

ACTION TRANSMITTAL – 2022-03

DATE: December 29, 2021

TO: Technical Advisory Committee

FROM: TAC Funding & Programming Committee

PREPARED BY: Joe Barbeau, Senior Planner (joe.barbeau@metc.state.mn.us)

SUBJECT: Scope Change Request for Hennepin County CSAH 158 (Vernon Ave) Bridge Replacement

REQUESTED ACTION: Hennepin County requests a scope change for its CSAH 158 (Vernon Ave) bridge replacement (SP # 027-758-006) to increase the project length, remove a channelized right-turn island, reconstruct the southbound MN 100 ramp, and install a noise wall.

RECOMMENDED MOTION: That the Technical Advisory Committee recommend that TAB approve Hennepin County's scope change request to amend its CSAH 158 (Vernon Ave) bridge replacement (SP # 027-758-006) to increase the project length, remove a channelized right-turn island, reconstruct the southbound MN 100 ramp, and install a noise wall with no reduction in federal funds.

BACKGROUND AND PURPOSE OF ACTION: Hennepin County was awarded \$7,000,000 in the Bridge category as part of the 2018 Regional Solicitation to replace the existing Vernon Avenue Bridge over the CP Railway in Edina. Improvements were to include a new bridge structure and modifications to impacted roadway approaches (see Figure 1). Because impacts to the roadway approaches appear to be greater than thought at the time of application, the county is requesting a change in scope, reflected in Figure 2.

The proposed updates are:

- Extension of the project to the east along Vernon Avenue. This is needed to raise the bridge's elevation to accommodate CP Railway vertical clearance standards.
- Removal of the channelized right-turn island from the southbound Trunk Highway (TH) 100 exit ramp. This is preferred due to safety concerns related to speed through the channel and failure to yield.
- Reconstruction of roughly 825 feet of the southbound TH 100 ramp. Modeling shows that in 20 years the ramp is likely to have queuing onto the freeway.
- A noise wall on the east side of TH 100. MnDOT noise requirements led to this proposed structure.
- Removal of the right-turn lane from westbound Vernon Avenue to Interlachen Boulevard from the scope. This was decided upon because Hennepin County felt that modest benefits of the originally proposed right-turn lane do not outweigh the negative impact to pedestrians. This led to the proposed three-lane section.

RELATIONSHIP TO REGIONAL POLICY: Projects that receive funding through the Regional Solicitation process are subject to the regional scope change policy. The purpose of this policy is to ensure that the project is designed and constructed according to the plans and intent described in the original application. The scope change policy allows project sponsors to adjust

their projects as needed while still providing substantially the same benefits described in their original project applications.

STAFF ANALYSIS:

Approval/Denial of the Scope Change: Three primary changes are proposed: the removal of the channelized turn lane in favor of adding a third lane from southbound TH 100; removal of the proposed right-turn lane from Vernon Avenue to Interlachen Boulevard ; and expansion of the project footprint (including the addition of retaining walls and noise walls). The first two are not a concern because the original application had a scoring margin of 143 points over the highest-scoring unfunded project and it is a near certainty that this project, as now proposed, would have been funded. Per scope change policy, the locally funded expansion of the project is only a concern if it detracts from the original proposal. This proposal does not appear to do so.

Funding: Given that the applicant cites \$12,000 as the cost of project elements being removed from the original scope and that the project is essentially intact, historic practice suggests that there is no need to suggest taking federal funds away (that would amount to \$9,600).

COMMITTEE COMMENTS AND ACTION: At its December 16, 2021, meeting, the TAC Funding & Programming Committee voted unanimously to recommend approval of Hennepin County’s scope change request to amend its CSAH 158 (Vernon Ave) bridge replacement project to increase the project length, remove a channelized right-turn island, reconstruct the southbound MN 100 ramp, and install a noise wall with no reduction in federal funds.

The recommendation not to reduce federal funds was based on the small amount of funding in question.

ROUTING

| TO | ACTION REQUESTED | DATE SCHEDULED / COMPLETED |
|---|-------------------------|-----------------------------------|
| TAC Planning or TAC Funding & Programming Committee | Review & Recommend | 12/16/2021 |
| Technical Advisory Committee | Review & Recommend | 1/5/2022 |
| Transportation Advisory Board | Review Adopt | 12/19/2022 |

To: Metropolitan Council – Transportation Advisory Board (TAB)
From: Jason Staebell, PE – Hennepin County Project Manager
Date: October 20, 2021
Re: CSAH 158 (Vernon Ave) Bridge Replacement Project – Scope Change Request

This document seeks to provide information the Transportation Advisory Board (TAB) requires for a formal scope change for SP 027-758-006. This includes a comparison of the project scope of the CSAH 158 (Vernon Ave) Bridge Replacement project as described in the 2018 Regional Solicitation Application against the current scope as well as the what benefits were gained, lost, or retained due to those changes. While some aspects of the current scope were not known during the application process, project stakeholders believe these scope items are necessary to fulfill the primary purpose of this project while maintaining standard engineering practices and accommodating safety concerns.

The primary purpose of this project, as described in the 2018 Regional Solicitation Application, Attachment 1 – Project Narrative, is shown below:

The proposed project will replace the existing Vernon Avenue Bridge (#4510) to extend its service life. Improvements will include a new bridge structure and modifications to the roadway approaches that are impacted by the project.

The descriptions below will demonstrate how the aspects of the project that were designed after the 2018 Regional Solicitation Application are still part of the primary purpose of the project and included in “modifications to the roadway approaches that are impacted by the project.” As the preliminary design progressed, impacts to the roadway approaches were found to be greater than originally anticipated.

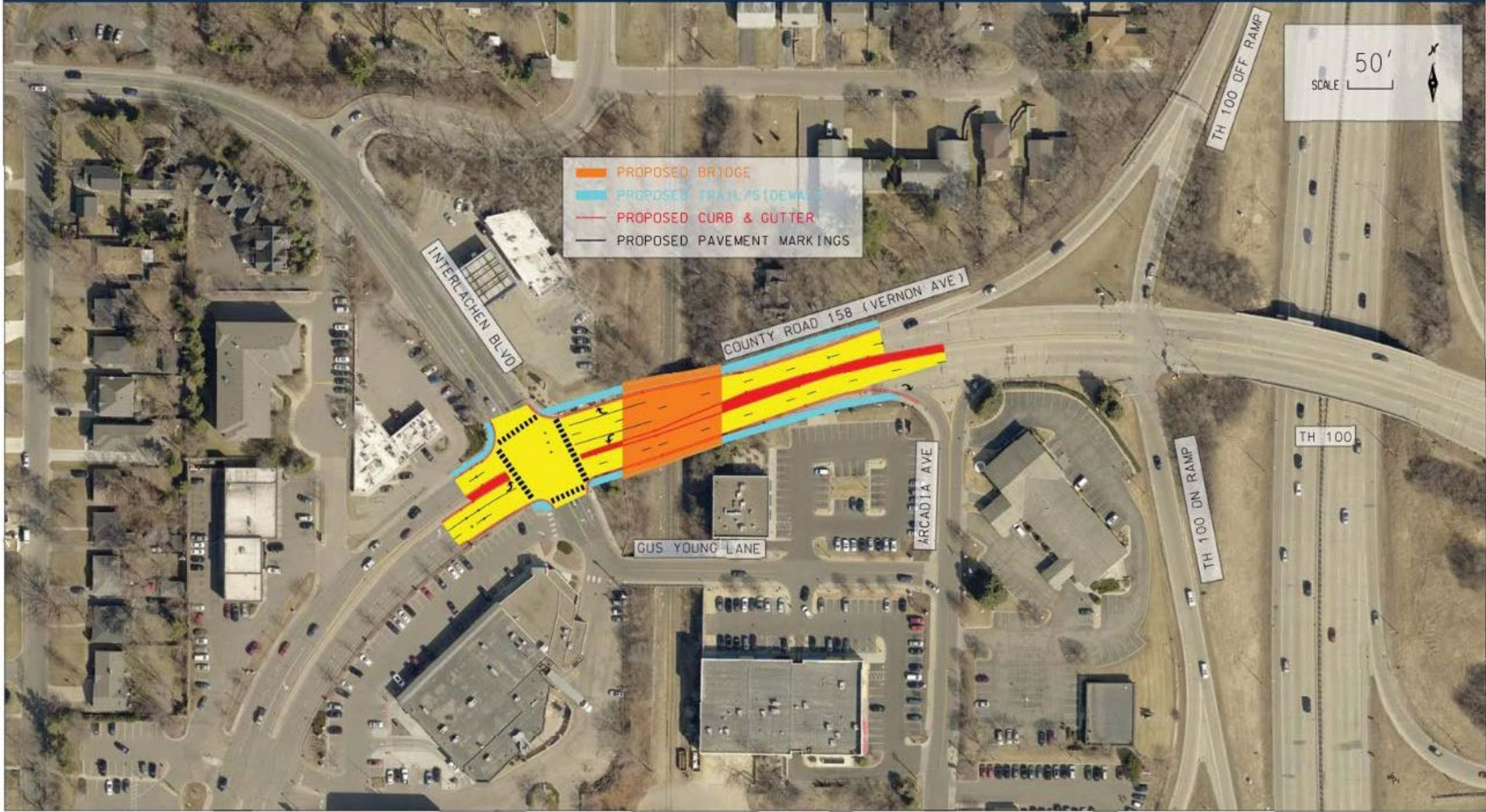
See Figure 1 for layout of expected scope at the time of the 2018 Regional Solicitation Application. See Figure 2 for a layout of the current scope.

Figure 1

CSAH 158 (Vernon Ave) Bridge Replacement Project

Attachment 5 | Project Concept

HENNEPIN COUNTY
MINNESOTA

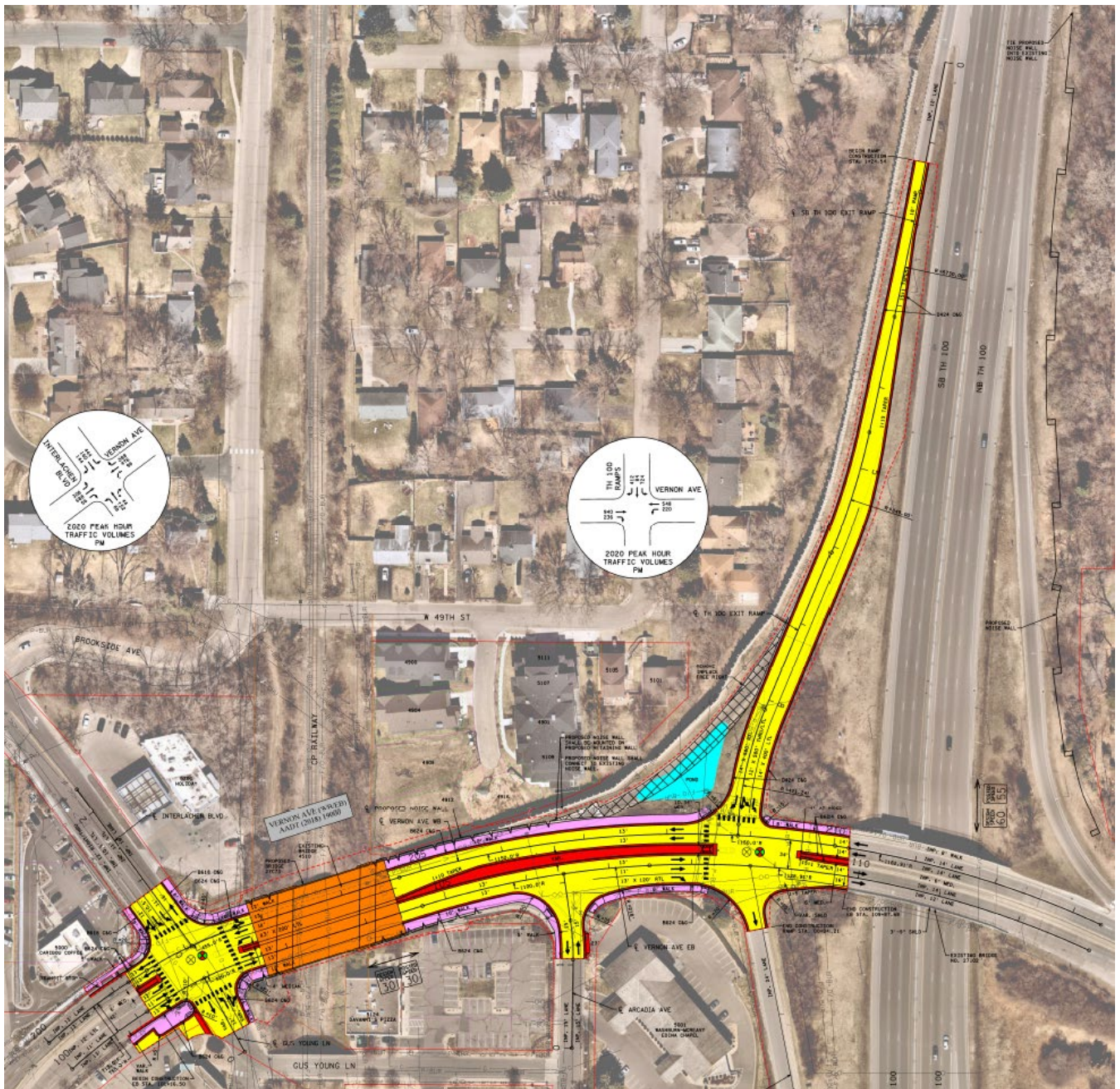


Disclaimer: This map (i) is furnished "AS IS" with no representation as to completeness or accuracy; (ii) is furnished with no warranty of any kind; and (iii) is not suitable for legal, engineering or surveying purposes. Hennepin County shall not be liable for any damage, injury or loss resulting from this map.

Publication date: 7/6/2018 PWV802 L:\TPDIR\Regional Solicitation\2018 Regional Solicitation\CSAH 158 - CP 1766 (Bridge)\Layouts\20180620-CSAH158-VernonAveBridge.dgn



Figure 2



During the preliminary design phase, several design constraints dictated the need for the proposed work shown in Figure 2.

First, profile requirements caused the project to extend to the east. The CP Railway current standards for vertical clearance over their railway required a significant raise in the elevation of proposed Bridge No. 27C73 as compared to the existing 22 foot clearance for Bridge No. 4510. The current preliminary design satisfies the 23 foot minimum vertical clearance requirement over the existing CP railway as well as over a potential future track, which would be located 15 feet east of the existing track (centerline to centerline). The proposed profiles and clearance information can be seen in Figure 3: Vernon Avenue WB and EB Profiles.

On the west side of the project, these proposed profiles were able to tie into the existing roadway at essentially the same location as expected in the 2018 Regional Solicitation Application. However, on the east side of the project, the construction limits needed to extend considerably to the east in order to tie into the built environment. The profile would allow construction to end approximately 26 feet west of the existing bridge over TH 100 (Bridge No. 27102). To be considerate of future maintenance and lifespan concerns, the project was extended this additional 26 feet to match into existing Bridge No. 27102.

This increase in scope provides new pavement and wider sidewalks up to the TH 100 Bridge (Bridge No. 27102), which will provide better service to the public through improved pedestrian access and will require less maintenance for the new pavement in the future. This extension of scope is an increase in benefits.

Second, the channelized right turn island from the SB TH 100 Exit Ramp is proposed to be removed to address existing safety concerns. Local public agencies have observed two issues with the vehicles traveling along this channelized right turn island: one) excessive speeds, two) poor compliance for the yield condition. In addition, bicycles are known to frequent this area, which presents a higher safety concern since vehicles may complete this turning maneuver at a relatively high rate of speed.

The profile changes required for this project results in a notable grade difference along WB Vernon Avenue at the merge point with the channelized right turn island. Thus, if the channelized right turn island was to remain, a considerable portion of it would still need to be reconstructed in order to tie in with the proposed WB Vernon profile. The City, County, and MnDOT are in agreement that not only should the channelized right turn island be eliminated to address safety concerns, but also that it's not desirable to use public funds to finance the reconstruction of the channelized right turn island in an in-kind condition.

The removal of the channelized right turn island is expected to slightly increase the delay for right turning vehicles; however, with higher priority being given to safety concerns related to rear end collisions and reducing the likelihood of a crash involving a person walking or biking, this change gains more benefit than it loses.

Third, roughly 825 feet of the SB TH 100 Exit Ramp is proposed to be reconstructed in order to accommodate longer left and right dedicated turn lanes. MnDOT required traffic modeling of the SB TH 100 exit ramp to determine if vehicles would queue onto the freeway in the build condition or in the 20 year future condition. It was found that while queuing was not expected to reach the freeway with build year volumes, the same could not be said for the 20 year future condition. Thus, MnDOT requires that the ramp be updated to accommodate the future condition.

After extensive modeling, it was found that extending the turn lanes to 580 feet for the right turn lane and 400 feet for the left turn lane prevented excessive queuing in the 20 year future condition. A fourth lane was also considered instead of extending the turn lanes. However, a fourth lane presented design issues, including severe impacts to the snow storage area as well as steep proposed slopes between the ramp and TH 100 that would likely require the construction of retaining walls and guardrail. A fourth lane would also require considerable reconstruction of the existing ramp. Thus, the turn lane extensions were determined to be the most feasible, maintainable, and cost effective solution.

The turn lane extension required reconstruction of the ramp beyond the extents of the proposed turn lanes to reduce the likelihood of retaining walls. The ramp is proposed to be re-aligned as close to the existing noise wall as possible while still maintaining the recommended 10 feet of clear distance for snow storage. This realignment allows the slopes between the ramp and TH 100 to be moderate enough that retaining walls (and guardrail) will not be required. Retaining walls are not desired because they present safety, maintenance, and cost implications.

Overall, the reconstruction of the TH 100 Exit Ramp and extension of the ramp's turn lanes is a gain in benefit to the project. This change prepares for expected future queuing while maintaining currently needed features such as snow storage.

Fourth, a noise wall is proposed on the east side of TH 100 due to the "Noise Requirements for MnDOT and other Type I Federal-aid Projects" effective since July 10, 2017. These requirements state, "*The noise analysis must include all areas that are affected by the project, including impacts from the project that occur beyond the official project limits/termini.*" and that ". . . *the analyst should extend the modeling limits at a minimum 500' or to a 'logical' termini point greater than 500' from the end of physical construction.*"

Figure 4 shows the extents of a 500 foot radius from three points, one) the edge of WB Vernon Avenue Construction, two) the edge of construction if the channelized right turn island was reconstructed, and three) the edge of reconstruction of the ramp.

As seen in Figure 4, even disregarding any construction on the SB TH 100 Exit Ramp or channelized right turn island, the noise study would be required to consider the homes just east of TH 100 based solely on the construction of WB Vernon Avenue. Those homes are within 500 feet of the proposed construction.

During the noise analysis, two homes east of TH 100 were found to have noise levels that approached or exceeded the FHWA Noise Abatement Criteria (NAC), which triggered analysis of noise walls in this area. Noise Barrier E, the noise wall modeled east of TH 100 in the *Vernon Avenue Bridge Replacement Project Noise Study*, was found to fulfill the requirements needed for a noise wall to be recommended for construction. First, the barrier is acoustically feasible. Several homes were found to be benefitted with noise reduction of at least 5.0 dBA, and at least one receptor met the required 7.0 dBA noise-reduction design goal. Second, the barrier meets engineering feasibility. A preliminary examination of proposed location did not discover any fatal flaws that would make a noise barrier unreasonable to construct or maintain. Thirdly, the barrier met the cost effectiveness criteria, meaning that the cost per benefitted receptor is not expected to exceed \$78,500.

This proposed noise wall is an added benefit to the project since several homes were found to be acoustically benefitted.

Fifth, the right turn lane along westbound Vernon Ave at Interlachen Blvd that was proposed in the 2018 Regional Solicitation Application was removed from the scope of the project. After extensive modeling of the project area, it was found that the benefits of right turn lane were not justified. The right turn lane would reduce vehicle delay at the intersection, however the reduction was relatively modest, especially in comparison to the improvement provided by the left turn lane. The four lane section is relatively uninviting and uncomfortable for people walking in the area, requiring a longer crossing time. A three lane section was determined to provide a better balance of needs between people walking and people driving. Overall, the removal of the right turn lane may be viewed as a modest reduction in benefits for people driving, however, a significant increase in benefits for people walking.

These five areas of scope were not known at the time of the 2018 Regional Solicitation Application, however they are necessary modifications to the existing conditions that were prompted by the project development process. Taken as whole, this scope changes gain more benefits the project than they lose.

Attachment 1 (Funding Data for Scope Change Request) shows the estimated costs of each of these scope changes.

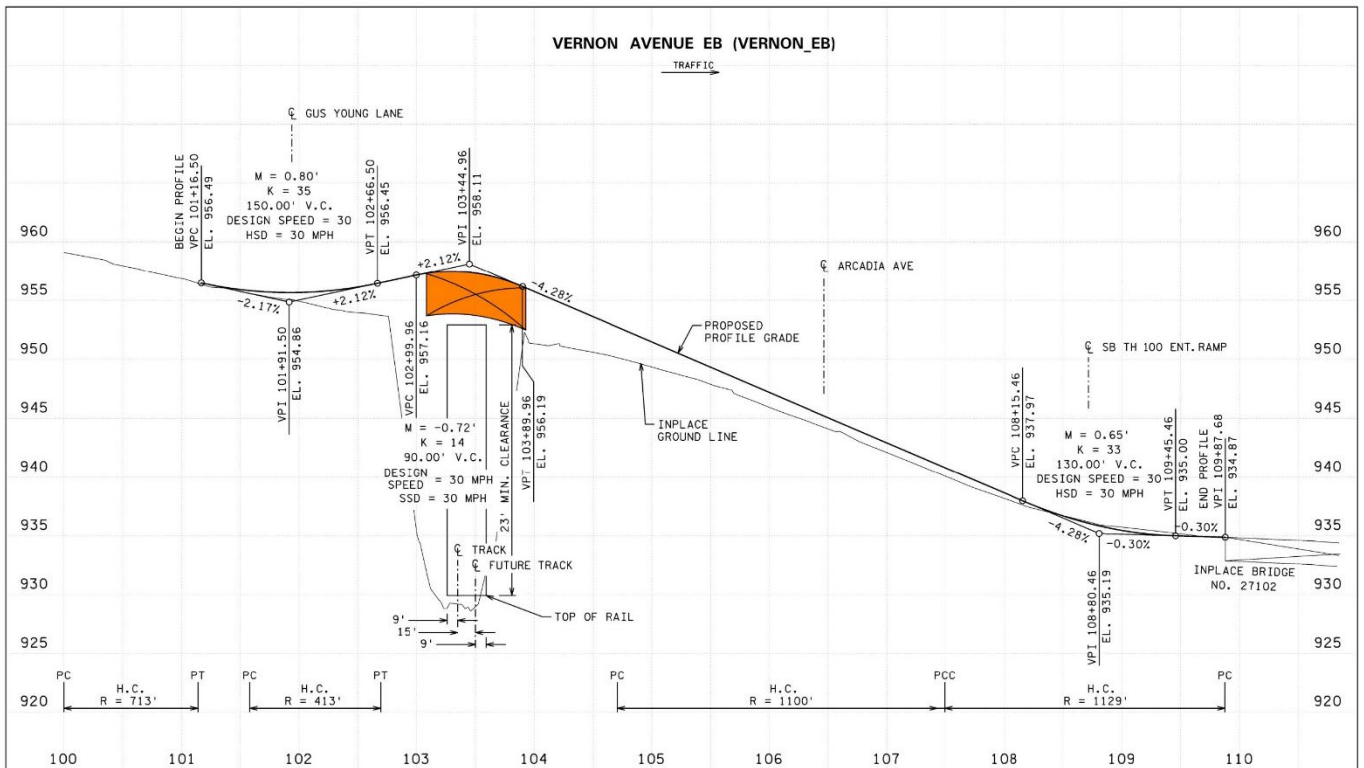
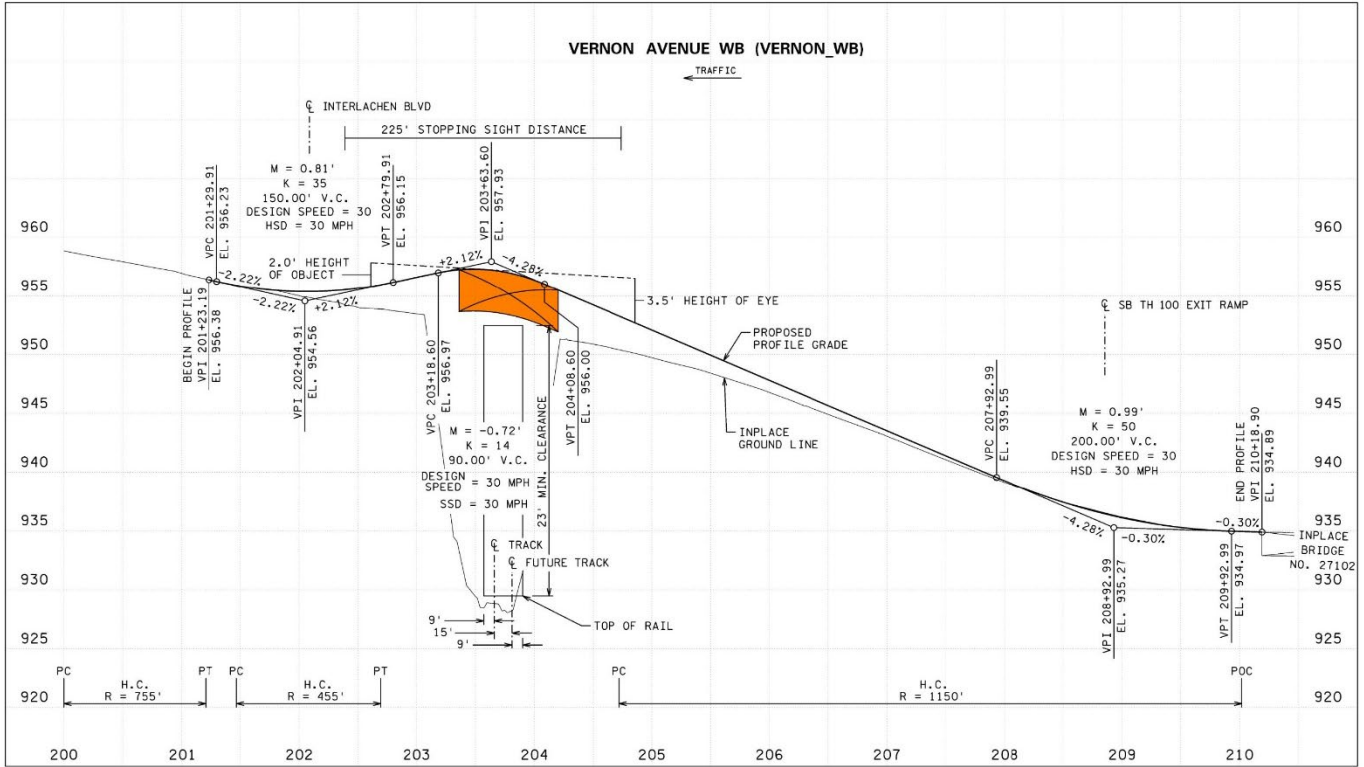


Figure 3: Vernon Avenue WB and EB Profiles

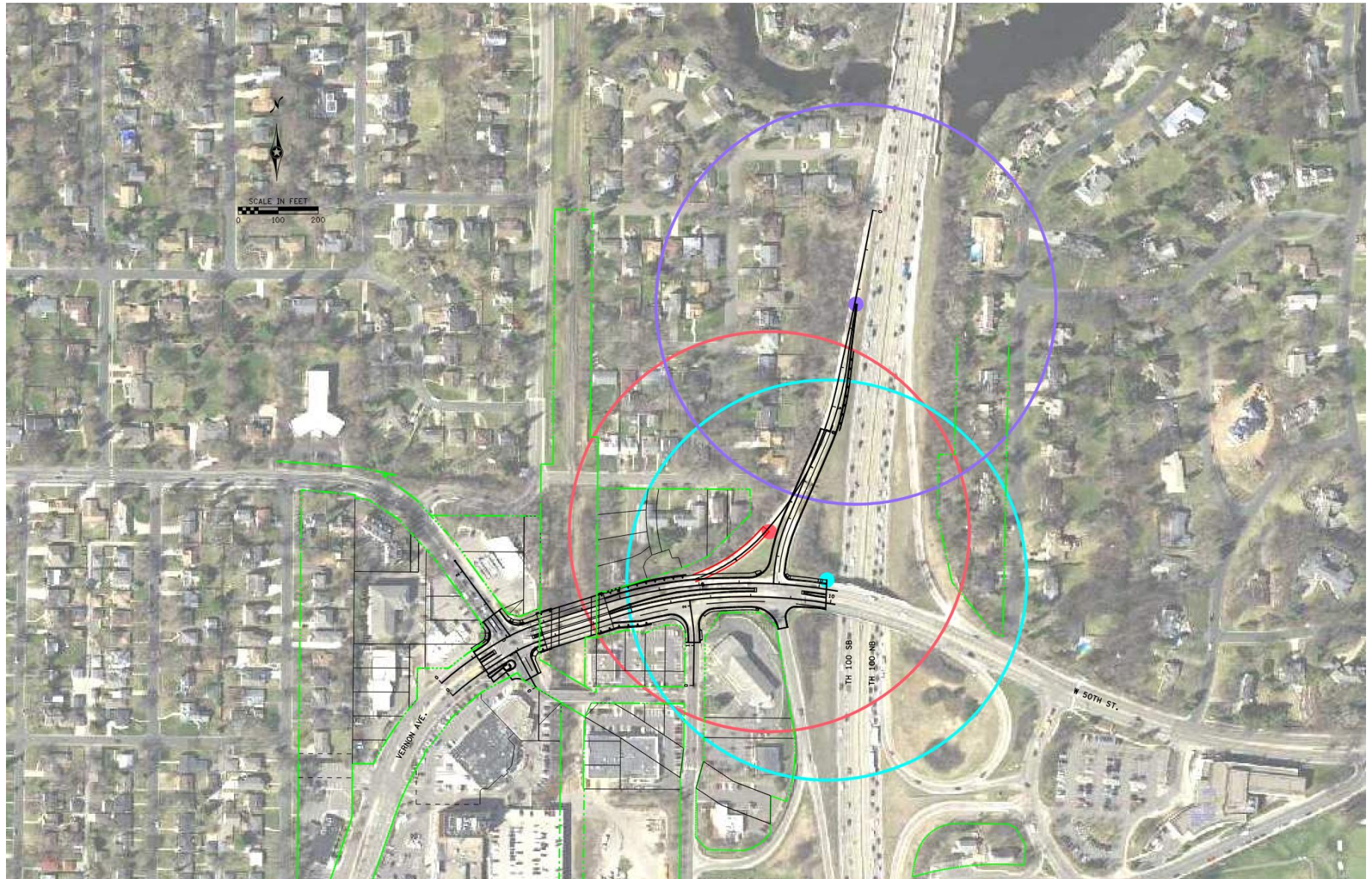


Figure 4: Noise Study Required Extents (500' radius)

ATTACHMENT 1: FUNDING DATA FOR SCOPE CHANGE REQUEST

Original Application

| | |
|--|--|
| Regional Solicitation Year | 2018 |
| Application Funding Category | Regional Solicitation – Roadways Including Multimodal Elements |
| HSIP Solicitation | Yes <u>No</u> |
| Application Total Project Cost | \$9,150,000.00 |
| Federal Award | \$7,000,000.00 |
| Application Federal Percentage of Total Project Cost | 76.5% |

| Project Elements Being Removed | Original Application Costs |
|--|-----------------------------------|
| WB Right Turn Lane along Vernon Avenue | \$12,000.00 |
| | |
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| | |

| New Project Elements | Cost (Based on Year of Costs in Original Application) |
|---|--|
| Increased project length along Vernon Avenue | \$195,000.00 |
| Channelized right turn island removal at TH 100 Ramps | \$26,000.00 |
| SB TH 100 Ramp reconstruction | \$117,000.00 |
| Noise Wall east of TH 100 | \$621,000.00 |
| | |