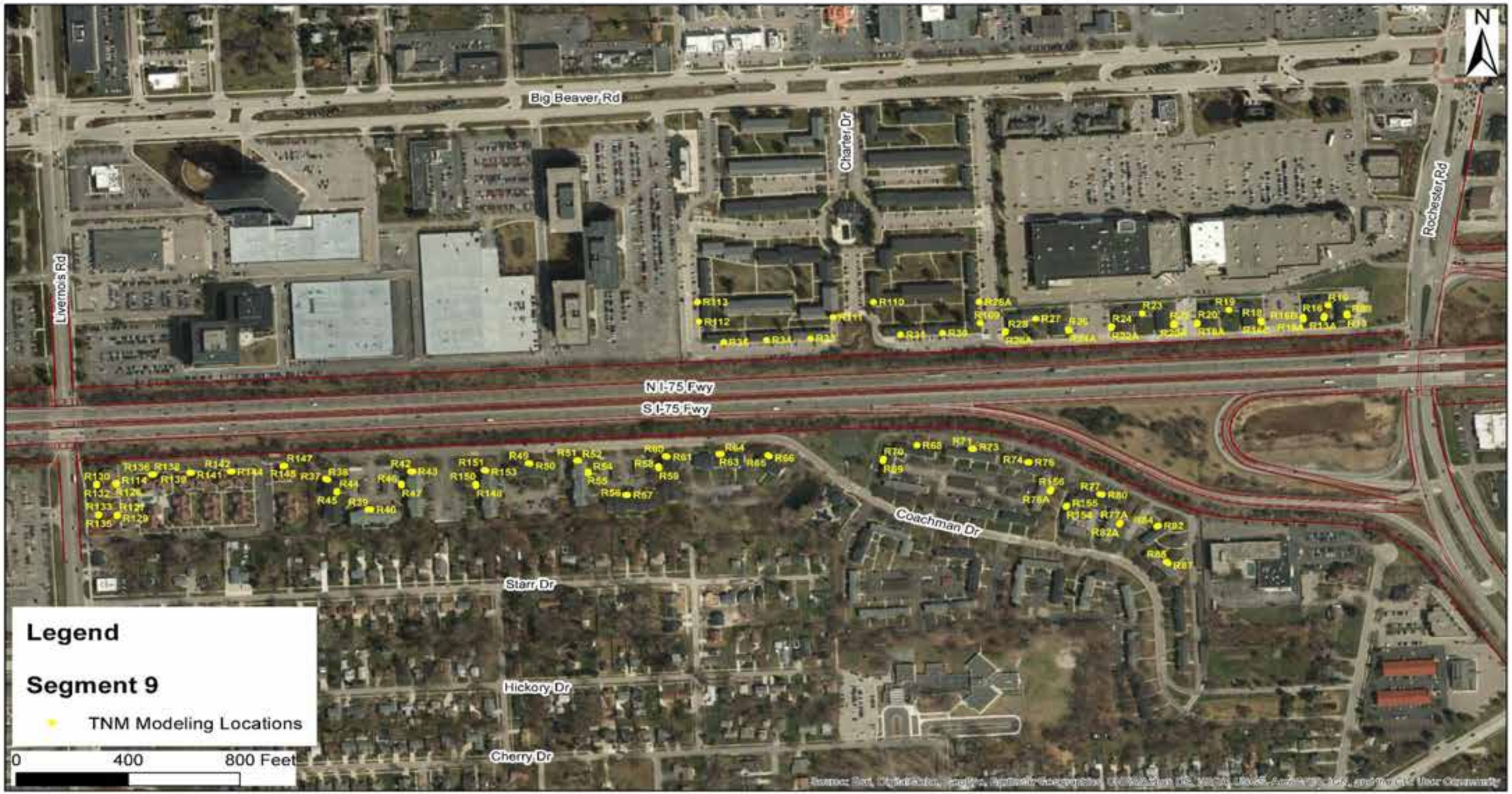


Figure 5 – Segment 10 Study Area Limits

Figure 6 – Segment 11A Study Area Limits

Figure 7 – Segment 11 Study Area Limits

2.0 FUNDAMENTAL CONCEPTS OF ROADWAY NOISE

Physically in the natural environment, sound is generated by the vibration of the air molecules. The vibrations of the air molecules result in small fluctuations in air pressure. A sound wave is created when a series of these pressure waves move through the air. Sound waves vibrate at different rates or "frequencies." The faster an object vibrates, the higher the frequency of the sound wave. Slower vibration rates produce lower frequencies of sound. The human ear can detect a wide range of frequencies from about 20 Hz to 17,000 Hz. The decibel scale was developed to measure and quantify the loudness of sound energy of different levels of intensity. However, because human hearing sensitivity varies with the frequency of the sound, a weighting system was developed to provide a single number measure that better account for the human responses to environmental noise. The following sections describe some of the noise descriptors and impact criteria developed associated with the range of human hearing.

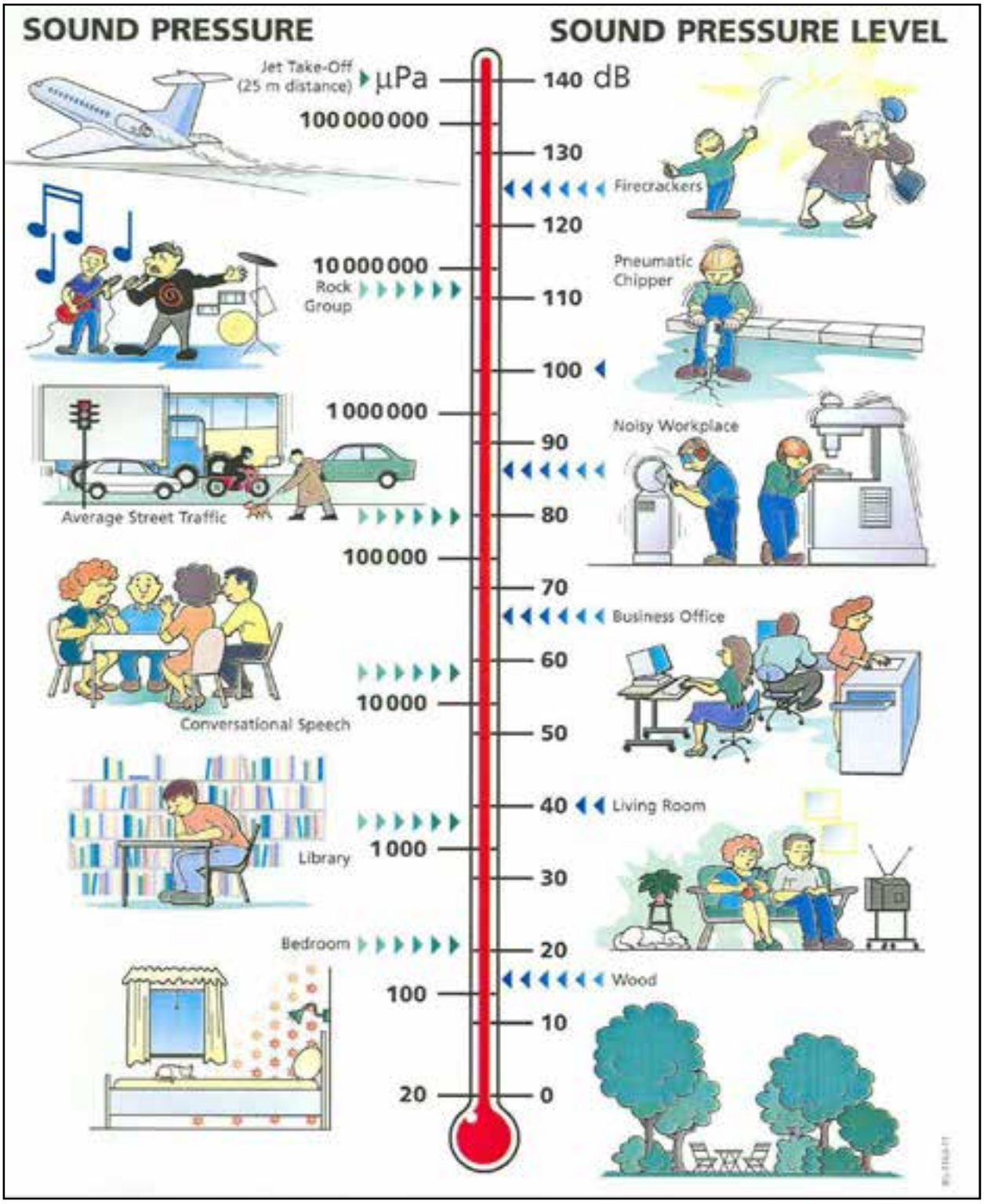
2.1 A-Weighted Sound Level

Sounds affecting humans occur in the natural environment at all times. Some sounds are necessary or desirable for communication or pleasure, many go unnoticed, and other sounds are truly unwanted or irritating. These unwanted sounds, result in annoyance and disturbance to the people living or working in the area. Therefore, unwanted sound is referred to as noise.

From many experiments with human participants, scientists have found that—unlike animals—the human ear is more sensitive to midrange frequencies as compared to either low or very high frequencies. Therefore, at the same sound level, the human ear perceives to hear midrange frequencies louder than low or very high frequencies. This characteristic of the human ear is considered by adjusting or weighting the spectrum of the measured sound level for the sensitivity of human hearing range. The weighting scale that best accounts for the sensitivity of the human hearing range is referred to as the A-weighted scale and is denoted by the "dB(A)" notation. The A-weighted sound level is a measure of sound intensity with one-third octave frequency characteristics that correspond to human response to noise. Acousticians accept the A-weighted sound level as a preferred descriptor for assessing human exposure and annoyance from environmental noise. Figure 8 below illustrates some common noise sources and sound pressure levels. An understanding of the following relationships is also helpful in providing a subjective impression of changes in the A-weighted sound level:

- A **3 dB(A) decrease** in A-weighted noise level is considered Barely Perceptible and represents a 50% loss in sound energy.
- A **5 dB(A) decrease** in A-weighted noise level is considered Readily Perceptible and represents a 67% loss in sound energy.
- A **10 dB(A) decrease** in A-weighted noise level is considered Half as Loud and represents a 90% loss in sound energy.
- A **20 dB(A) decrease i**n A-weighted noise level is considered One-Fourth as Loud and represents a 99% loss in sound energy.

Figure 8 – Typical Noise Levels



Source: Bruel and Kjaer: Environmental Noise, Sound and Vibration Measurements, 2000.

2.2 Noise Level Descriptors

A basic characteristic parameter of environmental noise, particularly near roadways; is its time-varying nature that fluctuates from moment to moment. These fluctuations constitute the time-varying property of roadway noise. Because traffic noise fluctuations vary from moment to moment, it is common practice to condense all the information into a single number, called the "equivalent" sound level (L_{eq}). The L_{eq} is a measure of the average sound energy during a specified period (typically 1-hour duration). The L_{eq} is defined as the constant level that, over a given period, transmits the same amount of acoustical energy to the receiver as the actual time-varying sound. Studies have shown that the A-weighted L_{eq} noise descriptor is well correlated with human annoyance to sound; therefore, this descriptor is widely used by government agencies for environmental noise impact assessments. The L_{eq} measured over a 1-hour period is referred to as the hourly $L_{eq\ or}$ L_{eq} (1-hour) and has been established by Federal Highway Administration as the preferred noise descriptor to evaluate, analyze and assess highway traffic noise exposure.

2.3 Noise Impact Criteria

The proposed I-75 Modernization Project Segment 7 roadway improvements are defined as a Type I roadway improvement. This classification refers to projects that include federal funding for construction of highways on a new location alignment or the alteration of an existing highway resulting in a substantial change in either the horizontal or vertical alignment and or an increase in the number of through-traffic lanes. The noise analysis for this project was conducted in general compliance with the Code of Federal Regulations (CFR), Title 23, Part 772, the United States Department of Transportation, Federal Highway Administration (FHWA), *Highway Traffic Noise Analysis and Abatement - Policy and Guidance* (FHWA, 2011). The basic goals of noise criteria, as they apply to highway projects, are to minimize potential adverse noise impacts to a community and, where determined appropriate, provide feasible and reasonable measures to abate noise impacts.

To determine if highway noise levels are compatible with various land uses, the FHWA has developed noise abatement criteria and procedures to be used in the planning and design of highways. A summary of the FHWA Noise Abatement Criteria (NAC) for various land uses is presented in Table 1. These NAC levels represent the lower limit of what would constitute as a highway traffic noise impact for specific exterior land uses and activities and for certain indoor activities. Impact occurs when the predicted noise level at a qualified receptor approaches or exceeds the FHWA NAC, or when the difference between existing and future noise levels results in a substantial increase in noise level.

Table 1 – FHWA Noise Abatement Criteria (NAC)[1] Hourly A-Weighted Sound Level in dB(A)

ACTIVITY CATEGORY	ACTIVITY CRITERIA[2]		EVALUATION LOCATION	ACTIVITY DESCRIPTION
	$L_{eq}(h)$[3]	L10(h)[4]		
A	57	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[5]	67	70	Exterior	Residential.
C[5]	67	70	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	55	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[5]	72	75	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	--	--		Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities and warehousing.
G	--	--		Undeveloped lands that are not permitted.

[1] MDOT defines a noise impact as a 10 dB(A) increase between the existing noise level to the design year predicted noise level OR a predicted design year noise level that is 1 dB(A) less than the levels shown in Table 1.
[2] Either L_{eq}(h) or L10(h) (but not both) may be used on a project. MDOT uses L_{eq}(h). The L_{eq}(h) and L10(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.
[3] L_{eq} is the equivalent steady-state sound level which in a stated period contains the same acoustic energy as the time-varying sound level during the same time period, with L_{eq}(h) being the hourly value of L_{eq}.
[4] L10 is the sound level that is exceeded ten percent of the time (90th percentile) for the period under consideration, with L10 being the hourly value of L10.
[5] Includes undeveloped lands permitted for this activity category.

The Michigan Department of Transportation's (MDOT) interpretation of the federal requirement is in the *MDOT Highway Noise Analysis and Abatement Handbook,* July 2011. MDOT defines "approach" as being within one decibel (dB(A)) of each NAC category. Therefore, all residential properties that have an exterior L_{eq} levels of 66 dB(A) or higher are considered to "approach or exceed" the NAC "B" land use activity criteria. Similarly, all properties covered by NAC "C" with L_{eq} values of 66 dB(A) or higher would "approach or exceed" the NAC "C" criteria. In addition to the approach threshold impact, MDOT also considers an impact to occur if there is projected "substantial" noise level increase. A substantial noise level increase is defined as a projected build design noise level increase of 10 dB(A) or more above the corresponding existing noise level. Therefore, a noise impact can occur two separate ways: either when build noise levels approach or exceed the NAC or when a substantial increase from existing noise levels to project build noise levels is predicted to occur.

When changes to the horizontal or vertical alignment of existing roadways are proposed (Type I roadway improvements) and because of these roadway modifications, traffic noise impacts are identified, noise mitigation must be considered. A noise abatement measure is any positive action taken to assist in reducing the amount of traffic generated noise impacts on an activity area. Consideration for noise abatement does not in itself guarantee the abatement is warranted. In impacted communities, several assessment steps are evaluated to determine the *feasibility and reasonableness* of the abatement. The evaluation is based on many factors and considerations, which in equal order of importance include the following:

- Engineering constructability
- Restriction to traffic flow or property access
- Cost effectiveness
- Wall height constraints
- Acoustic effectiveness
- Whether zoning revisions to the existing land use are expected in the near future

MDOT's specific feasibility and reasonableness requirements are described in the section that follows.

2.4 Feasibility and Reasonableness

In the communities where impacts are predicted to occur, MDOT has defined a specific two-step process required to determine if abatement is possible. The following two steps, in respective order, must be considered. It should be noted that if a proposed sound barrier does not pass the *feasibility* phase, the second step of analysis for the *reasonableness* phase is not required. If a proposed sound barrier does not meet the requirements in the feasibility phase it is no longer considered viable.

Step 1: Is it **feasible** to provide highway traffic noise abatement from engineering, safety and the acoustic effectiveness standpoint?

Step 2: Is it **reasonable** to provide highway traffic noise abatement based on the consideration of the cost/benefit analysis, view point of a majority of the benefiting residences and property owners, and in providing sufficient noise attenuation?

Step 1: Feasibility Consideration: Once the future build highway design noise modeling analysis has been completed and the properties that exceed the NAC are identified, the noise abatement design is evaluated and assessed for feasibility. If a proposed sound barrier does not pass the feasibility phase it does not move forward to the reasonableness phase. The following factors must all be met in the feasibility phase (step 1) to continue to the reasonableness phase (step 2):

(1) Can a noise reduction of at least 5 dB(A) be achieved by 75% of impacted receptors?
(2) Can the sound barrier be designed and physically constructed at the proposed location?
(3) Will placement of the sound barrier cause a visual safety problem?

(4) Will placement of the sound barrier restrict access to vehicular or pedestrian travel?
(5) Will the sound barrier impact utilities or will the utilities impact the sound barriers?
(6) Will the sound barrier impact drainage or will the drainage impact the sound barrier?

Step 2 Reasonableness Consideration: Once the feasibility phase has been evaluated and each feasible requirement above is satisfied, a proposed sound barrier is evaluated for reasonableness. All of the following cost and acoustic requirements must be satisfied for a proposed sound barrier to be considered reasonable:

(1) Determine the total square-footage (length multiplied by height) assuming a $45 per square foot unit cost, can a proposed sound barrier be constructed such that the cost per benefiting unit (CPBU) must remain below $45,942.
(2) A benefited receptor is an impacted receptor that achieves a noise reduction of 5 dB(A) or greater noise reduction because of the sound barrier.
(3) The reasonableness phase requires a proposed sound barrier to achieve a noise reduction of 10 dB(A) or greater for at least one benefiting receptor and provide at least a 7 dB(A) reduction for 50% or more of the benefiting receptor sites.

2.5 Public Involvement Phase

If the proposed sound barrier(s) satisfies MDOT feasibility and reasonableness requirements the recommended abatement measure(s) move to the public involvement process phase. The views of the affected property owners and tenants and the voting process is an essential factor of the reasonableness phase. The recommended abatement measure will not be approved for construction without documenting the views and opinions of the affected property owners and residences where the abatement measures are determined to be both feasible and reasonable. In general, the public involvement phase takes place during the Preliminary Engineering (PE) Phase as part of MDOT's Context Sensitive Solution (CSS) process. It's during this phase that the views and opinions of property owners, residences and other stakeholders are sought and documented in a ballot type format.

Voters consider not only if they support the actual sound barriers construction, but also such functional elements as its color, texture, and aesthetics. Only the owners and residences of those receptor units that benefit from the noise abatement may vote in favor or against the abatement. Condominiums will be viewed the same as any other residential property. Prior to all meetings, property owners and the tenants will receive a notice of the upcoming public meetings regarding noise abatement.

2.6 Solicitation Procedures & Viewpoints of the Benefitting People

The method of obtaining votes shall be determined by MDOT Region Office or via coordination with the Lansing Office. In any case, the method of obtaining votes must be recorded in the environmental documentation and how each benefiting receptor unit owner or tenant voted. The method must be conducted in a manner that assures all benefiting units have an opportunity to vote and provide comment on any noise abatement measure. The public meeting notices should include an alternate voting method for those who may not be able to attend a public meeting such as mail in ballots, web

based or any other survey method that assumes that the voter can use to ensure that the voter is a legitimate benefiting property owner or tenant.

Fifty percent or more of the benefiting units must vote in favor of the noise abatement if it is to be accepted. Property owners of benefiting units receive one vote and tenants receive a half a vote. The final tally and interpretation of the voting will be made by MDOT and its consultants, considering all the feedback gained during the public involvement process. In the event an abatement measure is voted down, no future noise abatement including for Type II abatement programs, will be considered or approved for that specific location. Only a new Type I project would trigger any potential consideration for a new noise abatement assessment at the location.

2.7 Third Party Funds

Third party funding for abatement enhancements above and beyond that what MDOT is responsible for is limited to aesthetics and functional elements such as vegetation plantings and specific wall graphics like a city seal. In addition, these funds cannot be used to contribute to the cost of barrier that has not satisfied the $45,942 per benefit reasonableness cost criteria. Regardless of contribution sharing, no sound barrier will be funded by MDOT which does not meet the feasibility and reasonableness requirements.

3.0 FUTURE 2040 BUILD CONDITIONS NOISE LEVEL ESTIMATES

3.1 Segment 7 Noise Impact Analysis Findings

A summary of the future Segment 7 Build noise levels under 2040 Design Build Year peak hour traffic conditions is provided in Table 2 for all TNM modeling receiver sites adjacent to the I-75 northbound lanes for the properties behind proposed Northbound Sound Barrier One (NB1). A single TNM receiver site is a discrete or representative exterior modeling location of sensitive properties for any of the land uses listed in Table 1. Each TNM receiver site can either represent a single unit or multiple dwelling units. Receivers modeled behind (NB1) consist of mainly condo style multi-family residential units and several baseball fields further away from the highway. Column one in Table 2 identifies the TNM modeling receiver sites, column two provides an estimate of the TNM predicted unabated build year 2040 noise level with noise level exceedances shown in bold font text. Additionally, column three specifies whether a noise impact occurs with the number of impacted dwellings shown in parenthesis and column four indicates the noise reduction level achieved with the number of benefitting dwelling units shown in parenthesis.

Furthermore, Figure 9 provides a graphical representation of each of the modeled TNM receivers, the represented properties and their relative noise exposure versus the MDOT impacted threshold. A red dot in Figure 9 indicates a noise impact and a green dot represents a TNM receiver location projected to remain below the 66 dB(A) impact threshold. In general, the noise analysis findings indicate that all first row and most second row receiver sites are projected to exceed the 66 dB(A) impact threshold. In several locations, noise impacts are projected beyond the second row in areas that have a partial line of site to the roadway. As indicated in Table 2, a total of 308 residential dwellings were modeled (derived from the 77 TNM modeling receiver sites), of which noise impacts are projected to occur at 258 of these residential dwellings. Unabated noise level estimates at the closest properties are projected to be very high, reaching 78 to 79 dB(A) at the closest properties (TNM receivers R3 to R17) to the highway. In general, within the Segment 7 study area, high levels of unabated traffic noise exposure above the 66 dB(A) impact threshold is projected in all first-row residential properties under future 2040 Design Build Year traffic conditions.

Table 2 – Summary of Segment 7 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to North-bound Barrier 1 (NB1)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R20	**75**	**Yes (4)**	**11 (4)**
R2	**77**	**Yes (4)**	**12 (4)**
R3	**78**	**Yes (4)**	**13 (4)**
R4	**78**	**Yes (4)**	**13 (4)**
R5	**78**	**Yes (4)**	**13 (4)**
R6	**78**	**Yes (4)**	**13 (4)**
R7	**78**	**Yes (4)**	**13 (4)**
R8	**78**	**Yes (4)**	**13 (4)**
R9	**78**	**Yes (4)**	**13 (4)**
R10	**78**	**Yes (4)**	**13 (4)**
R11	**78**	**Yes (4)**	**13 (4)**
R12	**78**	**Yes (4)**	**13 (4)**
R13	**78**	**Yes (4)**	**13 (4)**
R14	**79**	**Yes (4)**	**14 (4)**
R15	**79**	**Yes (4)**	**13 (4)**
R16	**78**	**Yes (4)**	**13 (4)**
R17	**78**	**Yes (4)**	**13 (4)**
R18	**77**	**Yes (4)**	**12 (4)**
R19	**77**	**Yes (4)**	**11 (4)**
R22	**74**	**Yes (4)**	**11 (4)**
R37	**75**	**Yes (4)**	**9 (4)**
R39	**72**	**Yes (4)**	**8 (4)**
R41	**75**	**Yes (4)**	**12 (4)**
R43	**74**	**Yes (4)**	**12 (4)**
R45	**76**	**Yes (4)**	**13 (4)**
R47	**77**	**Yes (4)**	**13 (4)**
R49	**77**	**Yes (4)**	**13 (4)**
R51	**76**	**Yes (4)**	**14 (4)**

Table 2 – Summary of Segment 7 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to North-bound Barrier 1 (NB1) (Continued)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R53	**75**	**Yes (4)**	**13 (4)**
R55	**74**	**Yes (4)**	**14 (4)**
R57	**75**	**Yes (4)**	**14 (4)**
R59	**74**	**Yes (4)**	**13 (4)**
R61	**74**	**Yes (4)**	**13 (4)**
R63	**74**	**Yes (4)**	**8 (4)**
R63A	**69**	**Yes (4)**	4 (0)
R19A	65	No (0)	**9 (4)**
R61A	**66**	**Yes (4)**	**8 (4)**
R18A	65	No (0)	**5 (4)**
R59A	65	No (0)	**8 (4)**
R17A	65	No (0)	**9 (4)**
R16A	64	No (0)	**8 (4)**
R57A	**66**	**Yes (4)**	**8 (4)**
R55A	65	No (0)	**8 (4)**
R15A	64	No (0)	**9 (4)**
R14A	65	No (0)	**9 (4)**
R53A	**67**	**Yes (4)**	**10 (4)**
R12A	**66**	**Yes (4)**	**11 (4)**
R12B	65	No (0)	**10 (4)**
R12C	64	No (0)	**9 (4)**
R11A	**71**	**Yes (4)**	**13 (4)**
R11B	**68**	**Yes (4)**	**11 (4)**
R75	**71**	**Yes (4)**	**13 (4)**
R76	**68**	**Yes (4)**	**11 (4)**
R77	**66**	**Yes (4)**	**10 (4)**
R49A	**70**	**Yes (4)**	**12 (4)**
R49B	**67**	**Yes (4)**	**11 (4)**
R9A	**67**	**Yes (4)**	**11 (4)**

Table 2 – Summary of Segment 7 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to North-bound Barrier 1 (NB1) (Continued)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R9B	65	No (0)	**9 (4)**
R9C	64	No (0)	**9 (4)**
R47A	**70**	**Yes (4)**	**13 (4)**
R47B	**67**	**Yes (4)**	**11(4)**
R7A	**69**	**Yes (6)**	**11 (6)**
R6A	**68**	**Yes (4)**	**12 (4)**
R6B	**66**	**Yes (4)**	**10 (4)**
R5A	**66**	**Yes (4)**	**10 (4)**
R4A	**69**	**Yes (6)**	**12 (6)**
R3A	**69**	**Yes (6)**	**12 (6)**
R99	**67**	**Yes (4)**	**11 (4)**
R43A	**70**	**Yes (4)**	**12 (4)**
R20A	**66**	**Yes (4)**	**10 (4)**
R102	**73**	**Yes (4)**	**11 (4)**
R22A	**68**	**Yes (4)**	**10 (4)**
R102A	**68**	**Yes (4)**	**11 (4)**
R110	**68**	**Yes (4)**	**5 (4)**
R111	**66**	**Yes (4)**	**8 (4)**
R113 (Baseball Field)	63	No (0)	**7 (1)**
R114 (Baseball Field)	62	No (0)	**7 (1)**
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**258**	**304[2]**

[1] All noise level and noise reduction estimates shown are rounded to nearest whole number.
[2] Includes 50 non-impacted receptor benefits.

3.2 Segment 8 Noise Impact Analysis Findings

A summary of the future Segment 8 Build noise levels under 2040 Design Build Year peak hour traffic conditions is provided in Table 3 for all TNM modeling receiver sites adjacent to the I-75 southbound lanes which includes all the receptor sites behind proposed Southbound Sound Barrier SB1. A single TNM receiver site is a discrete or representative exterior modeling location of sensitive properties for any of the land uses listed in Table 1. Each TNM receiver site can either represent a single unit or multiple dwelling units. Receivers modeled behind barrier SB1 consists of single family trailer park style homes. Column one in each table identifies the TNM modeling receiver sites, column two provides an estimate of the TNM predicted unabated build year 2040 noise level with noise level estimates above the impact threshold are shown in bold font. Additionally, column three specifies whether a noise impact occurs with the number of dwelling impacts shown in parenthesis and column four indicates the noise reduction level achieved with the number of benefitting dwelling units shown in parenthesis.

In addition, Figure 10 provides a graphical representation of each of the modeled TNM receivers, the represented properties and their relative noise exposure versus the MDOT impacted threshold. A red dot in Figure 10 indicates a noise impact and a green dot represents a TNM receiver location projected to remain below the 66 dB(A) impact threshold. In general, the noise analysis findings indicate that all first-row modeled receivers and many second-row sites are projected to exceed the 66 dB(A) impact threshold. The highest projected noise levels are expected to reach 74 to 75 dB(A) at the closest properties located adjacent to I-75. As indicated in Table 3, a total of 52 TNM modeling locations were evaluated, and impacts are projected to occur at 31 of these properties under future 2040 Design Build Year traffic conditions.

Table 3 – Summary of Segment 8 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to South-bound Barrier 1 (SB1)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R1	**76**	**Yes (1)**	**9 (1)**
R2	**75**	**Yes (1)**	**9 (1)**
R3	**74**	**Yes (1)**	**9 (1)**
R4	**75**	**Yes (1)**	**9 (1)**
R5	**74**	**Yes (1)**	**9 (1)**
R6	**74**	**Yes (1)**	**9 (1)**
R7	**74**	**Yes (1)**	**9 (1)**
R8	**74**	**Yes (1)**	**9 (1)**
R9	**75**	**Yes (1)**	**9 (1)**
R10	**74**	**Yes (1)**	**9 (1)**
R11	**74**	**Yes (1)**	**9 (1)**
R12	**74**	**Yes (1)**	**9 (1)**
R27B	**67**	**Yes (1)**	**5 (1)**
R14	**73**	**Yes (1)**	**9 (1)**
R15	**74**	**Yes (1)**	**9 (1)**
R17	**74**	**Yes (1)**	**7 (1)**
R27	65	No (0)	**5 (1)**
R28	**66**	**Yes (1)**	**5 (1)**
R29	**66**	**Yes (1)**	**5 (1)**
R30	**67**	**Yes (1)**	**5 (1)**
R31	**67**	**Yes (1)**	**5 (1)**
R32	65	No (0)	4 (0)
R34	**74**	**Yes (1)**	**8 (1)**
R36	64	No (0)	3 (0)
R37	65	No (0)	**5(1)**
R39	65	No (0)	3 (0)
R40	57	No (0)	0 (0)
R42	0	No (0)	0 (0)
R43	**73**	**Yes (1)**	**8 (1)**
R45	60	No (0)	0 (0)
R46	64	No (0)	1 (0)
R48	**67**	**Yes (1)**	3 (0)

Table 3 – Summary of Segment 8 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to South-bound Barrier 1 (SB1) (Continued)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R49	**71**	**Yes (1)**	**5 (1)**
R51	62	No (0)	2 (0)
R52	59	No (0)	0 (0)
R53	63	No (0)	4 (0)
R55	**66**	**Yes (1)**	**5 (1)**
R57	**69**	**Yes (1)**	**5 (1)**
R59	62	No (0)	1 (0)
R61	63	No (0)	2 (0)
R62	64	No (0)	4 (0)
R64	63	No (0)	4 (0)
R66	61	No (0)	4 (0)
R67	60	No (0)	3 (0)
R68	58	No (0)	1 (0)
R69	59	No (0)	2 (0)
R70	58	No (0)	1 (0)
R72	**77**	**Yes (1)**	**11 (1)**
R73	**77**	**Yes (1)**	**10 (1)**
R74	**76**	**Yes (1)**	**10 (1)**
R75	**76**	**Yes (1)**	**10 (1)**
R76	**76**	**Yes (1)**	**10 (1)**
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**31**	**32[2]**

[1]All noise level and noise reduction estimates shown are rounded to nearest whole number.

[2] Includes 2 non-impacted receptor benefits.

3.3 Segment 9 Noise Impact Analysis Findings

A single TNM receiver site is a discrete or representative exterior modeling location of sensitive properties for any of the land uses listed in Table 1 with each TNM receiver site representing a single or multiple dwelling receptor sites. Noise predictions for modeling sites located adjacent to I-75 and behind Northbound Sound Barrier One (NB1) are presented in Table 4. Similarly, noise predictions for modeling sites located adjacent to I-75 and behind Southbound Sound Barrier One (SB1) are presented in Table 5. All receivers located behind both the northbound and southbound proposed barriers consist of multi-family apartment dwellings. The first column of each table identifies the TNM modeling receiver sites, column two provides an estimate of the TNM predicted unabated 2040 Design Build Year noise levels with impacted levels shown in both text. Additionally, column three specifies whether a noise impact occurs with the number of dwelling impacts shown in parenthesis and column four indicates the noise reduction level achieved with the number of benefitting dwelling units shown in parenthesis.

Figure 11 provides a graphical representation of each of the modeled TNM receivers, the represented properties and their relative noise exposure versus the MDOT impacted threshold. A red dot in Figure 11 indicates a noise impact and a green dot represents a TNM receiver location projected to remain below the 66 dB(A) impact threshold. In general, the noise analysis findings indicate that in the southbound direction all first-row receiver sites and many second-row properties are projected to exceed the 66 dB(A) impact threshold. On the other hand, in the northbound direction impacts do not go beyond the first-row properties because the buildings themselves act as small shielding elements that assist in reducing the traffic noise further away from I-75. In the northbound direction, 33 TNM modeling locations were evaluated representing a total of 88 dwellings consisting of multi-family residential apartment units. In the southbound direction, 66 TNM modeling locations were evaluated representing a total of 147 dwellings consisting of multi-family residential apartments units. The noise sensitive receiver sites were chosen to represent areas where noise impacts would most likely occur.

Table 4 – Summary of Segment 9 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to North-bound Barrier 1 (NB1)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R13	**72**	**Yes (2)**	3 (0)
R15	**68**	**Yes (3)**	**8 (3)**
R16	**71**	**Yes (1)**	**7 (1)**
R18	**73**	**Yes (1)**	**7 (1)**
R19	**72**	**Yes (5)**	**10 (5)**
R20	**74**	**Yes (1)**	**10 (1)**
R22	**74**	**Yes (1)**	**10 (1)**
R23	**72**	**Yes (5)**	**9 (5)**
R24	**74**	**Yes (1)**	**9 (1)**
R26	**75**	**Yes (1)**	**9 (1)**
R27	**72**	**Yes (5)**	**9 (5)**
R28	**75**	**Yes (1)**	**9 (1)**
R30	**76**	**Yes (6)**	**8 (6)**
R31	**77**	**Yes (6)**	**8 (6)**
R33	**77**	**Yes (6)**	**8 (6)**
R34	**77**	**Yes (6)**	**7 (6)**
R35	**76**	**Yes (6)**	**5 (6)**
R88	**74**	**Yes (3)**	4 (0)
R13A	**72**	**Yes (2)**	**5 (2)**
R16A	**73**	**Yes (1)**	**8 (1)**
R16B	**72**	**Yes (1)**	**9 (1)**
R16C	**74**	**Yes (1)**	**7 (1)**
R18A	**75**	**Yes (1)**	**10 (1)**
R20A	**75**	**Yes (1)**	**10 (1)**

Table 4 – Summary of Segment 9 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to North-bound Barrier 1 (NB1) (Continued)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R22A	**75**	**Yes (1)**	**9 (1)**
R24A	**75**	**Yes (1)**	**9 (1)**
R26A	**75**	**Yes (1)**	**9 (1)**
R28A	**68**	**Yes (1)**	**8 (1)**
R109	**73**	**Yes (3)**	**9 (3)**
R110	**70**	**Yes (3)**	**7 (3)**
R111	**72**	**Yes (4)**	**9 (4)**
R112	**72**	**Yes (4)**	1 (0)
R113	**70**	**Yes (3)**	1 (0)
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**88**	**76**

Note: [1]All noise level and noise reduction estimates shown are rounded to nearest whole number.

Table 5 – Summary of Segment 9 Predicted 2040 Future Build Unabated Noise Levels & Noise Reduction with Abatement[1] Adjacent to Southbound Sound Barrier 1 (SB1)

TNM RECEIVER ID	PREDICTED 2035 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R37	**75**	**Yes (1)**	**11 (1)**
R38	**75**	**Yes (1)**	**10 (1)**
R39	**71**	**Yes (2)**	**10 (2)**
R40	**71**	**Yes (2)**	**10 (2)**
R42	**76**	**Yes (1)**	**11 (1)**
R43	**76**	**Yes (1)**	**10 (1)**
R44	**72**	**Yes (1)**	**11 (1)**
R45	**72**	**Yes (1)**	**10 (1)**
R46	**72**	**Yes (1)**	**10 (1)**
R47	**73**	**Yes (1)**	**10 (1)**
R49	**76**	**Yes (2)**	**11 (2)**
R50	**76**	**Yes (2)**	**9 (2)**
R51	**77**	**Yes (1)**	**11 (1)**
R52	**77**	**Yes (1)**	**9 (1)**
R54	**73**	**Yes (1)**	**11 (1)**
R55	**73**	**Yes (1)**	**9 (1)**
R56	**71**	**Yes (2)**	**11 (2)**
R57	**71**	**Yes (2)**	**9 (2)**
R58	**73**	**Yes (1)**	**11 (1)**
R59	**73**	**Yes (1)**	**9 (1)**
R60	**77**	**Yes (1)**	**11 (1)**
R61	**77**	**Yes (1)**	**9 (1)**
R63	**77**	**Yes (2)**	**11 (2)**
R64	**77**	**Yes (2)**	**9 (2)**
R65	**76**	**Yes (2)**	**10 (2)**
R66	**76**	**Yes (2)**	**8 (2)**
R66	**77**	**Yes (2)**	**7 (2)**
R68	**76**	**Yes (2)**	**10 (2)**
R69	**73**	**Yes (2)**	**8 (2)**
R70	**73**	**Yes (2)**	**9 (2)**
R71	**76**	**Yes (2)**	**6 (2)**
R73	**76**	**Yes (3)**	**9 (3)**

Table 5 – Summary of Segment 9 Predicted 2040 Future Build Unabated Noise Levels & Noise Reduction with Abatement[1] Adjacent to Southbound Sound Barrier 1 (SB1) (Continued)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R74	**74**	**Yes (3)**	**5 (3)**
R76	**74**	**Yes (2)**	**9 (2)**
R77	**71**	**Yes (2)**	2 (0)
R80	**71**	**Yes (6)**	**7 (6)**
R82	**69**	**Yes (6)**	1 (0)
R84	**69**	**Yes (2)**	**7 (2)**
R85	64	No (0)	0 (0)
R87	63	No (0)	1 (0)
R114	**70**	**Yes (3)**	**10 (3)**
R126	**70**	**Yes (4)**	**10 (4)**
R127	**68**	**Yes (4)**	**10 (4)**
R129	**66**	**Yes (4)**	**10 (4)**
R130	**71**	**Yes (4)**	**7 (4)**
R132	**68**	**Yes (4)**	**5 (4)**
R133	**69**	**Yes (4)**	**5 (4)**
R135	**66**	**Yes (4)**	4 (0)
R136	**73**	**Yes (4)**	**9 (4)**
R138	**72**	**Yes (4)**	**9 (4)**
R139	**74**	**Yes (4)**	**10 (4)**
R141	**73**	**Yes (4)**	**9 (4)**
R142	**75**	**Yes (4)**	**11 (4)**
R144	**73**	**Yes (4)**	**10 (4)**
R145	**77**	**Yes (4)**	**12 (4)**
R147	**74**	**Yes (2)**	**10 (2)**
R148	**72**	**Yes (2)**	**9 (2)**
R150	**72**	**Yes (1)**	**9 (1)**
R151	**76**	**Yes (1)**	**9 (1)**
R153	**75**	**Yes (1)**	**10 (1)**
R154	**66**	**Yes (1)**	**5 (1)**

Table 5 – Summary of Segment 9 Predicted 2040 Future Build Unabated Noise Levels & Noise Reduction with Abatement[1] Adjacent to Southbound Sound Barrier 1 (SB1) (Continued)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
Receiver155	**66**	**Yes (2)**	**8 (2)**
Receiver156	**69**	**Yes (2)**	2 (0)
Receiver76A	**68**	**Yes (2)**	**7 (2)**
Receiver77A	**67**	**Yes (2)**	0 (0)
Receiver82A	**66**	**Yes (2)**	0 (0)
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**147**	**129**

Note: [1]All noise level and noise reduction estimates shown are rounded to nearest whole number.

3.4 Segment 10 Noise Impact Analysis Findings

A single TNM receiver site is a discrete or representative exterior modeling location of sensitive properties for any of the land uses listed in Table 1 with each TNM receiver site representing a single or multiple dwelling receptor site. Noise predictions for modeling sites located adjacent to I-75 northbound lanes and behind Northbound Sound Barrier 1 (NB1) are presented in Table 6. Similarly, noise predictions for modeling sites located adjacent to I-75 southbound lanes and behind Southbound Sound Barrier 1 (SB1) are presented in Table 7. All receivers behind the northbound Sound Barrier 1 consist of single family residents and the receivers behind the southbound Sound Barrier 1 are multi-family apartment units. In addition, included behind southbound Sound Barrier 1 is a tennis court receiver site. The first column of each table identifies the TNM modeling receiver sites, column two provides an estimate of the TNM predicted unabated 2040 Design Build Year noise levels with impacted levels shown in both text. Additionally, column three specifies whether a noise impact occurs with the number of dwelling impacts shown in parenthesis and column four indicates the noise reduction level achieved with the number of benefitting dwelling units shown in parenthesis.

Figure 12 provides a graphical representation of each of the modeled TNM receivers, the represented properties and their relative noise exposure versus the MDOT impacted threshold. A red dot in Figure 12 indicates a noise impact and a green dot represents a TNM receiver location projected to remain below the 66 dB(A) impact threshold.

In general, the noise analysis findings indicate that in the southbound direction, all first-row receiver sites and many second-row properties are projected to exceed the 66 dB(A) impact threshold. On the other hand, in the northbound direction impacts do not go beyond a few first-row properties largely because many of these homes are farther away from I-75. In the northbound direction, a total of 13 TNM modeling locations were evaluated representing all single-family residences. Under future 2040 Design Build traffic conditions, impacts are projected to occur at 4 dwellings. Conversely, in the southbound direction, 37 TNM modeling receiver points representing mainly multi-family apartments are predicted to occur at 78 total dwellings with noise levels predicted at or above the impact threshold.

Table 6 – Summary of Segment 10 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to North-bound Barrier 1 (NB1)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R25	63	No (0)	1 (0)
R26	63	No (0)	2 (0)
R27	64	No (0)	3 (0)
R28	64	No (0)	4 (0)
R29	64	No (0)	4 (0)
R30	65	No (0)	**6 (1)**
R31	**66**	**Yes (1)**	**7 (1)**
R32	**66**	**Yes (1)**	**7 (1)**
R33	**66**	**Yes (1)**	**7 (1)**
R34	**66**	**Yes (1)**	**7 (1)**
R35	65	No (0)	**7 (1)**
R36	**66**	**Yes (1)**	**7 (1)**
R37	65	No (0)	**7 (1)**
R38	64	No (0)	**6 (1)**
R39	59	No (0)	4 (0)
R40	58	No (0)	**5 (1)**
R41	57	No (0)	4 (0)
R43	61	No (0)	1 (0)
R44	62	No (0)	**5 (1)**
R45	59	No (0)	**5 (1)**
R46	59	No (0)	1 (0)
R47	57	No (0)	4 (0)
R48	58	No (0)	**5 (1)**
R49	58	No (0)	**5 (1)**
R50	57	No (0)	4 (0)
R51	57	No (0)	3 (0)
R52	57	No (0)	3 (0)
R53	57	No (0)	3 (0)
R54	57	No (0)	2 (0)
R55	57	No (0)	1 (0)
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**5**	**14[2]**

Note: [1]All noise level and noise reduction estimates shown are rounded to nearest whole number.
[2] Includes 9 non-impacted benefits.

Table 7 – Summary of Segment 10 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to South-bound Barrier 1 (SB1)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R1	**68**	**Yes (1)**	4 (0)
R2	**73**	**Yes (5)**	**8 (5)**
R3	**73**	**Yes (4)**	**7 (4)**
R4	63	No (0)	3 (0)
R5	**71**	**Yes (4)**	**6 (4)**
R6	**74**	**Yes (7)**	**9 (7)**
R7	**75**	**Yes (2)**	**8 (2)**
R8	64	No (0)	3 (0)
R9	**70**	**Yes (2)**	**5 (2)**
R10	**71**	**Yes (2)**	**6 (2)**
R12	**75**	**Yes (2)**	**7 (2)**
R13	**70**	**Yes (4)**	**5 (4)**
R14	65	No (0)	3 (0)
R15	**72**	**Yes (3)**	**7 (3)**
R16	**76**	**Yes (2)**	**10 (2)**
R17	**72**	**Yes (2)**	**8 (2)**
R18	**73**	**Yes (4)**	**8 (4)**
R19	**75**	**Yes (5)**	**8 (5)**
R20	**72**	**Yes (2)**	**5 (2)**
Tennis Court	**72**	**Yes (2)**	**6 (2)**
R1A	62	No (0)	2 (0)
R5A	61	No (0)	3 (0)
R7A	**70**	**Yes (4)**	**5 (4)**
R9A	**68**	**Yes (2)**	**5 (2)**
R10A	**68**	**Yes (2)**	**5 (2)**
R10B	61	No (0)	2 (0)
R12A	**70**	**Yes (2)**	**5 (2)**
R12B	64	No (0)	3 (0)
R13A	**68**	**Yes (2)**	4 (0)

Table 7 – Summary of Segment 10 Predicted 2040 Future Build Unabated Noise Level & Noise Reduction with Abatement[1] Adjacent to South-bound Barrier 1 (SB1) (Continued)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R14A	64	No (0)	3 (0)
R15A	65	No (0)	5 (0)
R15B	61	No (0)	4(0)
R16A	**75**	**Yes (3)**	**10 (3)**
R17A	**69**	**Yes (3)**	**7 (3)**
R19A	**75**	**Yes (2)**	**8 (2)**
R20A	**67**	**Yes (5)**	3 (0)
R19B	61	No (0)	3(0)
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**78**	**70**

Note: [1]All noise level and noise reduction estimates shown are rounded to nearest whole number.

3.5 Segment 11A Noise Impact Analysis Findings

A single TNM receiver site is a discrete or representative exterior modeling location of sensitive properties for any of the land uses listed in Table 1 with each TNM receiver site representing a single or multiple dwelling receptor site. Unabated noise prediction levels for the modeled sites adjacent to the I-75 southbound lanes and located behind Southbound Sound Barrier 1 (SB1) are presented in Table 8. Similarly, noise predictions levels for modeled sites adjacent to the I-75 in the northbound lanes and located behind Northbound Sound Barrier 1 (NB1) are presented in Table 9. All receivers behind the southbound sound barrier consist of multi-family residential units and those behind the Northbound Sound Barrier are single family homes. The first column of each table identifies the TNM modeling receiver sites, column two provides an estimate of the TNM predicted unabated 2040 Design Build Year noise levels with impacted levels shown in both text. Additionally, column three specifies whether a noise impact occurs with the number of dwelling impacts shown in parenthesis and column four indicates the noise reduction level achieved with the number of benefitting dwelling units shown in parenthesis.

Figure 13 provides a graphical representation of each of the modeled TNM receivers and their relative noise exposure versus the MDOT impacted threshold. A red dot in Figure 13 indicates a noise impact and a green dot represents a TNM receiver location projected to remain below the 66 dB(A) impact threshold.

In general, the noise analysis findings indicate that in the southbound direction, all first-row receiver sites and a few second-row properties are projected to exceed the 66 dB(A) impact threshold. On the other hand, in the northbound direction, impacts do not go beyond the few first-row properties largely because many of the second-row receivers located on the southern end of the barrier location are slightly depressed in elevation and most the receivers along the northern portion of this area are protected by an existing berm. In the southbound direction, a total of 54 TNM modeling locations were evaluated consisting of multi-family residential apartment units, a tennis court and a playground area where noise impacts are projected to occur at 50 dwellings. In the northbound direction, 50 TNM modeling receiver points were modeled representing single family residential homes where noise levels at or above the impact threshold are projected to occur at 19 dwellings.

Table 8 – Summary of Segment 11A Predicted 2040 Future Unabated Noise Levels & Noise Reduction with Abatement[1] Adjacent to South-bound Barrier 1 (SB1)

RECEPTOR ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dBA	MDOT/FHWA IMPACT (YES/NO)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R2	63	No (0)	**5 (1)**
R3	**69**	**Yes (2)**	**6 (2)**
R4	65	No (0)	**6 (2)**
R5	**71**	**Yes (2)**	**7 (2)**
R6	64	No (0)	**6 (1)**
R7	**69**	**Yes (2)**	**9 (2)**
R8	62	No (0)	**6 (1)**
R9	**67**	**Yes (2)**	**9 (2)**
R10	60	No (0)	**5 (1)**
R11	**66**	**Yes (2)**	**7 (2)**
R12	63	No (0)	**6 (1)**
R13	**69**	**Yes (2)**	**8 (2)**
R14	**70**	**Yes (2)**	**7 (2)**
R15	**74**	**Yes (2)**	**9 (2)**
R16	**70**	**Yes (2)**	**7 (2)**
R17	**74**	**Yes (2)**	**8 (2)**
R18	55	No (0)	1 (0)
R19	58	No (0)	**6 (1)**
R20	55	No (0)	**5 (1)**
R21	63	No (0)	**8 (1)**
R22	52	No (0)	**5 (1)**
R23	49	No (0)	0 (0)
R24	46	No (0)	0 (0)
R25	49	No (0)	0 (0)
R26	55	No (0)	**5 (1)**
R27	61	No (0)	**8 (1)**
R28	58	No (0)	**7 (1)**
R29	**66**	**Yes (2)**	**10 (2)**
R30	**67**	**Yes (2)**	**9 (2)**
R31	**67**	**Yes (2)**	**10 (2)**
R32	60	No (0)	**6 (1)**
R33	63	No (0)	**8 (1)**
R34	64	No (0)	3 (0)

Table 8 – Summary of Segment 11A Predicted 2040 Future Unabated Noise Levels & Noise Reduction with Abatement[1] Adjacent to South-bound Barrier 1 (SB1) (Continued)

RECEPTOR ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dBA	MDOT/FHWA IMPACT (YES/NO)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R35	**68**	**Yes (2)**	3 (0)
R36	**66**	**Yes (2)**	3 (0)
R37	**71**	**Yes (2)**	**5 (2)**
R38	63	No (0)	2 (0)
R39	**67**	**Yes (2)**	3 (0)
R40	51	No (0)	3 (0)
R41	55	No (0)	4 (0)
R42	50	No (0)	2 (0)
R43	54	No (0)	4 (0)
R44	63	No (0)	1 (0)
R45	**66**	**Yes (2)**	2 (0)
R47	59	No (0)	4 (0)
R48	57	No (0)	0 (0)
R49	50	No (0)	0 (0)
R50	63	No (0)	**8 (1)**
R98	61	No (0)	2 (0)
R99	**66**	**Yes (2)**	3 (0)
R101	63	No (0)	1 (0)
R102	**68**	**Yes (2)**	2 (0)
Tennis Courts	**66**	**Yes (4)**	**7 (4)**
Playground	**66**	**Yes (6)**	**6 (6)**
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**50**	**55[2]**

[1]All noise level and noise reduction estimates shown are rounded to nearest whole number.

[2] Includes 17 non-impacted benefitted dwellings.

Table 9 – Summary of Segment 11A Predicted 2040 Future Unabated Noise Levels & Noise Reduction with Abatement[1] Adjacent to North-bound Barrier 1 (NB1)

RECEPTOR ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dBA	MDOT/FHWA IMPACT (YES/NO)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R52	**69**	**Yes (1)**	**5 (1)**
R53	65	No (0)	3 (0)
R54	61	No (0)	2 (0)
R55	61	No (0)	**5 (1)**
R56	64	No (0)	**6 (1)**
R57	**68**	**Yes (1)**	**8 (1)**
R58	65	No (0)	**5 (1)**
R59	60	No (0)	4 (0)
R60	58	No (0)	4 (0)
R61	**69**	**Yes (1)**	**8 (1)**
R62	64	No (0)	**5 (1)**
R63	61	No (0)	4 (0)
R64	**69**	**Yes (1)**	**8 (1)**
R65	64	No (0)	**5 (1)**
R66	61	No (0)	4 (0)
R67	**70**	**Yes (1)**	**10 (1)**
R68	65	No (0)	**8 (1)**
R69	60	No (0)	**5 (1)**
R70	**70**	**Yes (1)**	**9 (1)**
R71	**66**	**Yes (1)**	**8 (1)**
R72	65	No (0)	**7 (1)**
R73	**66**	**Yes (1)**	**7 (1)**
R74	**66**	**Yes (1)**	**7 (1)**
R75	**66**	**Yes (1)**	**7 (1)**
R76	**66**	**Yes (1)**	**7 (1)**
R77	**66**	**Yes (1)**	**6 (1)**
R78	**66**	**Yes (1)**	**6 (1)**
R79	**66**	**Yes (1)**	**6 (1)**
R80	**67**	**Yes (1)**	**7 (1)**
R81	**66**	**Yes (1)**	**6 (1)**
R82	**66**	**Yes (1)**	**6 (1)**
R83	64	No (0)	**6 (1)**
R84	**69**	**Yes (1)**	**7 (1)**
R85	**66**	**Yes (1)**	**6 (1)**
R86	65	No (0)	4 (0)
R87	64	No (0)	3 (0)
R90	63	No (0)	2 (0)
R91	63	No (0)	2 (0)

Table 9 – Summary of Segment 11A Predicted 2040 Future Unabated Noise Levels & Noise Reduction with Abatement[1] Adjacent to North-bound Barrier 1 (NB1) (continued)

RECEPTOR ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dBA	MDOT/FHWA IMPACT (YES/NO)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R92	64	No (0)	3 (0)
R93	63	No (0)	3 (0)
R94	63	No (0)	2 (0)
R72A	65	No (0)	**7 (1)**
R73A	65	No (0)	**7 (1)**
R94A	63	No (0)	3 (0)
R94B	62	No (0)	2 (0)
R94C	61	No (0)	1 (0)
R94D	61	No (0)	1 (0)
R94E	60	No (0)	1 (0)
R94F	56	No (0)	0 (0)
R94G	56	No (0)	0 (0)
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**19**	**30[2]**

[1] All noise level and noise reduction estimates shown are rounded to nearest whole number.

[2] Includes 11 non-impacted benefited dwellings.

3.6 Segment 11 Noise Impact Analysis Findings

A summary of the future Segment 11 Build noise levels predictions developed from the 2040 Design Build peak hour traffic conditions is provided in Table 10 and Table 11 for all receptor sites adjacent to the I-75 southbound direction. Receptor sites are discrete or representative locations of noise sensitive area(s) for any of the land uses listed in Table 1. Noise predictions for receptor sites adjacent to I-75 southbound and located behind Sound Barrier One (SB1) are contained in Table 10 and receptor sites located behind Sound Barrier Two (SB2) are provided in Table 11. All receptors behind Sound Barrier One (SB1) consist of single family residential properties and receptors behind Sound Barrier Two (SB2) include multi-unit town homes. Column one in each table identifies the TNM modeling receptor site and column two provides an estimate of the TNM predicted unabated build year 2040 noise level. Column three identifies whether a noise impact exceedance occurs and column four indicates the noise reduction level achieved with the number of benefitting dwellings shown in parenthesis.

In addition, Figure 14 provides a graphical representation of each of the modeled TNM receiver sites, the properties they represent and their relative noise level compared to the MDOT impacted threshold. A red dot in Figure 14 indicates a noise impact and a green dot represents a TNM receiver location projected to remain below the 66 dB(A) impact threshold. In general, the noise analysis findings indicate that all first-row receptor sites are projected to exceed the impact threshold and in a few locations the second-row properties show elevated noise levels above 66 dB(A). Receptors located behind Sound Barrier One (SB1) are projected to experience unabated noise levels at or above the 66 dB(A) impact threshold at 25 out of the 46 TNM receivers modeled. Similarly, behind Sound Barrier Two (SB2) noise unabated noise levels are projected to exceed the impact threshold at 13 (representing a total of 26 receptor dwellings) out of the 52 TNM receiver sites modeled. Therefore, out of the 98 modeled TNM receiver sites along the southbound side of I-75 under future build conditions noise impacts are projected to occur at 38 receiver points representing 51 residential dwellings units.

Table 10 – Summary of Segment 11 Predicted 2040 Future Build Unabated Noise Levels & Noise Reduction Achieved with Abatement[1] Adjacent to South-bound Sound Barrier 1 (SB1)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R1	**67**	**Yes (1)**	1 (0)
R2	**69**	**Yes (1)**	3 (0)
R3	**70**	**Yes (1)**	**5 (1)**
R4	**70**	**Yes (1)**	**6 (1)**
R5	**70**	**Yes (1)**	**6 (1)**
R6	**70**	**Yes (1)**	**7 (1)**
R7	**70**	**Yes (1)**	**7 (1)**
R8	**70**	**Yes (1)**	**7 (1)**
R9	**70**	**Yes (1)**	**7 (1)**
R10	**70**	**Yes (1)**	**7 (1)**
R11	**72**	**Yes (1)**	**9 (1)**
R12	**73**	**Yes (1)**	**9 (1)**
R13	**73**	**Yes (1)**	**9 (1)**
R14	**74**	**Yes (1)**	**10 (1)**
R15	**74**	**Yes (1)**	**10 (1)**
R16	**75**	**Yes (1)**	**10 (1)**
R17	**74**	**Yes (1)**	**9 (1)**
R18	**74**	**Yes (1)**	**9 (1)**
R19	**74**	**Yes (1)**	**9 (1)**
R20	**74**	**Yes (1)**	**9 (1)**
R21	**73**	**Yes (1)**	**8 (1)**
R22	**73**	**Yes (1)**	**8 (1)**
R23	**73**	**Yes (1)**	**9 (1)**
R24	**74**	**Yes (1)**	**9 (1)**
R25	**71**	**Yes (1)**	**7 (1)**
R26	65	No	**6 (1)**
R27	62	No	**5 (1)**
R28	63	No	**7 (1)**

Table 10 – Summary of Segment 11 Predicted 2040 Future Build Unabated Noise Levels & Noise Reduction Achieved with Abatement[1] Adjacent to South-bound Sound Barrier 1 (SB1) (Continued)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R87	63	No	4 (0)
R89	63	No	**6 (1)**
R90	63	No	**5 (1)**
R1A	65	No	1 (0)
R87A	63	No	3 (0)
R87B	63	No	**5 (1)**
R87C	62	No	**6 (1)**
R87D	61	No	**6 (1)**
R87E	61	No	**6 (1)**
R28A	62	No	**6 (1)**
R28B	63	No	**6 (1)**
R28C	63	No	**6 (1)**
R28D	62	No	**6 (1)**
R89A	60	No	**5 (1)**
R89B	57	No	3 (0)
R89C	56	No	3 (0)
R89D	58	No	2 (0)
R90A	62	No	**5 (1)**
R90B	60	No	**5 (1)**
R90C	59	No	3 (0)
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**25**	**39[2]**

[1] All noise level and noise reduction estimates shown are rounded to nearest whole number.

[2] Includes 16 non-impacted benefits.

Table 11 – Summary of Segment 11 Predicted 2040 Future Build Unabated Noise Levels & Noise Reduction Achieved with Abatement[1] Adjacent to South-bound Sound Barrier 2 (SB2)

TNM RECEIVER ID	PREDICTED 2035 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R57	**71**	**Yes (2)**	**6 (2)**
R58	**75**	**Yes (2)**	**9 (2)**
R59	**74**	**Yes (2)**	**9 (2)**
R60	63	No	**6 (2)**
R61	**66**	**Yes (2)**	4 (0)
R62	64	No	4 (0)
R63	59	No	3 (0)
R64	56	No	2 (0)
R65	61	No	2 (0)
R66	62	No	3 (0)
R67	65	No	4 (0)
R68	**67**	**Yes (1)**	**5 (1)**
R69	**69**	**Yes (2)**	**7 (2)**
R70	**72**	**Yes (2)**	**9 (2)**
R71	**68**	**Yes (2)**	4 (0)
R72	65	No	**5 (2)**
R73	49	No	0 (0)
R74	49	No	0 (0)
R75	51	No	1 (0)
R76	51	No	0 (0)
R77	59	No	2 (0)
R91	61	No	**5 (4)**
R91A	55	No	2 (0)
R92	64	No	**5 (1)**
R92A	62	No	**5 (2)**
R57B	65	No	**6 (3)**
R57A	**67**	**Yes (3)**	**6 (3)**
R59A	64	No	**5 (3)**
R59B	60	No	3 (0)
R58A	**73**	**Yes (2)**	**8 (2)**
R58B	**74**	**Yes (2)**	**9 (2)**

Table 11 – Summary of Segment 11 Predicted 2040 Future Build Unabated Noise Levels & Noise Reduction Achieved with Abatement[1] Adjacent to South-bound Sound Barrier 2 (SB2) (Continued)

TNM RECEIVER ID	PREDICTED 2040 UNABATED BUILD NOISE LEVEL L_{eq} (1 HR) dB(A)	MDOT/FHWA IMPACT YES or NO (NUMBER OF IMPACTS)	NOISE REDUCTION ACHIEVED WITH ABATEMENT (NUMBER OF BENEFITS)
R60A	65	No	**6 (2)**
R60B	61	No	**5 (2)**
R61A	**66**	**Yes (2)**	**5 (2)**
R62A	59	No	1 (0)
R63A	55	No	2 (0)
R64A	55	No	2 (0)
R65A	54	No	1 (0)
R69A	63	No	3 (0)
R74A	51	No	0 (0)
R75A	50	No	0 (0)
R71A	65	No	2 (0)
R77A	55	No	1 (0)
R72A	57	No	2 (0)
R70A	**67**	**Yes (2)**	**5 (2)**
R76A	49	No	0 (0)
R73A	46	No	0 (0)
R73B	55	No	1 (0)
R73C	56	No	2 (0)
R74B	51	No	0 (0)
R74C	52	No	1 (0)
R75B	54	No	1 (0)
TOTAL NUMBER OF RECEPTOR IMPACTS & BENEFITS		**26**	**43[2]**

[1] All noise level and noise reduction estimates shown are rounded to nearest whole number.

[2] Includes 21 non-impacted benefits.

Figure 9 – Summary of Segment 7 Projected 2040 Build Year Impacted Receivers

Figure 10 – Summary of Segment 8 Projected 2040 Build Year Impacted Receivers

Figure 11 – Summary of Segment 9 Projected 2040 Build Year Impacted Receivers

Figure 12 – Summary of Segment 10 Projected 2040 Build Year Impacted Receivers

Figure 13 – Summary of Segment 11A Projected 2040 Build Year Impacted Receivers

Figure 14 – Summary of Segment 11 Projected 2040 Build Year Impacted Receivers

4.0 FUTURE 2040 BUILD CONDITIONS WITH ABATEMENT

4.1 Segment 7 Noise Abatement Findings

The present impact and abatement TNM analysis was completed using the 15% final highway design plans. Within Segment 7 portion of the study area, one northbound sound barrier was approved in the 2005 ROD which at the time was located at the ROW line closer to the residential properties. This updated abatement analysis revises the location of the sound barrier closer to the northbound shoulder of I-75. Furthermore, the southern terminus of Northbound Noise Barrier NB1 was extended over the 13 Mile Road overpass to provide better noise reduction the southernmost residential structures. Similarly, on the northern terminus, Sound Barrier NB1, was extended slightly further northward towards 14 Mile Road from the previous evaluated ROD location to mitigate noise impacts projected in this area. An illustration of the Northbound Noise Barrier NB1 is shown in Figure 15. Northbound Noise Barrier NB1 was optimized to achieve a substantial noise reduction to reduce the high unabated levels projected at the nearest residential properties adjacent to I-75.

In the present 2040 Design Build Year analysis, barrier heights were optimized in one foot increments and barrier segments were modeled in 50-foot to a maximum of 100-foot segment lengths. Barrier wall terminus locations were determined to achieve the best possible noise reduction at the last impacted receiver near the wall terminus point. In addition, all sound barrier configurations included a line-of-site evaluation to ensure first row residences were fully shielded from viewing the highway.

A summary of the noise reduction levels achieved and the number benefitting dwellings for each modeled TNM receiver is shown in the far-right hand column of Table 2 for the proposed northbound sound barrier NB1. The number of dwelling benefits is shown in parenthesis and impacted receptors which achieve the minimum 5 decibel noise reduction are shown in bold face text. A total of 304 dwelling benefits are projected to occur behind Northbound Sound Barrier NB1.

A summary of the feasibility and reasonableness of the ROD approved Northbound Sound Barrier NB1 is provided in Table 12. Based on the abatement analysis update, the total cost of the Northbound Sound Barrier NB1 sound barrier is approximately $2,692,188 or approximately $8,856 per benefited dwelling which is well below the MDOT reasonable cost limit of $45,942 per benefiting dwelling. Northbound Noise Barrier NB1 consists of 4,399 total linear feet of sound wall at an average height of 13.6 feet providing abatement to 304 total benefitting dwellings. A noise reduction of 5 dB(A) or more is achieved at 254 (98%) of the impacted receptors and a 7 dB(A) minimum reduction is realized at 250 (97%) of these impacted receptors. Lastly, 226 of these receptors are projected to achieve a noise reduction of 10 dB(A) or more. The proposed sound barrier height and barrier stationing locations in 50 to 100 foot increments are provided in Appendix A tables.

Therefore, based on these analysis findings and as per the 2005 ROD recommendations proposed Northbound Sound Barrier NB1 remains recommended, and therefore this sound barrier will be considered in final design where the viewpoints of the benefiting property owners and residences will be considered as part of the next phase public involvement process.

Table 12 – Feasibility and Reasonableness Assessment
Segment 7 Behind Proposed Northbound Sound Barrier (NB1)

FEASIBILITY CONSIDERATION	YES OR NO
Engineering Consideration: Can the abatement measure be built?	Yes [(1)]
Acoustic Consideration: Does the proposed abatement measure provide a reduction of at least 5 dB(A) at 75% of the impacted receptors?	Yes [(1)]
REASONABLENESS CONSIDERATION	
Design Goal: Does the proposed abatement measure provide a reduction of 10 dB(A) for one benefiting receptor and at least 7 dB(A) at 50% or more of the benefiting receptor sites?	Yes [(1)]
Design Goal: Does the proposed abatement measure cost less than $45,942 per benefiting receptor site?	Yes [(1)]
Viewpoint of Benefiting Property Owners and Residences: Were positive responses in favor of the abatement measure obtained from at least 50% or more of the tallied votes?	Next Phase [(1)]
DETAILS OF THE ABATEMENT MEASURE COST AND ACOUSTIC EFFECTIVE FINDINGS	
Impacted Receptors Behind Proposed Sound Barrier(s)	258
# of Impacted Receptors with 5 dB(A) Noise Reduction	254
# of Non-Impacted Receptors with 5 dB(A) Noise Reduction	50
Total Number of Benefitting Receptors	304
% of Impacted Receptors with 5 dB(A)Noise Reduction	98%
# of Impacted Receptors with 7 dB(A) Noise Reduction	250
% of Impacted Receptors with 7 dB(A) Noise Reduction	97%
# of Impacted Receptors with 10 dB(A)Noise Reduction	226
Total Cost (dollars)	$2,692,188
Cost Per Benefitting Receptor Unit (CPBU in dollars)	$8,856
Total Length (feet)	4,399 ft.
Average Height (feet)	13.6 ft.
Total Square Footage	59,826 ft^2

[(1)] If all the questions can be answered "Yes" then the abatement measure is considered feasible and reasonable.

4.1.1 Statement of Likelihood

Based on the studies thus far accomplished, the Michigan Department of Transportation (MDOT) intends to install highway traffic noise abatement in the form of sound barriers listed in Table 12 and as depicted by the dashed blue and red line shown in Figure 15. The preliminary indications of likely abatement measures are based on preliminary design for noise barrier cost(s) and noise reduction as reported in Chapter 3 and 4 of this report. If it subsequently develops during the final design that these conditions have substantially changed, the abatement measures may not be provided. A final decision of the installation and aesthetics of the abatement measures will be made upon completion of the project's final design and the Context Sensitive Design Process.

4.2 Segment 8 Noise Abatement Findings

The present impact and abatement TNM analysis was completed using the 15% final highway design plans. Within Segment 8 portion of the study area, one southbound sound barrier was approved in the 2005 ROD which at the time was positioned near the highway ROW line. This updated abatement analysis keeps the previous barrier location, but the southern and northern terminus points of Southbound Noise Barrier SB1 were extended to prevent the flanking of traffic noise near residential properties along the end of the barrier location. An illustration of the Southbound Noise Barrier SB1 is shown in Figure 16. Proposed Southbound Noise Barrier SB1 was optimized to achieve a substantial noise reduction of high unabated noise levels predicted at the residential properties closest to I-75.

In the present 2040 Design Build Year analysis, barrier heights were optimized in one-foot increments and barrier segments were modeled in 50-foot up to a maximum of 100-foot segment lengths. Barrier wall terminus locations were determined to achieve the best possible noise reduction at the last impacted receiver near the wall terminus point. In addition, all sound barrier configurations included a line-of-site evaluation to ensure first row residences were fully shielded from viewing the highway.

A summary of the noise reduction levels achieved and the number benefitting dwellings for each modeled TNM receiver is shown in the far-right hand column of Table 3 for the proposed Southbound Sound Bound SB1. The number of dwelling benefits is shown in parenthesis and impacted receptors which achieve the minimum 5 decibel noise reduction are shown in bold face text. A total of 32 dwelling benefits are projected to occur behind Southbound Sound Bound SB1.

A summary of the feasibility and reasonableness of the proposed Southbound Sound Bound SB1 is provided in Table 13. Based on the abatement analysis update, the total cost of the sound bound SB1 sound barrier is approximately $754,335 or $23,573 per benefited dwelling which is well below the MDOT reasonable cost limit of $45,942 cost per benefit. Southbound Noise Barrier SB1 consists of 1,341 total linear feet of sound wall at an average height of 12.5 feet providing abatement to 32 total benefitting dwellings out of 31 total projected noise impacts reported. Noise reduction of 5 dB(A) or more is achieved at 30 (97%) of the impacted dwellings with a 7 dB(A) minimum reduction is realized at 22 (71%) of these impacted receptors. Lastly, five receptors are expected to achieve a noise reduction of 10 dB(A) or more. The sound barrier height and barrier stationing location in 50 to 100-foot increments are provided in Appendix B.

Therefore, based on these analysis results and the previous 2005 ROD recommendations, the proposed southbound Sound Barrier SB1 is recommended, and should therefore be considered in final design. In addition, the viewpoints of the benefiting property owners and residences should be considered as part of the next phase public involvement process.

Table 13 – Feasibility and Reasonableness Assessment
Segment 8 Behind Proposed Southbound Sound Barrier 1 (SB1)

FEASIBILITY CONSIDERATION	YES OR NO
Engineering Consideration: Can the abatement measure be built?	Yes [(1)]
Acoustic Consideration: Does the proposed abatement measure provide a reduction of at least 5 dB(A) at 75% of the impacted receptors?	Yes[1)]
REASONABLENESS CONSIDERATION	
Design Goal: Does the proposed abatement measure provide a reduction of 10 dB(A) for one benefiting receptor and at least 7 dB(A) at 50% or more of the benefiting receptor sites?	Yes. Walls recommended as per ROD [(1)]
Design Goal: Does the proposed abatement measure cost less than $45,942 per benefiting receptor site?	Yes [(1)]
Viewpoint of Benefiting Property Owners and Residences: Were positive responses in favor of the abatement measure obtained from at least 50% or more of the tallied votes?	Next Phase [(1)]
DETAILS OF THE ABATEMENT MEASURE COST AND ACOUSTIC EFFECTIVE FINDINGS	
Impacted Receptors Behind Proposed Sound Barrier(s)	31
# of Impacted Receptors with 5 dB(A) Noise Reduction	30
# of Non-Impacted Receptors with a 5 dB(A) Noise Reduction	2
Total Number of Non-Impacted and Impacted Benefits	32
% of Impacted Receptors with 5 dB(A)Noise Reduction	97%
# of Impacted Receptors with 7 dB(A) Noise Reduction	22
% of Impacted Receptors with 7 dB(A) Noise Reduction	71%
# of Impacted Receptors with 10 dB(A)Noise Reduction	5
Total Cost (dollars)	$754,335
Cost Per Benefitting Receptor Unit (CPBU in dollars)	$23,573
Total Length (feet)	1,341 ft.
Average Height (feet)	12.5 ft.
Total Square Footage	16,763 ft^2

[(1)] If all the questions can be answered "Yes" then the abatement measure is considered feasible and reasonable.

4.2.1 Statement of Likelihood

Based on the studies thus far accomplished, the Michigan Department of Transportation (MDOT) intends to install highway traffic noise abatement in the form of sound barriers listed in Table 13 and as depicted by the dashed blue and red line shown in Figure 16. The preliminary indications of likely abatement measures are based on preliminary design for noise barrier cost(s) and noise reduction as reported in Chapter 3 and 4 of this report. If it subsequently develops during the final design that these conditions have substantially changed, the abatement measures may not be provided. A final decision of the installation and aesthetics of the abatement measures might not be provided. A final decision of the installation and aesthetics of the abatement measures will be made upon completion of the project's final design and the Context Sensitive Design Process.

4.3 Segment 9 Noise Abatement Findings

The present impact and abatement TNM analysis was completed using the 15% final highway design plans. Two sound barriers were identified within the Segment 9 study area, one in each direction adjacent to I-75. Each barrier was optimized for height, length and noise reduction. The two sound barriers are depicted in Figure 17. In the northbound direction, the proposed sound barrier is identified as Northbound Sound Barrier 1 (NB1). Similarly, in the southbound direction the proposed sound barrier is identified as Southbound Sound Barrier 1 (SB1). In the previous 2005 study the two sound barriers were placed closer to the residential areas and consisted of multiple barrier segments. In addition, all 2005 proposed sound barriers in Segment 9 were recommended as part of the 2005 ROD recommendations. In the updated 2040 Design Build Year analysis, multiple ROD approved sound barriers in each direction were consolidated into a single long sound barrier. In addition, both northbound NB1 and southbound SB1 were moved closer to I-75 to achieve better noise reduction.

In the present 2040 Design Build Year analysis, barrier heights were optimized in one foot increments and barrier segments were modeled in 50-foot up to a maximum of 100-foot segment lengths. Barrier wall terminus locations were determined to achieve the best possible noise reduction at the last impacted property near the wall terminus point. In addition, each sound barrier configuration included a line-of-site evaluation to ensure first row ground level residences were fully shielded from viewing the highway. Under the 2040 traffic projections, both northbound NB1 and southbound SB1 barriers were determined to cost well below MDOT's $45,942 maximum unit per benefiting dwelling limit.

A summary of the noise reduction levels achieved and the number benefitting dwellings for each modeled TNM receiver is shown in the far-right hand column of Table 4 for northbound Noise Barrier 1 (NB1) and Table 5 for southbound Sound Barrier 1 (SB1). In both tables the number of dwelling benefits is shown in parenthesis and impacted receptors which achieve the minimum 5 decibel noise reduction are shown in bold face text. A total of 76 dwelling benefits were identified behind Northbound NB1 and 129 dwelling benefits behind Southbound SB1.

A summary of the feasibility and reasonableness of northbound NB1 is provided in Table 14. Northbound Sound Barrier 1, (NB1), is a 2005 ROD approved sound barrier. In the previous analysis, multiple smaller sound barrier segments were considered. In the present analysis, a single long barrier mitigating the same general area was evaluated. Northbound NB1 was optimized to achieve the most noise reduction possible at a reasonable cost. Sound Barrier, NB1, consists of 2,546 total linear feet at an average height of 8.6 feet providing abatement to 76 total benefitting dwellings out of 88 total impacts reported which results in approximately $12,965 per benefited dwelling unit. The total cost of the northbound NB1 is approximately $985,320 dollars. Noise reduction of 5 dB(A) or greater is achieved at 86% of the impacted receptors and a 7 dB(A) minimum reduction is achieved at 77% of the impacted receptors. As a result of the study findings, northbound NB1 is recommended and therefore the viewpoints of the benefiting property owners and residences should be considered as part of the next phase public involvement process. Lastly, the sound barrier heights versus barrier stationing locations are provided in Appendix C tables.

Table 14 – Feasibility and Reasonableness Assessment
Segment 9 Behind Proposed Northbound Sound Barrier (NB1)

FEASIBILITY CONSIDERATION	YES OR NO
Engineering Consideration: Can the abatement measure be built?	Yes[(1)]
Acoustic Consideration: Does the proposed abatement measure provide a reduction of at least 5 dB(A) at 75% of the impacted receptors?	Yes[(1)]
REASONABLENESS CONSIDERATION	
Design Goal: Does the proposed abatement measure provide a reduction of 10 dB(A) for one benefiting receptor and at least 7 dB(A) at 50% or more of the benefiting receptor sites?	Yes Wall recommended as per ROD [(1)]
Design Goal: Does the proposed abatement measure cost less than $45,942 per benefiting receptor site?	Yes [(1)]
Viewpoint of Benefiting Property Owners and Residences: Were positive responses in favor of the abatement measure obtained from at least 50% or more of the tallied votes?	Next Phase[(1)]
DETAILS OF THE ABATEMENT MEASURE COST AND ACOUSTIC EFFECTIVE FINDINGS	
Impacted Receptors Behind Proposed Sound Barrier(s)	88
# of Impacted Receptors with 5 dB(A) Noise Reduction	76
# of Non-Impacted Receptors with 5 dB(A) Noise Reduction	None
% of Impacted Receptors with 5 dB(A)Noise Reduction	86%
# of Impacted Receptors with 7 dB(A) Noise Reduction	68
% of Impacted Receptors with 7 dB(A) Noise Reduction	77%
# of Impacted Receptors with 10 dB(A)Noise Reduction	9
Total Cost (dollars)	985,320
Cost Per Benefitting Receptor Unit (CPBU in dollars)	$12,965
Total Length (feet)	2,546 ft.
Average Height (feet)	8.6 ft.
Total Square Footage	21,896 ft.[2]

[(1)] If all the questions can be answered "Yes" then the abatement measure is considered feasible and reasonable.

A summary of the feasibility and reasonableness of the proposed southbound Sound Barrier SB1 is provided in Table 15. Southbound Sound barrier 1, (SB1), is a 2005 ROD approved sound barrier. In the previous analysis, multiple smaller sound barrier segments were considered. In the present analysis, a single long sound barrier mitigating the same general area was evaluated. Additionally, in the present analysis update, SB1 was relocated closer to I-75 to achieve better noise reduction. Sound Barrier, SB1 consists of 4,279 linear feet of sound wall at an average height of 11.3 feet providing abatement to 129 total benefitting dwellings out of 147 resulting impacts. The total cost of the southbound SB1 is approximately $2,175,885 million dollars resulting in an estimated $16,867 per benefited dwelling unit. Noise reduction of 5 dB(A) or more is realized at 88% of the impacted receptors and a 7 dB(A) minimum reduction is achieved at 78% of the impacted receptors. As a result of the study findings, southbound Sound Barrier SB1 is recommended and therefore the viewpoints of the benefiting property owners and residences should be considered as part of

the next phase public involvement process. Lastly, the sound barrier heights versus barrier stationing locations are provided in Appendix C tables.

Table 15 – Feasibility and Reasonableness Assessment
Segment 9 Behind Proposed Southbound Sound Barrier (SB1)

FEASIBILITY CONSIDERATION	YES OR NO
Engineering Consideration: Can the abatement measure be built?	Yes[(1)]
Acoustic Consideration: Does the proposed abatement measure provide a reduction of at least 5 dB(A) at 75% of the impacted receptors?	Yes[(1)]
REASONABLENESS CONSIDERATION	
Design Goal: Does the proposed abatement measure provide a reduction of 10 dB(A) for one benefiting receptor and at least 7 dB(A) at 50% or more of the benefiting receptor sites?	Yes Wall recommended as per ROD [(1)]
Design Goal: Does the proposed abatement measure cost less than $45,942 per benefiting receptor site?	Yes[(1)]
Viewpoint of Benefiting Property Owners and Residences: Were positive responses in favor of the abatement measure obtained from at least 50% or more of the tallied votes?	Next Phase [(1)]
DETAILS OF THE ABATEMENT MEASURE COST AND ACOUSTIC EFFECTIVE FINDINGS	
Impacted Receptors Behind Proposed Sound Barrier(s)	147
# of Impacted Receptors with 5 dB(A) Noise Reduction	129
# of Non-Impacted Receptors with 5 dB(A) Noise Reduction	None
% of Impacted Receptors with 5 dB(A)Noise Reduction	88%
# of Impacted Receptors with 7 dB(A) Noise Reduction	115
% of Impacted Receptors with 7 dB(A) Noise Reduction	78%
# of Impacted Receptors with 10 dB(A)Noise Reduction	60
Total Cost (dollars)	$2,175,885
Cost Per Benefitting Receptor Unit (CPBU in dollars)	$16,867
Total Length (feet)	4,279 ft.
Average Height (feet)	11.3 ft.
Total Square Footage	48,353 ft.^{2}

(1) If all the questions can be answered "Yes" then the abatement measure is considered feasible and reasonable.

4.3.1 Statement of Likelihood

Based on the recommendations of this noise analysis, MDOT intends to install highway traffic noise abatement in the form of sound barriers listed in Table 14 and Table 15 and as depicted by the red and blue dashed lines depicted in Figure 17. The preliminary indications of the proposed abatement measures are based on preliminary design for noise barrier costs and noise reduction as reported in Chapter 4 of this report. If it subsequently develops during the final design that these conditions have substantially changed, the abatement measures not be provided. A final decision of the installation and aesthetics of the abatement measures might not be provided. A final decision of the installation and aesthetics of the abatement measures will be made upon completion of the project's final design and the Context Sensitive Design Process.

4.4 Segment 10 Noise Abatement Findings

The present impact and abatement TNM analysis was completed using 15% final highway design plans. Two sound barriers were identified within the Segment 10 study area, one in each direction adjacent to I-75. Each barrier was optimized for height, length and noise reduction. The two sound barriers are depicted in Figure 18. In the northbound direction, the proposed sound barrier is identified as Northbound Sound Barrier 1 (NB1). Similarly, in the southbound direction the proposed sound barrier is identified as Southbound Sound Barrier 1 (SB1). In the previous 2005 study, the there was no northbound sound barrier considered. In addition, Southbound Sound Barrier 1 (SB1) was found both feasible and reasonable as part of the 2005 ROD recommendation findings.

In the present 2040 Design Build Year analysis, barrier heights were optimized in one foot increments and barrier segments were modeled in 50-foot up to a maximum of 100-foot segment lengths. Barrier terminus locations were determined to achieve the best possible noise reduction at the last impacted property near each barrier end point. In addition, each sound barrier configuration included a line-of-site evaluation to ensure first row ground level residences were fully shielded from viewing the highway. Using the 2040 traffic projections, the ROD approved southbound Sound Barrier 1 (SB1) was found to cost well below MDOT's $45,942 maximum benefiting dwelling limit per unit; however, the new proposed northbound sound barrier failed to provide adequate noise reduction at reasonable cost. The details of the 2040 traffic noise analysis findings are described below.

A summary of the noise reduction levels achieved and the number benefitting dwellings for each modeled TNM receiver is shown in the far-right hand column of Table 6 for northbound Noise Barrier 1 (NB1) and Table 7 for southbound Sound Barrier 1 (SB1). In both tables the number of dwelling benefits is shown in parenthesis and impacted receptors which achieve the minimum 5 decibel noise reduction are shown in bold face text. A total of 14 dwelling benefits were identified behind Northbound NB1 and a total of 70 dwelling benefits were identified behind Southbound Sound Barrier SB1.

A summary of the feasibility and reasonableness of northbound NB1 is provided in Table 16. Northbound Sound Barrier 1 (NB1), is a new proposed sound barrier location that was not considered in any previous noise analysis completed along this portion of the I-75 corridor. Northbound NB1 was optimized to achieve the best possible noise reduction at the most reasonable cost possible. Sound Barrier NB1, consists of 1,300 total linear feet of sound wall at an average height of 18.3 feet providing abatement to a total of 14 benefitting dwellings which includes all 5 impacted dwellings, resulting in a CPBU estimated of $76,468. This is significantly higher than MDOT's $45,942 maximum CPBU and therefore the proposed sound barrier fails on reasonable cost. The total cost of the northbound NB1 is approximately $1,070,550 dollars. Noise reduction of 5 dB(A) or greater is realized at 100% of the impacted receptors and a 7 dB(A) minimum reduction is achieved at 100% of the impacted receptors. Because Northbound Sound Barrier NB1 does not satisfy MDOT reasonable cost requirement, it is not recommended, and therefore seeking out the viewpoints of the benefiting property owners and residences is not necessary. The sound barrier height and stationing locations are provided in Appendix D tables.

Table 16 – Feasibility and Reasonableness Assessment
Segment 10 Behind Proposed Northbound Sound Barrier (NB1)

FEASIBILITY CONSIDERATION	YES OR NO
Engineering Consideration: Can the abatement measure be built?	Yes [(1)]
Acoustic Consideration: Does the proposed abatement measure provide a reduction of at least 5 dB(A) at 75% of the impacted receptors?	Yes [(1)]
REASONABLENESS CONSIDERATION	
Design Goal: Does the proposed abatement measure provide a reduction of 10 dB(A) for one benefiting receptor and at least 7 dB(A) at 50% or more of the benefiting receptor sites?	Yes [(1)]
Design Goal: Does the proposed abatement measure cost less than $45,942 per benefiting receptor site?	No [(1)]
Viewpoint of Benefiting Property Owners and Residences: Were positive responses in favor of the abatement measure obtained from at least 50% or more of the tallied votes?	Not Necessary [(1)]
DETAILS OF THE ABATEMENT MEASURE COST AND ACOUSTIC EFFECTIVE FINDINGS	
Impacted Receptors Behind Proposed Sound Barrier(s)	4
# of Impacted Receptors with 5 dB(A) Noise Reduction	5
# of Non-Impacted Receptors with 5 dB(A) Noise Reduction	9
Total Number of Benefited Receptors	14
% of Impacted Receptors with 5 dB(A)Noise Reduction	100%
# of Impacted Receptors with 7 dB(A) Noise Reduction	5
% of Impacted Receptors with 7 dB(A) Noise Reduction	100%
# of Impacted Receptors with 10 dB(A)Noise Reduction	0
Total Cost (dollars)	$1,070,550
Cost Per Benefitting Receptor Unit (CPBU in dollars)	$76,468
Total Length (feet)	1,300 ft.
Average Height (feet)	18.3 ft.
Total Square Footage	23,790 ft^2

[(1)] If all the questions can be answered "Yes" then the abatement measure is considered feasible and reasonable.

A summary of the feasibility and reasonableness of the proposed southbound Sound Barrier SB1 is provided in Table 17. Southbound Sound barrier 1, (SB1), is a 2005 ROD approved sound barrier. In the present 2040 Design Build Year traffic analysis, a single barrier mitigating the same general area was evaluated. Additionally, in the present analysis, Sound Barrier, SB1 extends 2,911 total linear feet with an average height of 12.7 feet and provides abatement to 70 benefitting dwellings out of 78 projected impacts. The total cost of the southbound SB1 is approximately $1,663,650 million dollars and the total cost per benefiting unit is estimated at approximately $23,766. Noise reduction of 5 dB(A) or more is realized at 90% of the impacted receptors and a 7 dB(A) minimum reduction is achieved at 53% of the impacted receptors. Therefore, based on these abatement findings the viewpoints of the benefiting property owners and residences will be considered during final design phase as part of the public

involvement process. The sound barrier height and stationing locations are provided in Appendix D tables.

Table 17 – Feasibility and Reasonableness Assessment
Segment 10 Behind Proposed Southbound Sound Barrier 1 (SB1)

FEASIBILITY CONSIDERATION	YES OR NO
Engineering Consideration: Can the abatement measure be built?	Yes [(1)]
Acoustic Consideration: Does the proposed abatement measure provide a reduction of at least 5 dB(A) at 75% of the impacted receptors?	Yes [(1)]
REASONABLENESS CONSIDERATION	
Design Goal: Does the proposed abatement measure provide a reduction of 10 dB(A) for one benefiting receptor and at least 7 dB(A) at 50% or more of the benefiting receptor sites?	Yes Wall recommended as per ROD [(1)]
Design Goal: Does the proposed abatement measure cost less than $45,942 per benefiting receptor site?	Yes [(1)]
Viewpoint of Benefiting Property Owners and Residences: Were positive responses in favor of the abatement measure obtained from at least 50% or more of the tallied votes?	Next Phase [(1)]
DETAILS OF THE ABATEMENT MEASURE COST AND ACOUSTIC EFFECTIVE FINDINGS	
Impacted Receptors Behind Proposed Sound Barrier(s)	78
# of Impacted Receptors with 5 dB(A) Noise Reduction	70
% of Impacted Receptors with 5 dB(A)Noise Reduction	90%
# of Impacted Receptors with 7 dB(A) Noise Reduction	41
% of Impacted Receptors with 7 dB(A) Noise Reduction	53%
# of Impacted Receptors with 10 dB(A)Noise Reduction	1
Total Cost (dollars)	$ 23,766
Cost Per Benefitting Receptor Unit (CPBU in dollars)	$1,663,650
Total Length (feet)	2,911 ft.
Average Height (feet)	12.7 ft.
Total Square Footage	36,970 ft^2

[(1)] If all the questions can be answered "Yes" then the abatement measure is considered feasible and reasonable.

4.4.1 Statement of Likelihood

Based on the studies this far accomplished, MDOT intends to install highway traffic noise abatement in the form of sound barrier listed in Table 17 and as depicted by the red and blue dashed line depicted in Figure 18. The preliminary indications of likely abatement measures are based on preliminary design for noise barrier costs and noise reduction as reported in Chapter 4 of this report. If it subsequently develops during the final design that these conditions have substantially changed, the abatement measures not be provided. A final decision of the installation and aesthetics of the abatement measures might not be provided. A final decision of the installation and aesthetics of the abatement measures will be made upon completion of the project's final design and the Context Sensitive Design Process.

4.5 Segment 11A Noise Abatement Findings

The present impact and abatement TNM analysis was completed using the 15% final highway design plans. Two sound barriers were identified within the Segment 11A study area, one in each direction adjacent to I-75. Each barrier was optimized for height, length and noise reduction. The two sound barriers are depicted in Figure 19. In the southbound direction, the proposed sound barrier is identified as Southbound Barrier 1 (SB1). Similarly, in the northbound direction the proposed sound barrier is identified as Northbound Sound Barrier 1 (NB1). There were no approved sound barriers within the Segment 11A portion of the 2005 ROD study area and therefore all proposed sound barriers are evaluated against the 2011 MDOT noise abatement requirements for feasibility and reasonableness.

In the present 2040 Design Build Year analysis, barrier heights were optimized in one foot increments and barrier segments were modeled in 50-foot up to a maximum of 100-foot segment lengths. Barrier terminus locations were determined to achieve the best possible noise reduction at the last impacted property near each barrier end point. In addition, each sound barrier configuration included a line-of-site evaluation to ensure first row ground level residences were fully shielded from viewing the highway. Using the 2040 traffic projections, southbound Sound Barrier 1 (SB1) was found to cost well below MDOT's $45,942 maximum benefitting dwelling limit per unit however, the proposed northbound sound barrier far exceeded the MDOT reasonable cost limit. The details of the 2040 analysis findings are described below.

A summary of the noise reduction levels achieved and the number benefitting dwellings for each modeled TNM receiver is shown in the far-right hand column of Table 8 for Southbound Noise Barrier 1 (SB1) and Table 9 for Northbound Sound Barrier 1 (NB1). In both summary tables the number of dwelling benefits is shown in parenthesis and the number of impacted receptors which achieve the minimum 5 decibel noise reduction are shown in bold face text. A total of 55 dwelling benefits were identified behind Southbound SB1 and a total of 30 dwelling benefits were identified behind Northbound Sound Barrier NB1.

A summary of the feasibility and reasonableness of Southbound Sound Barrier SB1 is provided in Table 18. Southbound Sound Barrier 1 (SB1), is a new proposed sound barrier location that was not considered as part of the 2005 ROD findings. Southbound SB1 was optimized to achieve the best possible noise reduction at a reasonable cost. Sound Barrier SB1, consists of 1,647 total linear feet of sound wall at an average height of 17 feet providing abatement to 55 benefitting dwellings, resulting in a cost per benefitting unit (CPBU) estimate of $22,908. This is well below MDOT's $45,942 maximum CPBU limit. The total cost of the Southbound SB1 is approximately $1,259,955 dollars. Noise reduction of 5 dB(A) or greater is realized at 76% of the impacted receptors and a 7 dB(A) minimum reduction is achieved at 56% of the impacted receptors. Because of these findings, Southbound SB1 is recommended for further consideration. Therefore, based on these abatement findings the viewpoints of the benefiting property owners and residences will be considered during final design phase as part of the public involvement process. The sound barrier height and barrier stationing locations are provided in Appendix E tables.

Table 18 – Feasibility and Reasonableness Assessment
Segment 11A Behind Proposed Southbound Sound Barrier SB1

FEASIBILITY CONSIDERATION	YES OR NO
Engineering Consideration: Can the abatement measure be built?	Yes[(1)]
Acoustic Consideration: Does the proposed abatement measure provide a reduction of at least 5 dB(A) at 75% of the impacted receptors?	Yes[(1)]
REASONABLENESS CONSIDERATION	
Design Goal: Does the proposed abatement measure provide a reduction of 10 dB(A) for one benefiting receptor and at least 7 dB(A) at 50% or more of the benefiting receptor sites?	Yes[(1)]
Design Goal: Does the proposed abatement measure cost less than $45,942 per benefiting receptor site?	Yes[(1)]
Viewpoint of Benefiting Property Owners and Residences: Were positive responses in favor of the abatement measure obtained from at least 50% or more of the tallied votes?	Next Phase[(1)]
DETAILS OF THE ABATEMENT MEASURE COST AND ACOUSTIC EFFECTIVE FINDINGS	
Impacted Receptors Behind Proposed Sound Barrier(s)	50
# of Impacted Receptors with 5 dB(A) Noise Reduction	38
# of Non-Impacted Receptors with 5 dB(A) Noise Reduction	17
Total # of Benefitted Receptors	55
% of Impacted Receptors with 5 dB(A)Noise Reduction	76%
# of Impacted Receptors with 7 dB(A) Noise Reduction	28
% of Impacted Receptors with 7 dB(A) Noise Reduction	56%
# of Impacted Receptors with 10 dB(A)Noise Reduction	4
Total Cost (dollars)	$1,259,955
Cost Per Benefitting Receptor Unit (CPBU in dollars)	$22,908
Total Length (feet)	1,647 ft.
Average Height (feet)	17.0 ft.
Total Square Footage	27,999 ft^2

[(1)] If all the questions can be answered "Yes" then the abatement measure is considered feasible and reasonable.

A summary of the feasibility and reasonableness of the proposed Northbound Sound Barrier NB1 is provided in Table 19. Northbound Sound Barrier NB1, is a new proposed sound barrier location that was not considered as part of the 2005 ROD findings. In the present 2040 design Build Year traffic analysis, a single barrier providing mitigation to the general area was evaluated. Northbound Sound Barrier NB1 extends 3,051 total linear feet with an average height of 15.6 feet providing abatement to 30 total benefitting dwellings. Noise reduction of 5 dB(A) or more is realized at 100% of the impacted receptors and a 7 dB(A) minimum reduction is achieved at 63% of the impacted receptors. Sound Barrier NB1 cost approximately $2,141,820 million dollars resulting in a CPBU estimate of $71,394 which is well above the MDOT maximum allowable reasonable cost limit. Thus, based on these findings, Northbound Sound Barrier NB1, is not recommended and therefore the viewpoints of the benefiting property owners and residences will not be necessary. The sound barrier height and barrier stationing locations for Northbound Sound Barrier NB1, are provided in Appendix E tables.

Table 19 – Feasibility and Reasonableness Assessment
Segment 11A Behind Proposed Northbound Sound Barrier NB1

FEASIBILITY CONSIDERATION	YES OR NO
Engineering Consideration: Can the abatement measure be built?	Yes[(1)]
Acoustic Consideration: Does the proposed abatement measure provide a reduction of at least 5 dB(A) at 75% of the impacted receptors?	Yes[(1)]
REASONABLENESS CONSIDERATION	
Design Goal: Does the proposed abatement measure provide a reduction of 10 dB(A) for one benefiting receptor and at least 7 dB(A) at 50% or more of the benefiting receptor sites?	Yes[(1)]
Design Goal: Does the proposed abatement measure cost less than $45,942 per benefiting receptor site?	No [(1)]
Viewpoint of Benefiting Property Owners and Residences: Were positive responses in favor of the abatement measure obtained from at least 50% or more of the tallied votes?	Not Necessary[(1)]
DETAILS OF THE ABATEMENT MEASURE COST AND ACOUSTIC EFFECTIVE FINDINGS	
Impacted Receptors Behind Proposed Sound Barrier(s)	19
# of Impacted Receptors with 5 dB(A) Noise Reduction	19
# of Non-Impacted Receptors with 5 dB(A) Noise Reduction	11
Total # of Benefitted Receptors	30
% of Impacted Receptors with 5 dB(A)Noise Reduction	100%
# of Impacted Receptors with 7 dB(A) Noise Reduction	12
% of Impacted Receptors with 7 dB(A) Noise Reduction	63%
# of Impacted Receptors with 10 dB(A)Noise Reduction	1
Total Cost (dollars)	$2,141,820
Cost Per Benefitting Receptor Unit (CPBU in dollars)	$71,394
Total Length (feet)	3,051 ft.
Average Height (feet)	15.6 ft.
Total Square Footage	47,596 ft^2

[(1)] If all the questions can be answered "Yes" then the abatement measure is considered feasible and reasonable.

4.5.1 Statement of Likelihood

Based on the studies this far accomplished, MDOT intends to install highway traffic noise abatement in the form of sound barrier listed in Table 18 and as depicted by the solid blue line depicted in Figure 19. The preliminary indications of likely abatement measures are based on preliminary design for noise barrier costs and noise reduction as reported in Chapter 4 of this report. If it subsequently develops during the final design that these conditions have substantially changed, the abatement measures not be provided. A final decision of the installation and aesthetics of the abatement measures might not be provided. A final decision of the installation and aesthetics of the abatement measures will be made upon completion of the project's final design and the Context Sensitive Design Process.

4.6 Segment 11 Noise Abatement Findings

The present impact and abatement TNM analysis was completed using the 70% final highway design plans. Using 70% design plans, two sound barriers adjacent to the southbound lanes of I-75 were optimized for height, length and noise reduction within the Segment 11 study area. The two sound barriers, depicted in Figure 20, are identified as Sound Barrier One (SB1) and Sound Barrier Two (SB2). The two sound barriers differ slightly in location from the previously evaluated barrier locations considered in the February 2015 and March 2017 traffic noise study reports. The previous noise abatement analysis determined that all proposed northbound sound barriers were not feasible and reasonable and therefore, will not be considered in the final design phase. The required length and height configuration of Sound Barriers SB1 and SB2 were determined using the project developed 70% final highway design mapping which allowed for developing the best acoustically effective location of these walls under these proposed roadway improvements. The previous noise studies considered four southbound sound barrier segments covering the same general location that the two present design sound barriers cover. The two southbound sound barriers are illustrated in Figure 20.

Recent revisions to the barrier design configuration now include a small connecting segment in their overlapping area to better elimination any traffic noise flanking in the overlapping area. For the present design stage analysis, barrier heights were optimized in one-foot increments, barrier segment lengths were modeled up to a maximum of 100-foot linear increments. In addition, the sound barrier ending point location was placed at the location to achieve the best possible noise reduction at the last impacted property near the selected terminus point. In addition, the barrier design configuration included a line-of-site evaluation to ensure first row residences were fully shielded from viewing the highway. In the previous abatement studies conducted for the Segment 11 area, the proposed sound barriers were optimized in 2-foot height increments. Because of these refinements, the optimized final design sound barrier heights decreased by an average of 2 feet from the previous studies largely because of the greater detail in the TNM roadway and sound barrier geometrics that were not included in the previous TNM analysis developed for this area.

A summary of the noise reduction levels achieved and the number of benefitting dwellings for each modeled receptor site is shown in the far-right hand column of Table 10 and Table 11 for Sound Barrier One (SB1) and Sound Barrier Two (SB2) respectively. The number of dwelling benefits is shown in parenthesis and impacted receptors which achieve the minimum 5 decibel noise reduction are shown in bold face text. A total of 39 dwelling benefits were identified behind SB1 and 43 dwelling benefits behind SB2.

A summary of the feasibility and reasonableness of the two south bound sound barriers is provided in Table 20. The two combined barriers satisfy all the major feasibility and reasonableness requirements needed to be recommended for construction. The two southbound barriers consist of 4,370 combined total linear feet at an average height of 11.7 feet providing abatement to 82 benefitting dwellings at a cost per benefitted receptor unit (CPBU) of $28,059. The total cost of the two sound barriers combined is approximately $2.3 million dollars. Noise reduction of 5 dB(A) or more is realized at 88% of the impacted receptors and a 7 dB(A) minimum reduction is achieved at 63% of the impacted receptors.

Additionally, three receptors are projected to achieve a noise reduction of 10 dB(A). The physical roadway configuration along the southbound lanes allow for Sound Barrier One (SB1) to be placed along the proposed outside shoulder where the roadway elevations are higher than the receptors thereby achieve greater noise reduction. In the case of Sound Barrier Two (SB2) and based on the receiver elevations, the terrain just inside the right-of-way is the best acoustically effective location. Lastly, sound barrier height and barrier stationing locations are provided in Appendix F tables.

4.6.1 Statement of Likelihood

Based on the studies this far accomplished, MDOT intends to install highway traffic noise abatement in the form of sound barrier listed in Table 20 and as depicted by the red and blue dashed line depicted in Figure 20. The preliminary indications of likely abatement measures are based on preliminary design for noise barrier costs and noise reduction as reported in Chapter 4 of this report. If it subsequently develops during the final design that these conditions have substantially changed, the abatement measures not be provided. A final decision of the installation and aesthetics of the abatement measures might not be provided. A final decision of the installation and aesthetics of the abatement measures will be made upon completion of the project's final design and the Context Sensitive Design Process.

Table 20 – Feasibility and Reasonableness Assessment
Segment 11 Behind Proposed Southbound Sound Barriers SB1 and SB2

FEASIBILITY CONSIDERATION	YES OR NO
Engineering Consideration: Can the abatement measure be built?	Yes [1]
Acoustic Consideration: Does the proposed abatement measure provide a reduction of at least 5 dB(A) at 75% of the impacted receptors?	Yes [1]
REASONABLENESS CONSIDERATION	
Design Goal: Does the proposed abatement measure provide a reduction of 10 dB(A) for one benefiting receptor and at least 7 dB(A) at 50% or more of the benefiting receptor sites?	Yes [1]
Design Goal: Does the proposed abatement measure cost less than $45,942 per benefiting receptor site?	ROD Approved Yes [1]
Viewpoint of Benefiting Property Owners and Residences: Were positive responses in favor of the abatement measure obtained from at least 50% or more of the tallied votes?	Next Phase [1]
DETAILS OF THE ABATEMENT MEASURE COST AND ACOUSTIC EFFECTIVE FINDINGS	
Impacted Receptors Behind Proposed Sound Barrier(s)	51
# of Impacted Receptors with 5 dB(A) Noise Reduction	45
# of Non-Impacted Receptors with 5 dB(A) Noise Reduction	37
Total # of Benefitted Receptors	82
% of Impacted Receptors with 5 dB(A)Noise Reduction	88%
# of Impacted Receptors with 7 dB(A) Noise Reduction	32
% of Impacted Receptors with 7 dB(A) Noise Reduction	63%
# of Impacted Receptors with 10 dB(A)Noise Reduction	3
Total Cost (dollars)	$2,300,805
Cost Per Benefitting Receptor Unit (CPBU in dollars)	$28,059
Total Length (feet)	4,370 ft.
Average Sound Barrier Height (feet)	11.7 ft.
Total Square Feet of Barrier	51,129 ft.[2]

[1] If all the questions can be answered "Yes" then the abatement measure is considered feasible and reasonable.

Figure 15 – Segment 7 Sound Barrier Design Configuration for Benefitting Receivers Behind Northbound Barrier (NB1)

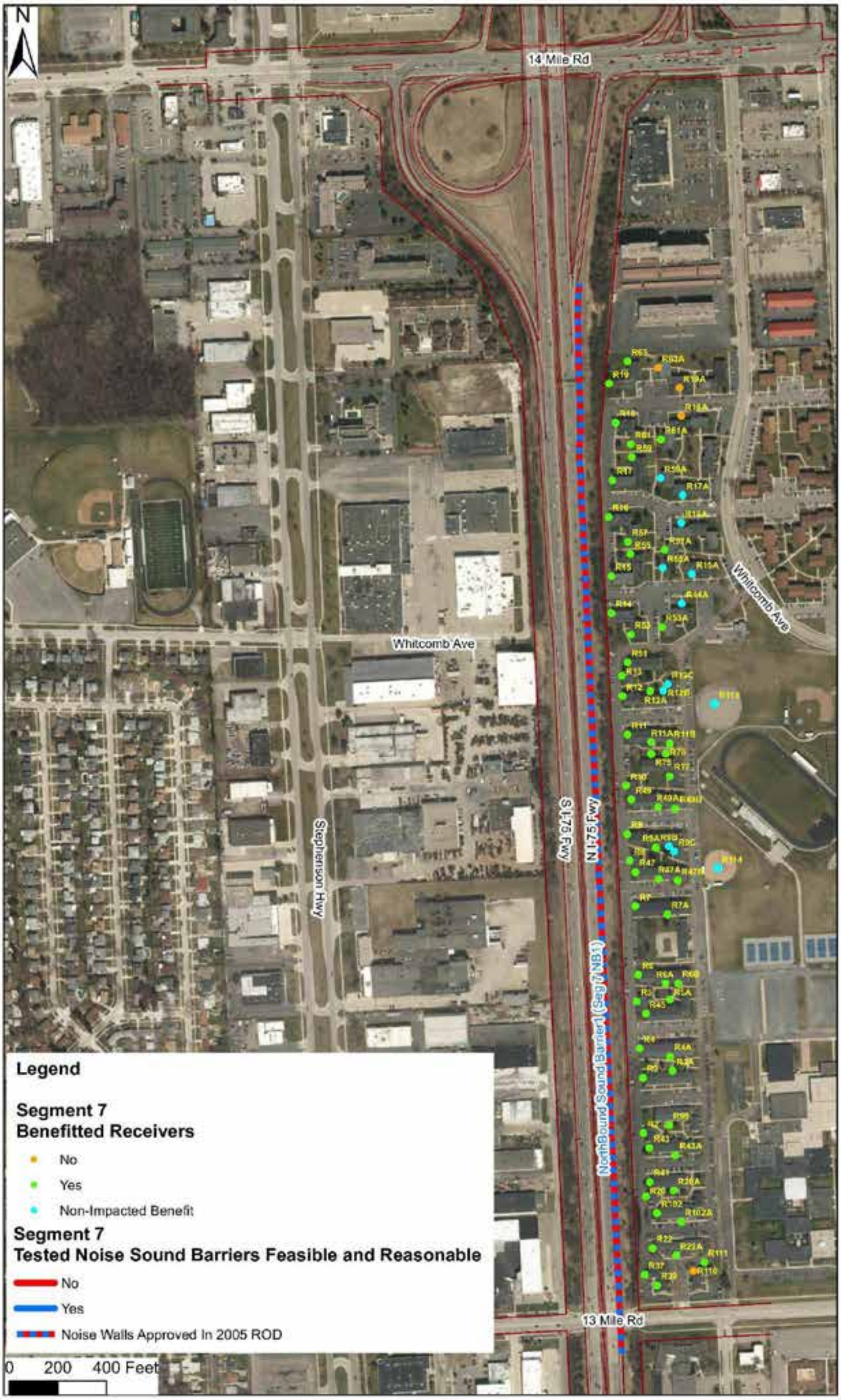


Figure 16 – Segment 8 Sound Barrier Design Configuration for Benefitting Receivers Behind Southbound Barrier (SB1)

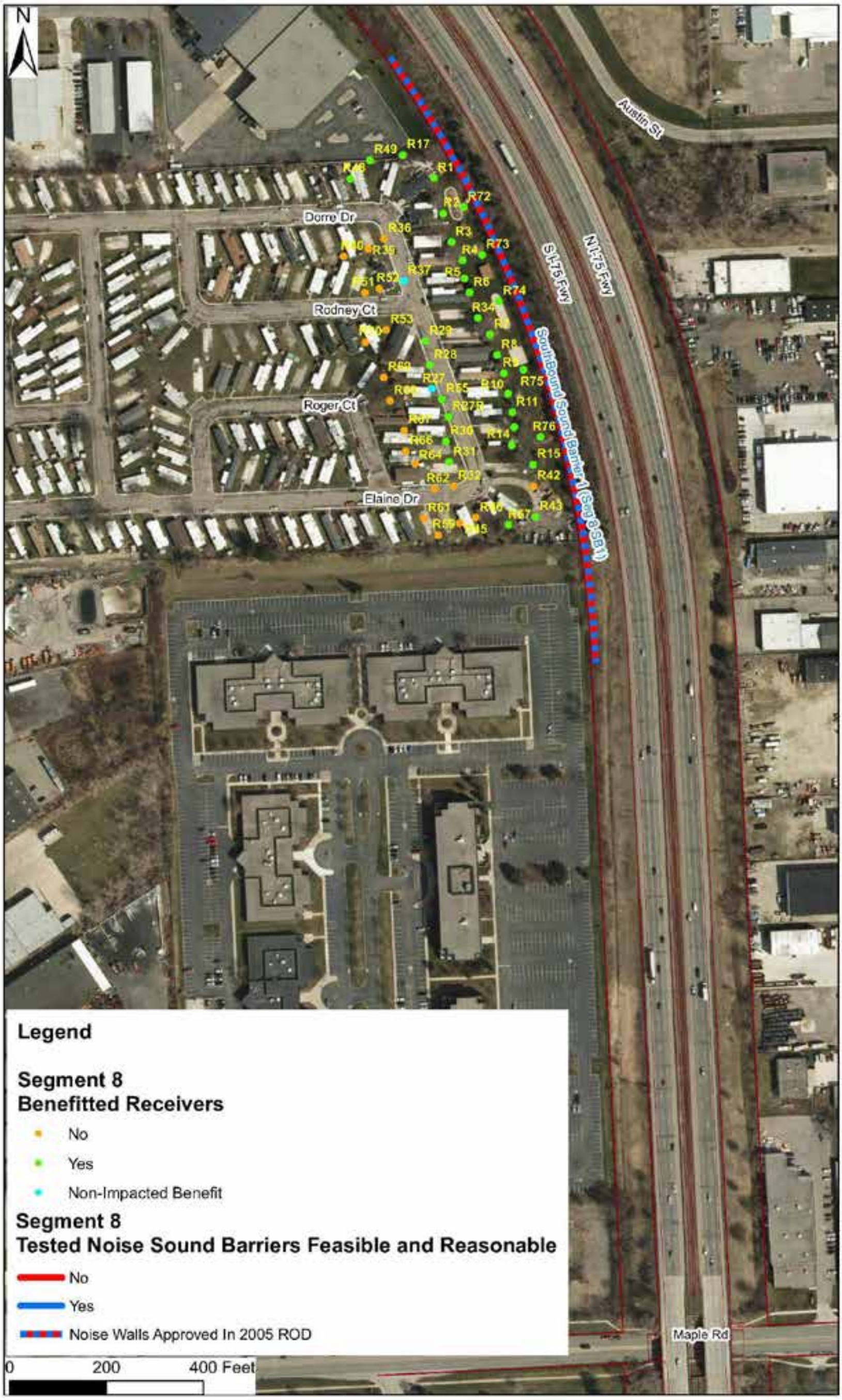


Figure 17 – Segment 9 Sound Barrier Design Configuration for Benefitting Receivers Behind Northbound Barrier (NB1) and Southbound Barriers (SB1)

Figure 18 – Segment 10 Sound Barrier Design Configuration for Benefitting Receivers Behind Northbound Barrier (NB1) and Southbound Barrier (SB1)

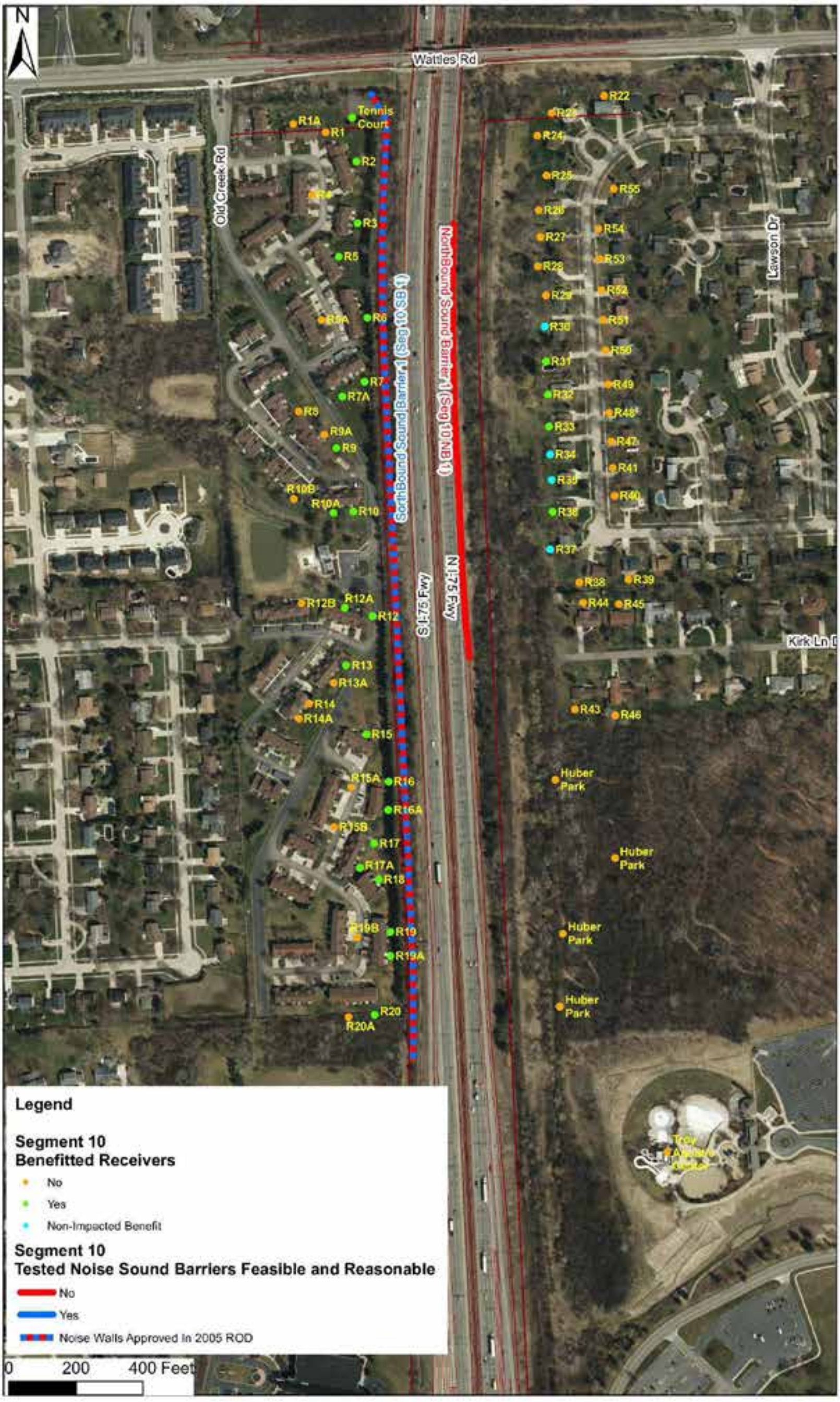
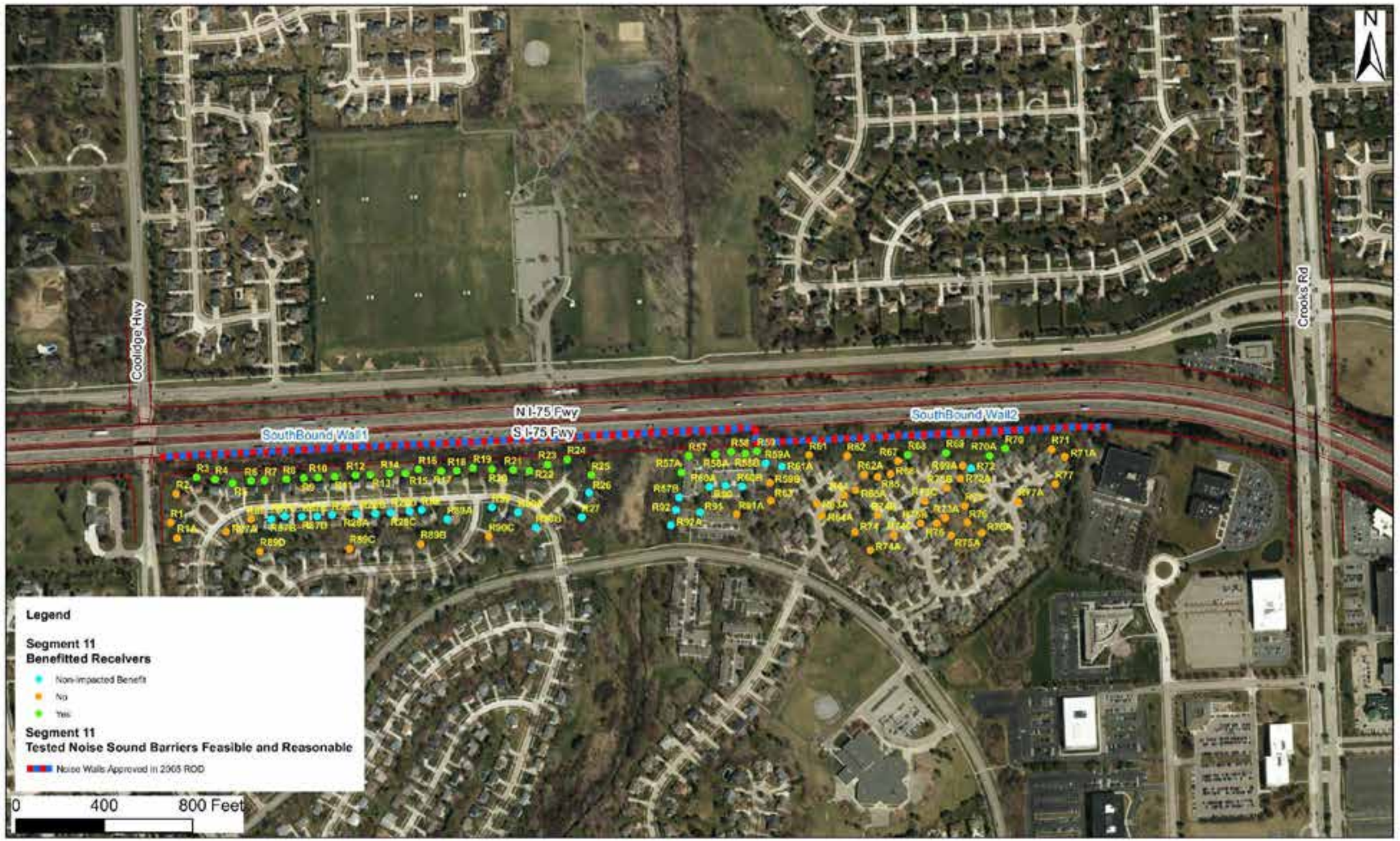


Figure 19 – Segment 11A Sound Barrier Design Configuration for Benefitting Receivers Behind Southbound Barriers SB1 and Northbound Barrier NB1

Figure 20 – Segment 11 Sound Barrier Design Configuration for Benefitting Receivers Behind Southbound Barriers SB1 & SB2



5.0 CONCLUSION

5.1 Segment 7

Within the Segment 7 study area, which covers the project alignment from 13 Mile to 14 Mile Road, the impact and abatement analysis discovered noise exposure levels significantly above the 66 dB(A) impact threshold at all first-row and many second and third row residential properties. The abatement analysis findings indicate that the ROD approved northbound sound barrier, at 13.6 average height provides a 5 dB(A) or greater noise reduction at 98% of the impacted dwellings at a unit cost of $8,856 per benefited dwelling. In the present study, the recommended sound barrier was relocated closer to I-75 northbound lanes and extended on each end to provide greater noise reduction to adjacent impacted residential properties. Therefore, based on these analysis findings, under the present proposed highway design, Northbound Sound Barrier NB1 is recommended and during the next stage the viewpoints of the benefiting property owners and residences affected by this recommended abatement measure will be considered.

5.2 Segment 8

Within the Segment 8 study area, which covers the project alignment from approximately Maple Road at the southern limit to just south of Rochester Road on the northern extent, the impact and abatement analysis discovered noise exposure levels significantly above the 66 dB(A) impact threshold at all first-row and many second-row residential properties within the adjacent trailer park community. The abatement analysis findings indicate that the proposed Southbound Sound Bound SB1, which was approved in the 2005 ROD, provides a 5 dB(A) or greater noise reduction at 97% of the impacted dwellings and cost approximately $23,573 per benefit. In the present study, the recommended sound barrier is extended further north and south to provide greater noise reduction to adjacent impacted residential properties. Therefore, based on the 2005 ROD endorsement and these updated Build Year 2040 refinements, Southbound Sound Barrier SB1 will move to the final design stage where the opinions of the benefiting property owners and residences adjacent to the recommended abatement measure will be considered.

5.3 Segment 9

Within the Segment 9 study area, which covers the project alignment from Rochester Road on its southern most extent to Livernois Road on the northern limits, the traffic noise impact and abatement analysis found noise exposure levels above the 66 dB(A) impact threshold at all first-row and many second-row residential properties. The abatement analysis findings indicate that two single sound barriers one in each direction located adjacent to I-75 would eliminate nearly all the projected noise impacts identified under future 2040 Design Build Year traffic conditions with a 5 dB(A) or greater noise reduction achieved at 86% of residences located behind the northbound sound barrier NB1 and 88% of the properties behind the proposed southbound sound barrier SB1. Therefore, these two ROD recommended sound barriers will be considered in the final design stage where the viewpoints of the benefiting property owners and residences will be considered as part of the public involvement process.

5.4 Segment 10

Within the Segment 10 study area, which covers the proposed project alignment improvements from Livernois Road on the southern limits and Wattles Road on the northern limits, the impact analysis found noise exposure levels above the 66 dB(A) impact threshold at all first-row properties in the southbound direction and several impacts in the northbound direction. The abatement analysis evaluated one sound barrier in each direction. In the southbound direction, the 2005 ROD approved Sound Barrier SB1, remains both feasible and reasonable providing a 5 dB(A) or greater noise reduction at 90% of residences located behind it. However, the proposed new Northbound Sound Barrier NB1 failed to achieve adequate noise reduction at reasonable cost and therefore should be dropped from further consideration. As a result of the abatement analysis findings, the viewpoints of the benefiting property owners and residences behind southbound Sound Barrier SB1, should be considered as part of the final design stage and public involvement process.

5.5 Segment 11A

Within the Segment 11A study area, which covers the proposed project alignment improvements from Wattles Road on the southern extent to Long Lake Road on the northern limits, the impact analysis found noise exposure levels above the 66 dB(A) impact threshold was limited to the first-row properties in the northbound direction. Whereas in the southbound direction, noise impacts extended farther back from I-75 to some second-row residential properties. There were no 2005 ROD approved sound barriers within the Segment 11A study area. However, the abatement analysis findings determined that the one proposed noise barrier located adjacent to I-75 in the southbound direction was both feasible and reasonable. The Southbound Sound Barrier SB1 totaling 1,647 feet and costing $22,908 per benefitting unit (CPBU) provides a 5 dB(A) or greater noise reduction at 76% (38) of the impacted dwellings. However, the Northbound Sound Barrier NB1 located in the northbound direction, totaling 3,051feet was found to significantly exceed MDOT's $45,942 maximum allowable reasonable CPBU limit and thus should be removed from further consideration. Therefore, because of these findings, the viewpoints of the benefiting property owners and residences living behind Southbound Sound Barrier SB1, should be considered as part of the public involvement process and final design stage.

5.6 Segment 11

Utilizing the 70% final highway design plans developed for the Segment 11 study area which covers the I-75 Modernization and Improvement corridor from Coolidge Highway to Crooks Road and utilizing the latest 2040 Design Build Year traffic projections, the abatement analysis findings indicate that two 2005 ROD approved noise barriers located adjacent the southbound lanes of I-75 satisfy all MDOT feasibility and reasonableness requirements. The proposed combined sound barriers will cost approximately $2.3 million dollars and provide abatement at a unit cost of $28,059 per benefitting receptor unit (CPBU). Furthermore, the two combined southbound sound barriers provided benefit to 82 total dwellings with a noise reduction of 5 dB(A) and 7 dB(A) achieved at 88% and 63% of the impacted receptors respectively. Lastly, three of these benefiting dwellings are projected to experience a 10 dB(A) noise reduction.

Appendix A
Segment 7 Study Area
Sound Barrier Station Point Segments

Table A-1 – I-75 Northbound Barrier 1 (NB1) Map Stationing Location and Approximate Length

NORTHBOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 976+00	50	10	656	666	NB Mainline Shoulder
STA 976+50	50	11	657	668	NB Mainline Shoulder - Bridge
STA 977+00	50	12	657	669	NB Mainline Shoulder - Bridge
STA 977+50	50	13	657	670	NB Mainline Shoulder - Bridge
STA 978+00	50	14	657	671	NB Mainline Shoulder
STA 978+50	50	14	657	671	NB Mainline Shoulder
STA 979+00	50	14	657	671	NB Mainline Shoulder
STA 979+50	50	14	656	670	NB Mainline Shoulder
STA 980+00	100	14	655	669	NB Mainline Shoulder
STA 981+00	100	14	654	668	NB Mainline Shoulder
STA 982+00	100	14	653	667	NB Mainline Shoulder
STA 983+00	100	14	652	666	NB Mainline Shoulder
STA 984+00	100	14	651	665	NB Mainline Shoulder
STA 985+00	100	14	650	664	NB Mainline Shoulder
STA 986+00	100	14	649	663	NB Mainline Shoulder
STA 987+00	100	14	647	661	NB Mainline Shoulder
STA 988+00	100	14	645	659	NB Mainline Shoulder
STA 989+00	100	14	645	659	NB Mainline Shoulder
STA 990+00	100	14	644	658	NB Mainline Shoulder
STA 991+00	100	14	644	658	NB Mainline Shoulder
STA 992+00	100	14	643	657	NB Mainline Shoulder
STA 993+00	100	14	643	657	NB Mainline Shoulder
STA 994+00	100	14	643	657	NB Mainline Shoulder
STA 995+00	100	14	644	658	NB Mainline Shoulder
STA 996+00	100	14	644	658	NB Mainline Shoulder
STA 997+00	100	14	645	659	NB Mainline Shoulder
STA 998+00	100	14	645	659	NB Mainline Shoulder
STA 999+00	100	14	645	659	NB Mainline Shoulder

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Table A-1: I-75 Northbound Barrier 1 (NB1) Map Stationing Location & Approximate Length (Continued)

NORTHBOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1000+00	100	14	645	659	NB Mainline Shoulder
STA 1001+00	100	14	645	659	NB Mainline Shoulder
STA 1002+00	100	14	646	660	NB Mainline Shoulder
STA 1003+00	100	14	646	660	NB Mainline Shoulder
STA 1004+00	100	14	646	660	NB Mainline Shoulder
STA 1005+00	100	14	646	660	NB Mainline Shoulder
STA 1006+00	100	14	646	660	NB Mainline Shoulder
STA 1007+00	100	14	646	660	NB Mainline Shoulder
STA 1008+00	100	14	646	660	NB Mainline Shoulder
STA 1009+00	100	14	646	660	NB Mainline Shoulder
STA 1010+00	100	14	646	660	NB Mainline Shoulder
STA 1011+00	100	14	646	660	NB Mainline Shoulder
STA 1012+00	100	14	645	659	NB Mainline Shoulder
STA 1013+00	100	14	645	659	NB Mainline Shoulder
STA 1014+00	99	14	644	658	NB Mainline Shoulder
STA 1015+00	100	14	644	658	NB Mainline Shoulder
STA 1016+00	50	14	645	659	NB Mainline Shoulder
STA 1016+50	50	14	645	659	NB Mainline Shoulder
STA 100+00 Ramp	50	14	645	659	NB Ramp Shoulder
STA 100+50 Ramp	50	14	645	659	NB Ramp Shoulder
STA 101+00 Ramp	50	13	646	659	NB Ramp Shoulder
STA 101+50 Ramp	50	12	647	659	NB Ramp Shoulder
STA 102+00 Ramp	50	11	648	659	NB Ramp Shoulder
STA 102+50 Ramp	50	10	649	659	NB Ramp Shoulder

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Appendix B
Segment 8 Study Area
Sound Barrier Station Point Segments

Table B-1 – I-75 Northbound Barrier 1 (NB1) Map Stationing Location and Approximate Length

NORTHBOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1112+00	96	11	646	657	Approx. 10’ Inside SB ROW
STA 1111+00	96	11	646	657	Approx. 10’ Inside SB ROW
STA 1110+00	96	12	646	658	Approx. 10’ Inside SB ROW
STA 1109+00	96	12	646	658	Approx. 10’ Inside SB ROW
STA 1108+00	95	13	646	659	Approx. 10’ Inside SB ROW
STA 1107+00	96	13	645	658	Approx. 10’ Inside SB ROW
STA 1106+00	96	13	645	658	Approx. 10’ Inside SB ROW
STA 1105+00	95	13	645	658	Approx. 10’ Inside SB ROW
STA 1104+00	96	13	645	658	Approx. 10’ Inside SB ROW
STA 1103+00	95	13	645	658	Approx. 10’ Inside SB ROW
STA 1102+00	96	13	645	658	Approx. 10’ Inside SB ROW
STA 1101+00	96	13	645	658	Approx. 10’ Inside SB ROW
STA 1100+00	96	13	645	658	Approx. 10’ Inside SB ROW
STA 1099+00	96	12	645	657	Approx. 10’ Inside SB ROW

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Appendix C
Segment 9 Study Area
Sound Barrier Station Point Segments

Table C-1 – I-75 Northbound Barrier 1 (NB1) Map Stationing Location and Approximate Length

NORTHBOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1149+00	50	8	682	690	NB Outside Shoulder
STA 1149+50	50	8	682	690	NB Outside Shoulder
STA 1150+00	50	8	681	689	NB Outside Shoulder
STA 1150+50	50	8	681	689	NB Outside Shoulder
STA 1151+00	50	8	680	688	NB Outside Shoulder
STA 1151+50	50	8	680	688	NB Outside Shoulder
STA 1152+00	50	8	679	687	NB Outside Shoulder
STA 1152+50	50	8	679	687	NB Outside Shoulder
STA 1153+00	99	9	678	687	NB Outside Shoulder
STA 1154+00	100	10	677	687	NB Outside Shoulder
STA 1155+00	100	9	676	685	NB Outside Shoulder
STA 1156+00	99	9	674	683	NB Outside Shoulder
STA 1157+00	100	10	673	683	NB Outside Shoulder
STA 1158+00	100	9	672	681	NB Outside Shoulder
STA 1159+00	100	9	671	680	NB Outside Shoulder
STA 1160+00	100	9	671	680	NB Outside Shoulder
STA 1161+00	99	9	670	679	NB Outside Shoulder
STA 1162+00	100	9	670	679	NB Outside Shoulder
STA 1163+00	100	9	670	679	NB Outside Shoulder
STA 1164+00	100	9	670	679	NB Outside Shoulder
STA 1165+00	100	9	671	680	NB Outside Shoulder
STA 1166+00	100	9	671	680	NB Outside Shoulder
STA 1167+00	100	9	672	681	NB Outside Shoulder
STA 1168+00	100	9	672	681	NB Outside Shoulder
STA 1169+00	100	9	672	681	NB Outside Shoulder
STA 1170+00	99	9	672	681	NB Outside Shoulder
STA 1171+00	50	9	673	682	NB Outside Shoulder
STA 1171+50	50	9	673	682	NB Outside Shoulder
STA 1172+00	50	9	673	682	NB Outside Shoulder
STA 1172+50	50	9	674	683	NB Outside Shoulder
STA 1173+00	50	8	674	682	NB Outside Shoulder
STA 1173+50	50	7	674	681	NB Outside Shoulder
STA 1174+00	50	6	674	680	NB Outside Shoulder

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Table C-2 – I-75 Southbound Barrier 1 (SB1) Map Stationing Location and Approximate Length

SOUTH BOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1197+89	68	12	694	706	SB Outside Shoulder
STA 1197+21	68	12	694	706	SB Outside Shoulder
STA 1196+53	53	12	694	706	SB Outside Shoulder
STA 1196+00	50	12	694	706	SB Outside Shoulder
STA 1195+50	50	12	694	706	SB Outside Shoulder
STA 1195+00	50	12	694	706	SB Outside Shoulder
STA 1194+50	50	11	694	705	SB Outside Shoulder
STA 1194+00	50	11	693	704	SB Outside Shoulder
STA 1193+50	50	11	693	704	SB Outside Shoulder
STA 1193+00	99	11	692	703	SB Outside Shoulder
STA 1192+00	100	11	690	701	SB Outside Shoulder
STA 1191+00	100	11	689	700	SB Outside Shoulder
STA 1190+00	100	11	687	698	SB Outside Shoulder
STA 1189+00	100	11	685	696	SB Outside Shoulder
STA 1188+00	100	11	683	694	SB Outside Shoulder
STA 1187+00	100	11	682	693	SB Outside Shoulder
STA 1186+00	100	11	680	691	SB Outside Shoulder
STA 1185+00	100	11	679	690	SB Outside Shoulder
STA 1184+00	99	11	678	689	SB Outside Shoulder
STA 1183+00	100	11	677	688	SB Outside Shoulder
STA 1182+00	100	11	676	687	SB Outside Shoulder
STA 1181+00	100	11	676	687	SB Outside Shoulder
STA 1180+00	100	12	675	687	SB Outside Shoulder
STA 1179+00	100	12	675	687	SB Outside Shoulder
STA 1178+00	100	12	675	687	SB Outside Shoulder
STA 1177+00	99	12	675	687	SB Outside Shoulder
STA 1176+00	100	12	674	686	SB Outside Shoulder
STA 1175+00	100	12	674	686	SB Outside Shoulder
STA 1174+00	100	12	673	685	SB Outside Shoulder
STA 1173+00	100	12	673	685	SB Outside Shoulder

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Table C-2 – I-75 Southbound Barrier 1 (SB1) Map Stationing Location and Approximate Length (Continued)

SOUTH BOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1172+00	100	11	673	684	SB Outside Shoulder
STA 1171+00	100	10	673	683	SB Outside Shoulder
STA 1170+00	100	10	672	682	SB Outside Shoulder
STA 1169+00	100	11	672	683	SB Outside Shoulder
STA 521+00 RAMP	101	11	672	683	SB Outside Ramp Shoulder
STA 520+00 RAMP	100	11	671	682	SB Outside Ramp Shoulder
STA 519+00 RAMP	96	11	671	682	SB Outside Ramp Shoulder
STA 518+00 RAMP	99	11	670	681	SB Outside Ramp Shoulder
STA 517+00 RAMP	100	12	669	681	SB Outside Ramp Shoulder
STA 516+00 RAMP	99	12	669	681	SB Outside Ramp Shoulder
STA 515+00 RAMP	99	12	668	680	SB Outside Ramp Shoulder
STA 514+00 RAMP	99	12	668	680	SB Outside Ramp Shoulder
STA 513+00 RAMP	49	11	668	679	SB Outside Ramp Shoulder
STA 512+50 RAMP	50	11	668	679	SB Outside Ramp Shoulder
STA 512+00 RAMP	50	11	667	678	SB Outside Ramp Shoulder
STA 511+50 RAMP	50	11	667	678	SB Outside Ramp Shoulder
STA 511+00 RAMP	50	11	666	677	SB Outside Ramp Shoulder
STA 510+50 RAMP	49	11	666	677	SB Outside Ramp Shoulder
STA 510+00 RAMP	50	11	666	677	SB Outside Ramp Shoulder
STA 509+50 RAMP	50	11	666	677	SB Outside Ramp Shoulder
STA 509+00 RAMP	51	11	665	676	SB Outside Ramp Shoulder
STA 508+50 RAMP	51	11	665	676	SB Outside Ramp Shoulder
STA 508+00 RAMP	68	12	665	676	SB Outside Ramp Shoulder

Table Notes:
[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Appendix D
Segment 10 Study Area
Sound Barrier Station Point Segments

Table D-1 – I-75 Northbound Barrier 1 (NB1) Map Stationing Location and Approximate Length

NORTHBOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1266+00	50	16	711	727	NB Outside Ramp Shoulder
STA 1266+50	50	16	711	727	NB Outside Ramp Shoulder
STA 1267+00	50	16	711	727	NB Outside Ramp Shoulder
STA 1267+50	50	17	711	728	NB Outside Ramp Shoulder
STA 1268+00	50	18	712	730	NB Outside Shoulder
STA 1268+50	50	19	712	731	NB Outside Shoulder
STA 1269+00	100	20	713	733	NB Outside Shoulder
STA 1270+00	100	20	713	733	NB Outside Shoulder
STA 1271+00	100	20	713	733	NB Outside Shoulder
STA 1272+00	100	20	713	733	NB Outside Shoulder
STA 1273+00	100	20	713	733	NB Outside Shoulder
STA 1274+00	100	20	712	732	NB Outside Shoulder
STA 1275+00	100	20	712	732	NB Outside Shoulder
STA 1276+00	50	20	711	731	NB Outside Shoulder
STA 1276+50	50	19	711	730	NB Outside Shoulder
STA 1277+00	50	18	711	729	NB Outside Shoulder
STA 1277+50	50	17	711	728	NB Outside Shoulder
STA 1278+00	50	16	711	727	NB Outside Shoulder
STA 1278+50	50	16	710	726	NB Outside Shoulder
STA 1279+00	N/A	14	710	726	NB Outside Shoulder

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Table D-2 – I-75 Southbound Barrier 1 (SB1) Map Stationing Location and Approximate Length

SOUTHBOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1283+00	100	12	712	724	SB ROW Approx. 10’ Offset
STA 1282+00	101	12	711	723	SB ROW Approx. 10’ Offset
STA 1281+00	101	12	710	722	SB ROW Approx. 10’ Offset
STA 1280+00	101	11	710	721	SB ROW Approx. 10’ Offset
STA 1279+00	101	11	710	721	SB ROW Approx. 10’ Offset
STA 1278+00	102	11	711	722	SB ROW Approx. 10’ Offset
STA 1277+00	102	12	711	723	SB ROW Approx. 10’ Offset
STA 1276+00	102	12	711	723	SB ROW Approx. 10’ Offset
STA 1275+00	101	13	710	723	SB ROW Approx. 10’ Offset
STA 1274+00	100	13	709	722	SB ROW Approx. 10’ Offset
STA 1273+00	100	14	709	723	SB ROW Approx. 10’ Offset
STA 1272+00	100	13	708	721	SB ROW Approx. 10’ Offset
STA 1271+00	100	13	707	720	SB ROW Approx. 10’ Offset
STA 1270+00	100	13	707	720	SB ROW Approx. 10’ Offset
STA 1269+00	100	13	708	721	SB ROW Approx. 10’ Offset
STA 1268+00	100	13	707	720	SB ROW Approx. 10’ Offset
STA 1267+00	100	13	706	719	SB ROW Approx. 10’ Offset
STA 1266+00	100	14	706	720	SB ROW Approx. 10’ Offset
STA 1265+00	100	13	708	721	SB ROW Approx. 10’ Offset
STA1264+00	100	13	707	720	SB ROW Approx. 10’ Offset
STA 1263+00	100	14	707	721	SB ROW Approx. 10’ Offset
STA 1262+00	100	14	707	721	SB ROW Approx. 10’ Offset
STA 1261+00	100	13	709	722	SB ROW Approx. 10’ Offset
STA 1260+00	100	12	707	719	SB ROW Approx. 10’ Offset
STA 1259+00	100	12	705	717	SB ROW Approx. 10’ Offset
STA 1258+00	100	12	704	717	SB ROW Approx. 10’ Offset
STA 1257+00	100	13	703	716	SB ROW Approx. 10’ Offset
STA 1256+00	100	13	702	715	SB ROW Approx. 10’ Offset
STA 1255+00	100	13	701	714	SB ROW Approx. 10’ Offset
STA 1254+00	N/A	12	700	713	SB ROW Approx. 10’ Offset

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Appendix E
Segment 11A Study Area
Sound Barrier Station Point Segments

Table E-1 – I-75 Northbound Barrier 1 (NB1) Map Stationing Location and Approximate Length

NORTHBOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1285+50	50	13	709	722	NB Outside Shoulder
STA 1286+00	50	14	709	723	NB Outside Shoulder
STA 1286+50	50	15	710	725	NB Outside Shoulder
STA 1287+00	50	16	710	726	NB Outside Shoulder
STA 1287+50	50	16	710	726	NB Outside Shoulder
STA 1288+00	50	16	710	726	NB Outside Shoulder
STA 1288+50	50	17	710	727	NB Outside Shoulder
STA 1289+00	100	17	710	727	NB Outside Shoulder
STA 1290+00	100	17	709	726	NB Outside Shoulder
STA 1291+00	100	17	709	726	NB Outside Shoulder
STA 1292+00	100	17	709	726	NB Outside Shoulder
STA 1293+00	100	17	709	726	NB Outside Shoulder
STA 1294+00	101	17	709	726	NB Outside Shoulder
STA 1295+00	100	17	710	727	NB Outside Shoulder
STA 1296+00	100	17	710	727	NB Outside Shoulder
STA 1297+00	100	18	711	729	NB Outside Shoulder
STA 1298+00	100	19	711	730	NB Outside Shoulder
STA 1299+00	100	19	712	731	NB Outside Shoulder
STA 1300+00	100	18	712	730	NB Outside Shoulder
STA 1301+00	100	17	713	730	NB Outside Shoulder
STA 1302+00	100	17	713	730	NB Outside Shoulder
STA 1303+00	100	17	714	731	NB Outside Shoulder
STA 1304+00	100	16	715	731	NB Outside Shoulder
STA 1305+00	100	16	715	731	NB Outside Shoulder
STA 1306+00	100	16	716	732	NB Outside Shoulder
STA 1307+00	100	16	716	732	NB Outside Shoulder
STA 1308+00	100	15	720	735	NB Outside Shoulder
STA 1309+00	100	14	724	738	NB Outside Shoulder
STA 1310+00	100	13	727	740	NB Outside Shoulder
STA 1311+00	100	12	731	743	NB Outside Shoulder
STA 1312+00	100	11	732	743	NB Outside Shoulder

Table E-1 – I-75 Northbound Barrier 1 (NB1) Map Stationing Location and Approximate Length (continued)

NORTHBOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1313+00	100	11	732	743	NB Outside Shoulder
STA 1314+00	100	11	733	744	NB Outside Shoulder
STA 1315+00	100	11	733	744	NB Outside Shoulder
STA 1316+00	N/A	11	733	744	NB Outside Shoulder
Northbound Barrier 1 (NB1) Length (Feet)		3,051			

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Table E-2 – I-75 Southbound Barrier 1 (SB1) Map Stationing Location and Approximate Length

SOUTHBOUND SOUND BARRIER 1					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 1301+00	50	16	712	728	SB Outside Shoulder
STA 1300+50	50	16	712	728	SB Outside Shoulder
STA 1300+00	50	16	712	728	SB Outside Shoulder
STA 1299+50	50	16	712	728	SB Outside Shoulder
STA 1299+00	50	16	712	728	SB Outside Shoulder
STA 1298+50	50	17	712	729	SB Outside Shoulder
STA 1298+00	99	18	712	730	SB Outside Shoulder
STA 1297+00	99	18	712	730	SB Outside Shoulder
STA 1296+00	99	18	712	730	SB Outside Shoulder
STA 1295+00	100	18	712	730	SB Outside Shoulder
STA 1294+00	100	18	711	729	SB Outside Shoulder
STA 1293+00	100	18	711	729	SB Outside Shoulder
STA 1292+00	100	18	711	729	SB Outside Shoulder
STA 1291+00	100	18	711	729	SB Outside Shoulder
STA 1290+00	100	18	710	728	SB Outside Shoulder
STA 1289+00	50	18	710	728	SB Outside Shoulder
STA 1288+50	50	17	710	727	SB Outside Shoulder
STA 1288+00	50	17	710	727	SB Outside Shoulder
STA 1287+50	50	16	710	726	SB Outside Shoulder
STA 1287+00	50	16	710	726	SB Outside Shoulder
STA 1286+50	50	16	710	726	SB Outside Shoulder
STA 1286+00	50	16	710	726	SB Outside Shoulder
STA 1285+50	50	16	710	726	SB Outside Shoulder
STA 1285+00	50	16	710	726	SB Outside Shoulder
STA 1284+50	N/A	16	710	726	SB Outside Shoulder
Southbound Barrier 1 (NB1) Length (Feet)		1,647			

Table Notes:
[1]The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

Appendix F
Segment 11 Study Area
Sound Barrier Station Point Segments

Table F-1 – I-75 Southbound Barrier 1 (SB1) Map Stationing Location and Approximate Length

SOUTHBOUND SOUND BARRIER 1 – FINAL DESIGN					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 703+00	100	15	837.9	852.9	Shoulder
STA 702+00	100	15	836.3	851.3	Shoulder
STA 701+00	100	15	834.6	849.6	Shoulder
STA 700+00	100	14	832.8	846.8	Shoulder
STA 699+00	100	13	830.8	843.8	Shoulder
STA 698+00	100	12	828.8	840.8	Shoulder
STA 697+00	100	12	826.8	838.8	Shoulder
STA 696+00	100	12	824.8	836.8	Shoulder
STA 695+00	100	12	822.8	834.8	Shoulder
STA 694+00	100	12	820.8	832.8	Shoulder
STA 693+00	100	11	818.7	829.7	Shoulder
STA 692+00	100	11	816.7	827.7	Shoulder
STA 691+00	100	11	814.7	825.7	Shoulder
STA 690+00	100	11	812.6	823.6	Shoulder
STA 689+00	100	11	810.6	821.6	Shoulder
STA 688+00	100	11	808.8	819.8	Shoulder
STA 687+00	100	11	807.3	818.3	Shoulder
STA 686+00	100	11	806.1	817.1	Shoulder
STA 685+00	100	11	805.2	816.2	Shoulder
STA 684+00	100	11	804.6	815.6	Shoulder
STA 683+00	100	11	804.3	815.3	Shoulder
STA 682+00	100	11	804.3	815.3	Shoulder
STA 681+00	50	10	804.6	814.6	Shoulder
STA 680+50	50	10	804.9	814.9	Shoulder
STA 680+00	50	10	805.2	815.2	Shoulder
STA 679+50	50	10	805.6	815.6	Shoulder
STA 679+00	50	10	806.0	816.0	Shoulder
STA 678+50	50	10	806.3	816.3	Shoulder
STA 678+00	50	10	806.7	816.7	Shoulder
[2]STA 677+50	50	10	807.1	817.1	Shoulder
Southbound Barrier 1 (SB1) Length (Feet)		2,700			

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

[2] This station number represents the beginning point of the last barrier segment and therefore the barrier design length extends 100 feet beyond the last specified station point number

Table F-2 – I-75 Southbound Barrier 2 (SB2) Map Stationing Location and Approximate Length

SOUTHBOUND SOUND BARRIER 2– FINAL DESIGN					
BARRIER ID	LENGTH (FEET)	HEIGHT (FEET)	BOTTOM WALL ELEVATION (FT)	TOP WALL ELEVATION[1] (FT)	WALL LOCATION
STA 678+00	50	11	802.6	811.6	Approx. 10' inside R/W
STA 677+50	50	12	803.0	812.0	Approx. 10' inside R/W
STA 677+00	50	13	804.7	813.7	Approx. 10' inside R/W
STA 676+50	50	14	806.6	815.6	Approx. 10' inside R/W
STA 676+00	100	15	809.6	819.6	Approx. 10' inside R/W
STA 675+00	100	16	813.0	824.0	Approx. 10' inside R/W
STA 674+00	100	17	808.4	819.4	Approx. 10' inside R/W
STA 673+00	100	17	808.8	819.8	Approx. 10' inside R/W
STA 672+00	100	16	814.4	825.4	Approx. 10' inside R/W
STA 671+00	100	15	815.1	827.1	Approx. 10' inside R/W
STA 670+00	100	14	816.7	828.7	Approx. 10' inside R/W
STA 669+00	100	13	818.8	830.8	Approx. 10' inside R/W
STA 668+00	100	13	820.3	832.3	Approx. 10' inside R/W
STA 667+00	100	14	820.4	833.4	Approx. 10' inside R/W
STA 666+00	100	14	821.6	834.6	Approx. 10' inside R/W
STA 665+00	100	14	821.5	833.5	Approx. 10' inside R/W
STA 664+00	100	15	821.3	832.3	Approx. 10' inside R/W
[2]STA 663+00	100	15	820.4	831.4	Approx. 10' inside R/W
Southbound Barrier 2 (SB2) Length (Feet)		1670			

Table Notes:

[1] The top-of-wall elevation for all proposed noise barriers must be maintained if any vertical or horizontal revisions are made to the barrier base elevation.

[2] This station number represents the beginning point of the last barrier segment and therefore the barrier design length extends 70 feet beyond the last specified station point number.

I-75 Segment One

Coolidge to South Boulevard

Completed & Open to Traffic
September 1, 2017

MODERNIZE 75

CITY OF AUBURN HILLS
BLOOMFIELD TOWNSHIP

NO NOISEWALLS QUALIFIED FOR CONSTRUCTION

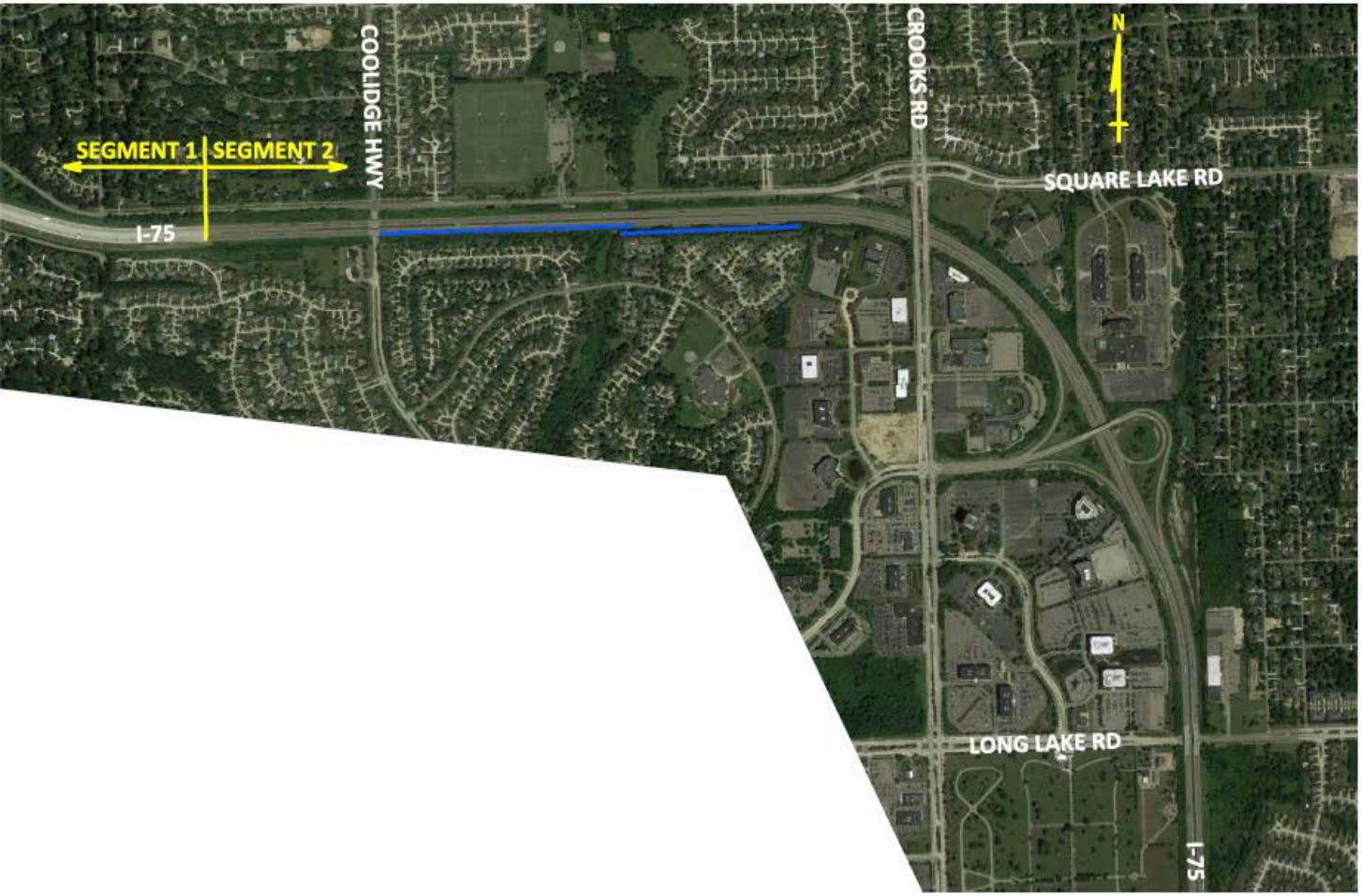
NO NOISEWALLS QUALIFIED FOR CONSTRUCTION

I-75 Segment Two

13 Mile Road to Coolidge

Under Construction
Expected Completion Fall 2020

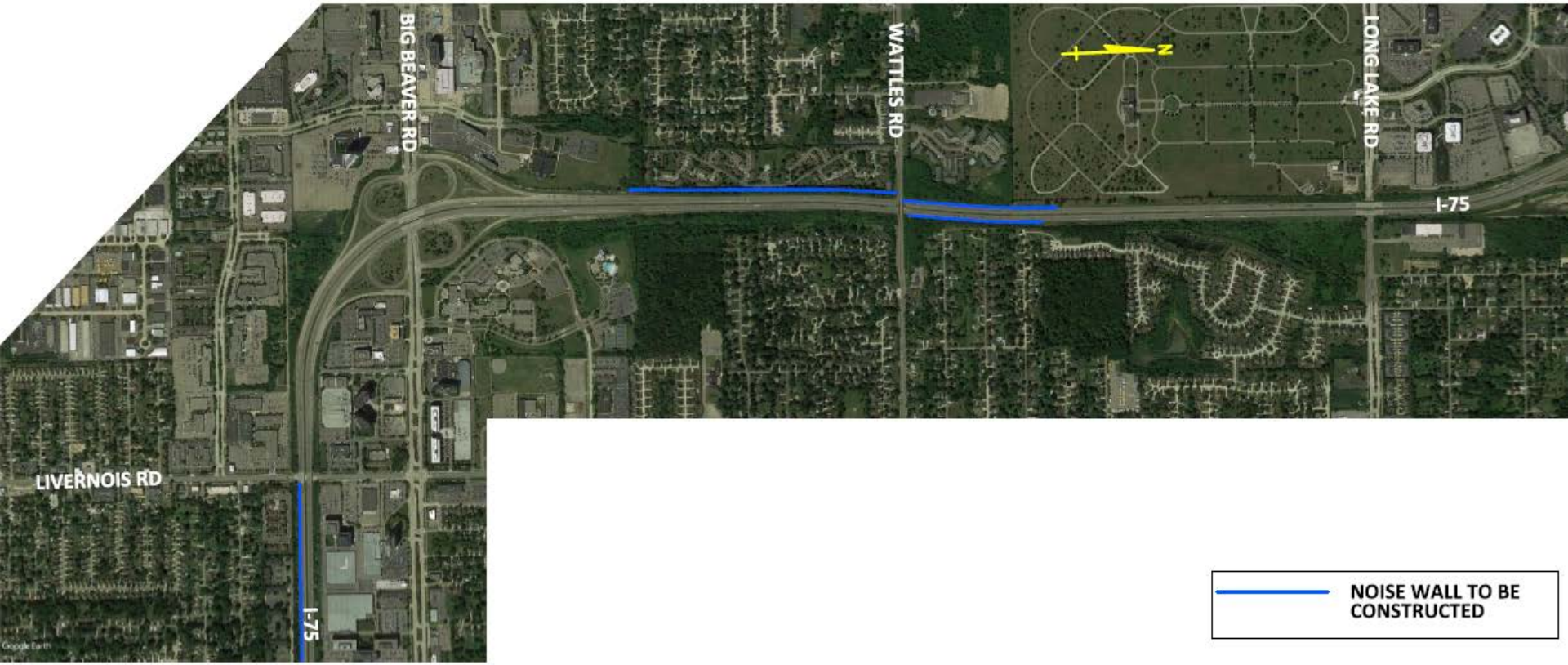
MODERNIZE 75

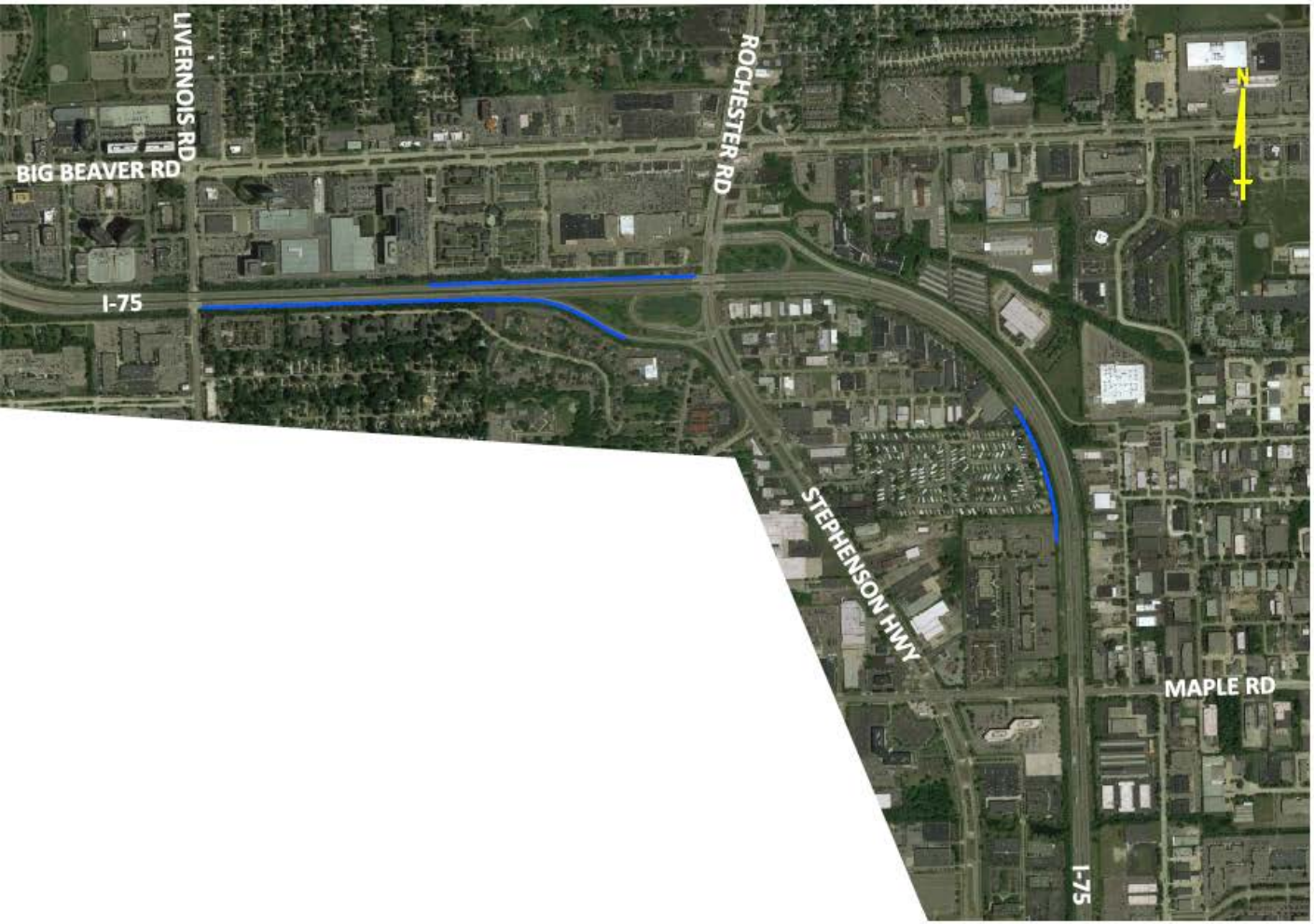


CITY OF TROY

NOISE WALL TO BE CONSTRUCTED

CITY OF TROY


BIG BEAVER RD
WATTLES RD
LONG LAKE RD
I-75
LIVERNOIS RD
I-75
N
NOISE WALL TO BE CONSTRUCTED



CITY OF TROY

NOISE WALL TO BE CONSTRUCTED

CITY OF MADISON HEIGHTS

NOISE WALL TO BE CONSTRUCTED

I-75 Segment Three

8 Mile Road to 13 Mile Road

Expected Start Late Summer (2019)
Expected Completion Fall 2023

MODERNIZE 75

CITY OF ROYAL OAK
CITY OF MADISON HEIGHTS

NOISE WALL TO BE CONSTRUCTED

CITY OF HAZEL PARK
CITY OF ROYAL OAK
CITY OF MADISON HEIGHTS

NOISE WALL TO BE CONSTRUCTED

CITY OF HAZEL PARK

NOISE WALL TO BE CONSTRUCTED

From: Theresa Brooks
Sent: Monday, February 22, 2021 8:48 AM
To: City Manager Distribution Group <CityManager@troymi.gov>; Cindy A Stewart <StewartCA@troymi.gov>
Subject: Questions

Hello!

Items on the Agenda:

1. E-01: How does this year's CDBG estimated funds compare to previous years?

Answers: Cindy Stewart, Community Affairs Director

CDBG Fund amount for this year is the same as 2020. Oakland County lets us know the amount. It is usually close to the same from year to year.

2. E-01: What is the best way for residents to access the City's Yard Assistance Program? Approximately how many residents on average per year utilize this program? Do these funds get fully utilized every year by residents in need?

Currently, we have approximately 75 people on the program and we use all of the funds for the Yard Assistance program from year to year. We promote the program through our senior center, the Senior Newsletter, and Troy Today. Those interested should contact me and I will send them an application to see if they qualify – the Yard Assistance Program is for low income seniors/persons with disabilities only.

3. N-01: I just want to ensure that this proclamation is issued to all of our elected leaders.

Thanks!