Vadnais Boulevard Trail Preliminary Design Development Report

September 29, 2022

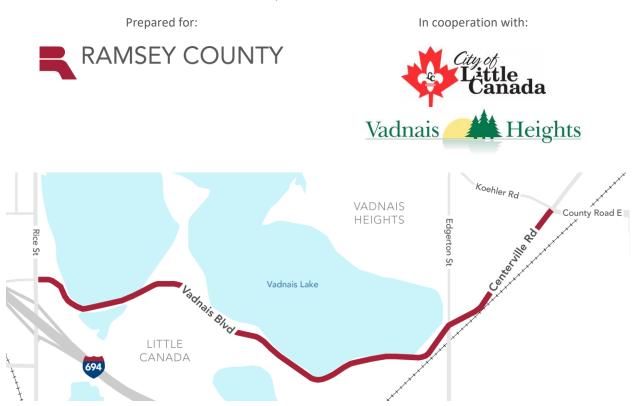


Figure 1. Map of the Vadnais Boulevard Corridor

Prepared by:

Kimley » Horn



Certification

I certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.

September 29, 2022

Gregory S. Brown, P.E. 22814

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Project Summary / Background

This report provides a summary of the Vadnais Boulevard Trail Design Study activities between August 2021 and August 2022. The Vadnais Boulevard corridor has significant bicycle and pedestrian traffic, but currently there is no sidewalk or separated trail facility along the corridor. The purpose of this design study, led by Ramsey County, is to develop conceptual trail designs for the Vadnais Boulevard corridor, which runs along the south side of Vadnais Lake between Rice Street and Koehler Road/County Road E in Vadnais Heights and Little Canada.

The corridor includes an existing narrow cross-section with limited space to incorporate a protected mixed-use trail facility, which has been a major impediment to the completion of a pedestrian and bicycle facility along this corridor. However, the desire for a safe and efficient mixed-use trail in this corridor has been strongly expressed by the cities of Little Canada and Vadnais Heights as well as the community at large. This study explores options to construct the best possible trail facility, given sound engineering, budget constraints, and the existing constraints of the corridor.

A Technical Advisory Committee (TAC) was formed for this study and includes representatives from:

- Ramsey County Public Works (Scott Mareck)
- Ramsey County Parks and Recreation (Scott Yonke)
- Vadnais Heights Public Works (Jesse Farrell, Katie Everett)
- Little Canada Parks and Recreation (Bryce Shearen)
- Active Living Ramsey Communities (Connie Bernardy, Rich Straumann, Gene Gjerdingen)

The TAC met four times throughout the course of the study and helped inform the development of alternatives and organization of the public engagement process. In addition to the four meetings, the project team completed a field walk with TAC members in the fall of 2021 to better understand the existing constraints and opportunities located along the corridor.

Study Process

The following is a synopsis of the study process that was utilized to identify, test and develop recommendations for future trail improvements within the corridor.

- 1. Collect data and analyze existing conditions on a variety of corridor needs, including:
 - a. Roadway traffic.
 - b. Parking.
 - c. Utilities.
 - d. Pedestrian and cyclist experience.
 - e. Natural environment (trees, lakefront, etc.)
 - f. Private property.
 - g. Public services (mail, snow removal operations, trash collection, emergency response).
- 2. Develop and implement a public engagement process to introduce the project, gather feedback and solicit input from the community about their ideas for the corridor. The engagement process will assist the TAC and design team with understanding the relationship/importance of corridor needs from the community perspective.
- 3. Develop draft conceptual designs, share them with the TAC and community and gather their feedback on what they like and dislike about each concept.
- 4. Revise the draft conceptual designs based on feedback from the TAC, community and elected officials.
- 5. Share the revised designs with the public and gather their feedback.
- 6. Prepare the layout of the revised designs and a corridor study report outlining the process, engagement feedback and design elements.



Project Purpose and Need

The purpose statement of this study is:

To identify design concepts that can safely and adequately accommodate pedestrians and bicyclists today and into the future for the Vadnais Boulevard corridor between Rice Street and County Road E in Vadnais Heights and Little Canada.

The project was designed to meet the following needs:

• The Vadnais Boulevard corridor has significant bicycle and pedestrian traffic, but currently there is no sidewalk or separated trail facility along the corridor

The project goals/priorities include:

- Link to existing trail infrastructure and nearby destinations.
- Create a safe and comfortable walking/biking environment along and across Vadnais Boulevard/Centerville Road.
- Construct improvements that can be easily maintained.
- Improve vehicle traffic mobility and safety.
- Minimize property impacts.
- Develop improvements that are financially feasible.



Public Engagement Process

Three rounds of engagement were completed for the Vadnais Boulevard Trail Design Study.

Round 1

During the first round of public engagement from October to November 2021, Ramsey County held an in-person open house on October 26, 2021 at Vadnais Heights City Hall and a virtual open house on October 27, 2021. The purpose of the first round of engagement was to introduce the project to the public, share existing conditions information and ask the public about their experiences using Vadnais Boulevard and their visions for the corridor. Public feedback was shared through paper and online surveys which received 132 responses and an online interactive map which received 48 comments.

Round 2

The county hosted a second virtual open house on March 22, 2022 to kick off the second round of public engagement which ran through April 25, 2022. In this round, the county shared draft trail design concepts and asked the public to provide feedback on them. The public was again able to provide feedback using an online survey or interactive map which received 22 responses and 41 comments respectively.

Round 3

The third and final round of public engagement took place from June 30 through July 31, 2022 starting with an inperson open house at Vadnais Heights City Hall. During this round of engagement, the county shared revised trail design concepts and asked the public to provide feedback on them. Feedback was received during the open house itself and through a short online survey which received 11 responses.

The meetings from each round of engagement were advertised in various ways including postcards sent in the mail, social media notices, yard signs around the project area and emails to the project distribution list.

The meetings were structured such that participants could opt to view a variety of materials prepared to outline the concepts and solicit feedback including:

- A short presentation providing overview of project and open house materials.
- Detailed layout drawings for each option presented during rounds 2 and 3.
- A project website including project information, timeline and graphics.
- An online interactive map to allow participants to provide location specific comments.
- A short online and/or paper survey.

Open House Feedback Summary

In total, Ramsey County received 165 paper and/or online survey responses and 89 comments on the interactive map. Common themes from comments received in both applications are summarized below. More detailed information about the feedback received during each round of public engagement can be found in the engagement summaries located in **Appendices A - C.**

Common Themes

- General support and excitement for this project; it feels unsafe to walk/bike on this roadway.
- Stronger preference for a trail on the north side of the roadway because it's lakeside, crosses fewer intersections, and better connects with existing trails.
- Support for traffic calming measures to reduce speeds through the area.
- Desire for connections to existing trails, especially a trail to complete the loop around the lake.
- Concerns about trail funding, implementation timeframe, environmental impact, safety at intersections and visibility around curves in the road.



Corridor Context

Corridor Character

The Vadnais Boulevard/Centerville Road (Ramsey County Roads 16 and 59) corridor is a 2.25-mile two-way, two-lane roadway with narrow shoulders and a rural cross-section on a curvilinear alignment that runs along the southern edge of Vadnais Lake. The Centerville Road segment begins at Edgerton Street and terminates at Koehler Road/County Road E near the Vadnais Heights municipal campus. This segment consists of a two-lane, two-way roadway with bituminous curbs and variable-width shoulders.

The majority of the corridor's abutting land use is waterfront/parkland (Vadnais Lake and Vadnais-Snail Lakes Regional Park) although the corridor also includes frontage by The Academy for Sciences and Agriculture High School, residential neighborhoods and commercial nodes. The corridor provides important access from local neighborhoods and the community to the Vadnais-Snail Lake Regional Park and amenities. Vadnais Boulevard serves as an important link in Ramsey County's regional transportation network for the movement of traffic, pedestrians and cyclists. It also serves as a connection between existing trails along Rice Street, Vadnais-Snail Lakes Regional Park, Edgerton Street, Centerville Road (north of County Road E) and County Road E.

Available right-of-way in the corridor is generally adequate to accommodate a trail and roadway. Topographical, mature vegetation, and lake/ wetland constraints have largely precluded the construction of a separate facility for nonmotorized traffic to date. The current roadway posted speed is 35 MPH and existing vehicular traffic volumes along the corridor range from 2,300 to 3,300 vehicles per day.

Figure 2. Rice Street Approach





Figure 3. Vadnais Lake Causeway







Figure 4. Vadnais Lake Regional Park





Figure 5. John Mitchell Preserve Area

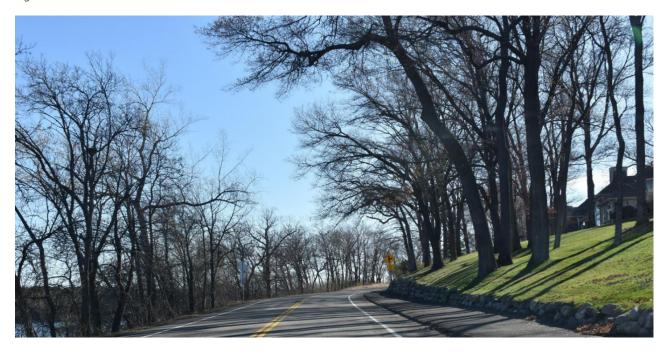




Figure 6. Vadnais Lake Regional Park Trailhead Area



Figure 7. Edgerton Street to County Road E





Figure 8. Edgerton Street Intersection Area





Private Property Impacts

Residential properties abut the roadway with side yards and backyards along the south side between Twin Lake Boulevard and Vadnais Lake Drive. Between Edgerton Street and County Road E both sides of Centerville Road include front yards and driveways for residential properties and include varying setbacks from the edge of the pavement.

The existing right of way widths are anticipated to accommodate the spatial needs for traffic and the trail without acquisition of additional right of way. However, the proposed cross section would likely result in construction of trail or curbs 2-4 feet beyond existing roadway edges. Private landscaping improvements within the existing right of way, including landscaping, mailboxes, fences and walls will need to be evaluated for relocation needs as a part of detailed design. Preliminary review of the corridor does not indicate significant relocation needs for private elements.

Storm Drainage Infrastructure

Existing storm drainage infrastructure includes a non-standard collection of ditches, culverts catch basins and piping constructed at different times and varying effectiveness in managing storm runoff. Existing stormwater runoff generated in the corridor is generally not treated or filtered prior to discharging or flowing to Vadnais Lake or other natural receiving wetland areas. As a part of the project coordination efforts Ramsey County identified planned stormwater improvements in the intersection of Edgerton Street and Vadnais Boulevard/Centerville Road. It is anticipated that design of that infrastructure will begin in late 2022 and will consider potential roadway, trail and intersection improvements identified as a part of this study. The conversion of Centerville Road and Vadnais Boulevard to urban cross sections will create an opportunity to collect stormwater runoff into sewers which may allow more corridor runoff to be managed in the Edgerton Street stormwater facility if desired.

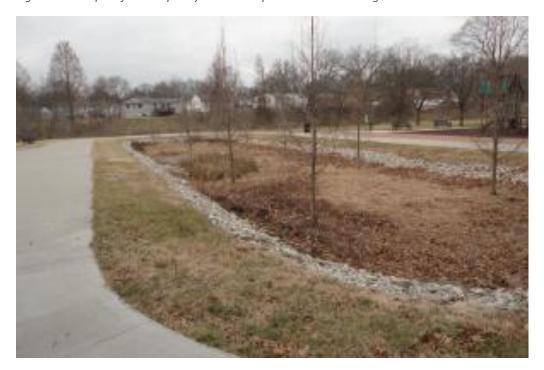
The future trail project should consider the following improvements related to improving stormwater quality prior to discharging to natural water bodies:

- Explore and identify locations to catch and filter or infiltrate runoff prior to entering Vadnais Lake.
- Coordinate stormwater connections to the Edgerton Street/Centerville Road ponding area (if constructed and intended for collection of roadway and trail runoff)
- Consider stormwater basins as visual amenities for trail users.



Develop trail routes that will be helpful to water quality infrastructure.

Figure 9. Example of water quality basin incorporated with trail alignment



Trail Use Need

The roadway proximity to Vadnais Lake, Vadnais-Snail Lakes Regional Park, neighborhoods south and east of the lake, commercial nodes, schools, and existing trail connections result in a high number of pedestrians and cyclists using the corridor. The existing roadway does not include any dedicated space for pedestrians or cyclists who are forced to utilize the roadway shoulders as a result. Comments from the public received as a part of the engagement process stressed the need for traffic calming and a dedicated space for pedestrians and cyclists due to motorists' high speeds when traveling through this area.

Utility Impact

Vadnais Boulevard between Rice Street and Edgerton Street appears relatively clear of overhead utilities with the exception of a couple poles near the regional park entrance. Existing overhead power and communication lines are present along Centerville Road between Edgerton Street and County Road E on both sides of the roadway. Fire Hydrants are located intermittently along the corridor. Existing poles and hydrants appear to be setback 4-8 feet from the existing roadway edge which may provide adequate clearance for construction depending upon final determination of the proposed road and trail cross section. A topographic survey will need to be conducted as a part of detailed design to confirm precise locations of surface and underground utilities and to determine the scope of utility relocation required for the project.

Saint Paul Regional Water service owns and operates facilities in the project corridor and controls significant lengths of property adjacent to the roadway right of way. Coordination with SPRWS will need to include their underground infrastructure as well as potential property impacts and improvements within SPRWS parcels.



Vegetative Impacts

The western 1.5 miles of the corridor generally consists of natural landscape with shore grasses predominant along the Vadnais Lake Causeway and woods adjacent to the corridor between Sucker Lake Road (park entrance) and Edgerton Street. Residential lawns with mature trees set back from the roadway are the predominant landscape on Centerville Road as well as the south frontage between Twin Lake Boulevard and Vadnais Lake Drive. Based on the field walk and design concepts, impacts to existing trees in the corridor are anticipated to be concentrated in the segment between Twin Lake Court and Edgerton Street where the existing woods extend to within a few feet of the existing roadway pavement. The design concepts all include boulevard space between the trail and roadway edge that could accommodate new trees or other landscaping to fit the abutting landscape (e.g. grasses along causeway) as desired.

A topographic survey will need to be conducted as a part of detailed design to confirm precise locations and sizes of existing trees and to determine scope of impacts. Adjustments to the proposed trail alignment should be considered where appropriate to avoid impacts to mature trees.

Parking Access Impacts

Although the existing cross sections include shoulder space that could accommodate parking, on-street parking is prohibited in several areas of the corridor and, based on field observations, does not appear to be a common occurrence or need in the neighborhood section along Centerville Road. The proposed roadway and trail cross sections generally remove one or both shoulder areas which would limit the ability to accommodate on street parking in the future if desired by the municipality.



Crash Analysis

As part of this design study, the project team conducted a crash analysis, using 2016 – 2020 crash data from the Minnesota Crash Mapping Analysis Tool (MnCMAT2). The team looked at crash rates, both total crashes and fatal and serious injury crashes, as well as characteristics of the crashes along the Vadnais Boulevard corridor. The graphics below summarize the findings from the crash analysis. While the fatal and serious injury crash rate has a critical index below one on both segments of the corridor, the total crash rate has a critical index above one, indicating that these segments deviate from the statewide trends and may have safety concerns. Listed below are definitions to assist in interpreting these results.

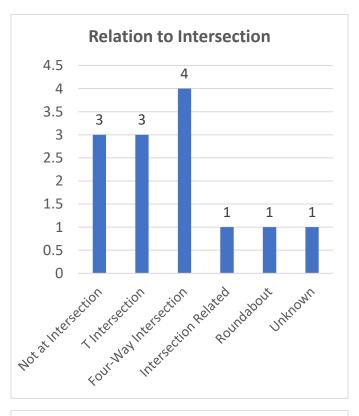
- **Total crash rate** is defined as the number of crashes per million vehicles miles traveled (or entering vehicles for intersections).
- The **fatal and serious injury crash rate** is defined as the number of fatal and incapacitating injury crashes per 100 million vehicle miles traveled (or entering vehicles for intersections).
- Critical crash rates provide a statistical threshold for screening sites. The critical crash rate is calculated by
 weighting the average crash rate for similar intersections or segments across Minnesota by the existing
 traffic volume.
- A **critical index** is reported as the ratio of the observed crash rate to the critical crash rate. A critical index exceeding 1.00 indicates there may be a safety concern at the site. When analyzing the critical index, a value at or below 1.00 implies that the site does not deviate significantly from statewide trends (i.e., it's performing within expectations). The total crash rate critical index is the total crash rate divided by the critical crash rate for total crashes. Similarly, the fatal and serious injury critical index is the fatal and serious injury crashers.

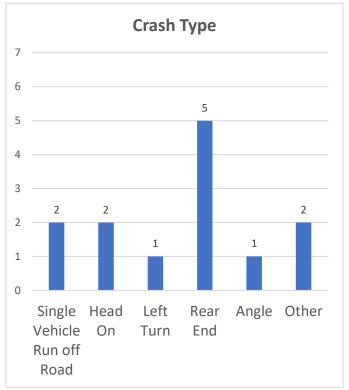
Rice Street to Twin Lake Boulevard

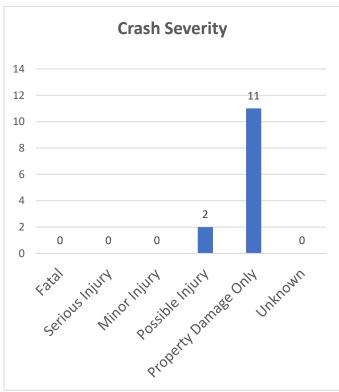
Thirteen crashes, including intersection crashes.













Crashes by Crash Severity	
Fatal	0
Incapacitating Injury	0
Non-incapacitating Injury	0
Possible Injury	2
Property Damage	11
Total Crashes	13

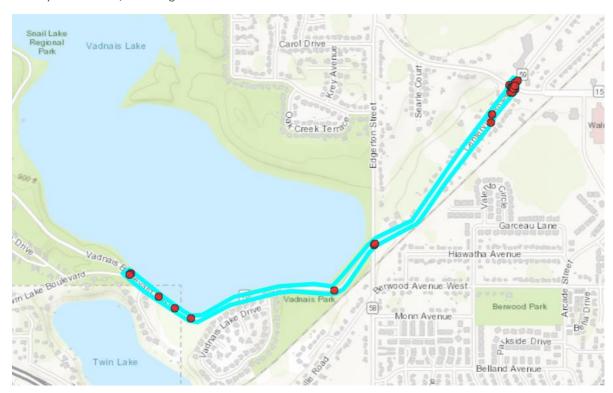
Total Crash Rate	
Observed	3.26
Statewide Average	1.32
Critical Rate	2.93
Critical Index	1.11

Section Characteristics	
Length	0.960 miles
Volume (ADT)	2,275
Environment	Suburban
Median Type	Undivided / No median
Number of Lanes	2

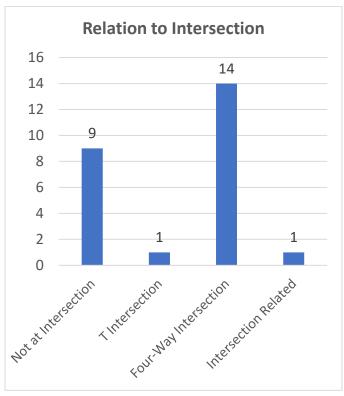
Fatal & Serious Injury	Crash Rate
Observed	0.00
Statewide Average	2.87
Critical Rate	26.28
Critical Index	0.00

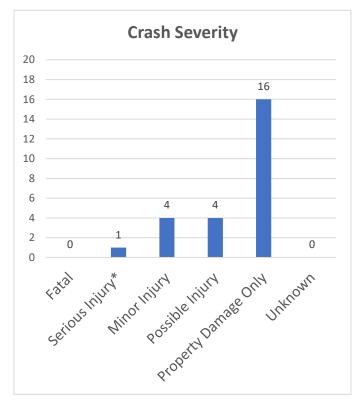
Twin Lake Boulevard to County Road E

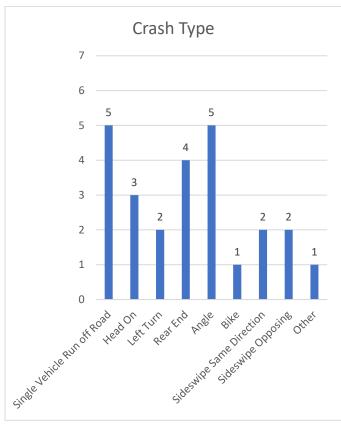
Twenty-five crashes, including intersection crashes.













Crashes by Crash Severity	
Fatal	0
Incapacitating Injury	1
Non-incapacitating Injury	4
Possible Injury	4
Property Damage	16
Total Crashes	25

Section Characteristics	
Length	1.280 miles
Volume (ADT)	3,225
Environment	Suburban
Median Type	Undivided / No median
Number of Lanes	2

Total Crash Rate	
Observed	3.32
Statewide Average	1.32
Critical Rate	2.46
Critical Index	1.35

Fatal & Serious Injury Crash Rate	
Observed	13.27
Statewide Average	2.87
Critical Rate	17.41
Critical Index	0.76



Trail Connections

A key element of any successful trail system is how it improves connectivity to points of interest within a community and the broader region. The proposed Vadnais Boulevard trail improvements will complete the existing trail that loops around Vadnais Lake. They will provide critical connections between Vadnais Heights neighborhoods and Vadnais Lake, Vadnais-Snail Lakes Regional Park, and commercial nodes.

The western terminus of the trail will complete connections to existing bike facilities on Rice Street, which extend northerly, along the western edge of Vadnais Lake, and southerly, tying into bike facilities on Owasso Boulevard and See Street and connecting to commercial nodes, residential neighborhoods, and parks off of Rice Street.

The Centerville Road portion of the trail, on the eastern side, will connect to Vadnais Heights Elementary School and the Vadnais Square Shopping Center on County Road E. The trail will also link to existing trails on Edgerton Street, tying into residential neighborhoods and trails on Koehler Road and Belland Avenue.

In addition to connecting to existing and proposed trail facilities, the project should include improvements to existing intersections to facilitate safe and visible connections between adjacent neighborhoods and the trail facility.

Figure 10. Corridor Opportunities, Constraints and Connectivity





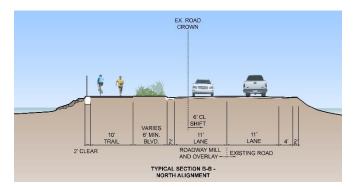
Design Study Considerations

Design considerations were identified to develop, evaluate and prioritize the potential trail alignments. They included:

- User Experience Criteria: Sense of safety, intuitive wayfinding, proximity to natural areas and comfort.
- Connectivity Criteria: Connections to neighborhoods, local parks, Vadnais Lake and trails.
- Scope of Roadway Modification Improvements Criteria: Scale of reconstruction and realignment.
- Crossings/Conflicts Criteria: Visibility at crossings, length of crosswalks, private driveways and local streets
- Grading/Retaining Wall Scope Criteria: Scale of grading and/or wall construction necessary to fit trail.
- Right of Way/Easement Needs Criteria: Scale of anticipated property acquisition (temporary and permanent).
- Surface Utility Conflicts Criteria: Power poles, hydrants, manholes and communications pedestals.
- Cost Criteria: Estimated project costs including design, construction and right of way acquisition.

Trail Design Concepts

Figure 11. North Side Concept, Typical Section B (left) and South Side Concept, Typical Section B (right)





The project team developed and evaluated two potential alignments, a north side option and a south side option. The draft trail design concepts are included in **Appendix D**. The following provides a synopsis of the key elements of these two potential alignments.

Roadway Improvements

The existing roadway pavement is proposed to be narrowed to accommodate the trail while minimizing construction beyond existing roadway pavement limits. Portions of roadway pavement would require milling and overlay to accommodate the new roadway widths and centerline.

Roadway intersection treatments include curbed bump outs to improve safety of pedestrian crosswalks by narrowing the crosswalk lengths, enhancing visibility of pedestrians and providing space for ADA compliant ramp infrastructure.

The corridor includes a 400-foot- long structure near the western terminus with Rice Street. In order to accommodate the trail, the concept plan includes modifications to the existing bridge deck median and the addition of a raised concrete barrier between the trail and roadway traffic. The southern 100 feet of the existing structure would require widening to accommodate the proposed trail.



Trail Improvements

The proposed trail improvements include a continuous 10-foot-wide multi-use trail along one side of Vadnais Boulevard and Centerville Road. A 6-foot turf boulevard will provide separation of the trail from the roadway as well as room for snow storage, signage, streetlighting and boulevard trees as desired by the Cities of Vadnais Heights and Little Canada. A minimum 2-foot clear zone will be provided on both sides of the trail. Connections to sidewalks and trails at intersecting streets are proposed throughout the corridor.

In areas where right-of-way, private landscaping or topography constraints exist, the trail alignment could be shifted closer to the roadway by reduction of the 6-foot turf boulevard to a 2-foot paved maintenance strip directly abutting the surmountable curb.

Public Utility Improvements

The existing roadway corridor includes watermain infrastructure to serve abutting properties and provide fire protection. Existing hydrants in the corridor are primarily located along Centerville Road and will need to be reviewed with the city of Vadnais Heights staff and relocated if necessary to accommodate the new curb line and trail clear zone. Based on our review of the corridor, existing sanitary sewer infrastructure was not observed and therefore we do not anticipate relocation or modifications to any sanitary sewer.

Storm Drainage Improvements

The conversion of the roadway from a rural section to an urban curbed section will necessitate the inclusion of storm sewer catch basins and supporting infrastructure. The proposed roadway improvements include storm sewer catch basins, manholes, culverts and ditches to route stormwater runoff to water quality infrastructure as well as manage drainage and alleviate existing nuisance flooding issue areas that may exist.

Water Quality Improvements

The proposed roadway and trail improvements are anticipated to result in a slight reduction in impervious area compared to existing conditions. The City of Vadnais Heights issues permits for projects within the Vadnais Lake Area Watershed Management organization. Stormwater requirements in the watershed are triggered by the creation of net new impervious surface or reconstruction of impervious surface. If there is no net new or reconstructed impervious, the project, as currently planned, will not be required to install stormwater quality infrastructure. However, the concept layout plans have included potential areas that could be utilized for stormwater management if the project layout pervious/impervious balance changes such that watershed rules are triggered or the county or cities desire to incorporate water quality elements beyond statutory requirements.

Landscaping Improvements

Proposed landscaping improvements along the corridor may include replacement screening for private properties, boulevard trees and planting areas at intersections, water quality areas or other areas to enhance existing vegetation, create visual interest and enhance the effectiveness of water quality areas.

Streetlighting Improvements

The preliminary budget cost estimates have identified potential pedestrian scale streetlighting which could be constructed along the corridor within the 6-foot turf boulevard. A final decision on whether continuous streetlighting is incorporated into the project will be made by the cities of Little Canada and Vadnais Heights.

Right-of-Way Acquisition

The proposed improvements are depicted within existing Ramsey County right-of-way. The concept plans have not included construction limits however the scope of right-of-way acquisition is not anticipated to be significant and likely limited to temporary easements for minor grading, water quality basins or driveway reconstruction versus



permanent easement areas. A final determination of right of way acquisition needs will be made as a part of the detail design process.

Trail Design Concept Evaluation

Evaluation matrices were created to understand how the trail options score against the design study considerations. The study did not identify a preferred roadway and trail design concept. However, based on the technical evaluation findings, input from the TAC and feedback received during public engagement, the north alignment is more favorable than the south alignment. A trail on the north side would best address project goals and likely result in fewer impacts. A formally recommended roadway and trail design will be determined in a future design phase. At the time this report was developed, no funding for the future trail or roadway design has been identified and there is no defined schedule for future construction.

Criteria	North	South
User Experience	Lakefront views	Separated from lake by the street
Connectivity	Vadnais Lake Loop	Direct neighborhood access
Scope of Roadway Modifications Improvements	Some reconstruction needed	Minimal reconstruction
Crossings/Conflicts	2 street crossings	7 street crossings
Grading/Retaining Wall Scope	Moderate need	Minimal need
ROW/Easement Needs	Minimal need	Minimal need
Surface Utility Conflicts	Minimal conflicts identified	Minimal conflicts identified
Cost (in 2022 dollars)	\$9.2M - \$10.2M	\$7.2M – \$8.2M

Rating	Explanation
Excellent	Meets or exceeds project goal
Good	Meets project goal with less than ideal conditions
Fair	Meets project goal with some impacts

More detailed evaluation matrices are included in **Appendix E**, and a layout of the north alignment is included in **Appendix F**.



Project Cost Estimate

For the south alignment, the roadway and trail construction cost budgetary estimate totals approximately \$6.35 million dollars. Soft costs, including right of way acquisition, engineering and construction administration are anticipated to be 20% of the construction cost, which would total approximately \$1.3 million dollars. The total calculated budgetary project cost is \$7.65 million. However, the actual project cost is anticipated to range between \$7.2 million and \$8.2 million depending upon details of the final design, which will be determined during later phases of the project development.

For the north alignment, the roadway and trail construction cost budgetary estimate totals approximately \$8.1 million dollars. Soft costs, including right of way acquisition, engineering and construction administration are anticipated to be 20% of the construction cost, which would total approximately \$1.62 million dollars. The total calculated budgetary project cost is \$9.72 million. However, the actual project cost is anticipated to range between \$9.2 million and \$10.2 million depending upon details of the final design, which will be determined during later phases of the project development.

Primary elements differentiating the costs between the south and north alignments include the anticipated scope of retaining wall construction, roadway reconstruction and bridge modifications. All of these elements are estimated to be greater for the north alignment due to the steep topography adjacent to Vadnais Lake and the proximity of the trail to the lake along the north side of the corridor. Roadway reconstruction costs have been included in the north alignment between Vadnais Lake Drive and Edgerton Street to provide for a southerly shift of the roadway which is intended to provide the desired 6 foot boulevard as well as greater separation with Vadnais Lake edge. The scope of bridge widening is estimated to be less significant for the south alignment due to the higher existing topography on the south side of the existing bridge near the intersection of Twin Lakes Boulevard resulting in potential incorporation of at grade trail versus trail on structure. These assumptions will need to be examined in greater detail to adjust estimated costs appropriately as a part of the next phase of design related to the project.

A cost estimate table that includes detailed roadway and trail, acquisition, engineering and construction costs can be found in **Appendix G**.



Appendix A. Round 1 Engagement Summary

Round 1 Engagement Summary – November 2021

ENGAGEMENT STRATEGIES AND APPROACH

Three rounds of engagement are planned for the Vadnais Boulevard Roadway and Trail Design Study. Ramsey County has completed the first round of engagement. In this round, the county introduced the project, shared existing conditions information and asked the public about their experiences using Vadnais Boulevard and their visions for the corridor. This document summarizes the feedback received during the first round of engagement from October through November 2021.

ROUND 1 COMMON FEEDBACK THEMES

- Generally supportive of trail separated from traffic.
- Don't feel safe biking or walking on this roadway currently; shoulder is too narrow/close to cars; uneven surface.
- Need a safe bike/pedestrian path separated from traffic.
- Connect to existing trails:
 - Need connection on Edgerton Street north of Centerville Road to loop the lake safety.
- Need for traffic calming and safer winter driving conditions.
- Curves and tree cover along the roadway cause blind spots.

ONLINE AND PAPER SURVEY RESULTS

A snapshot of the online and paper survey results are displayed on the next page. Responses to the survey question regarding barriers to pedestrian and bicycle use are summarized below:

What barriers, if any, do you experience to using this stretch of Vadnais Boulevard/Centerville Road?

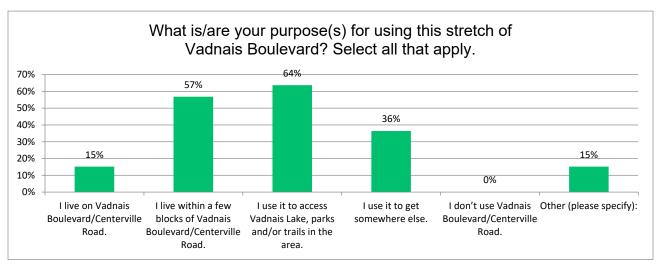
- Curves and tree cover cause blind spots; hard to see pedestrians/bicyclists and oncoming traffic.
- Don't feel safe biking or walking on this roadway currently; too dark/not well lit; shoulder is too narrow/close to cars.
- Much of the road, especially the shoulders, needs to be repaved; uneven surface with potholes.
- Cars travel too fast on Vadnais Boulevard/Centerville Road, roadway used as a short cut.
- Increasing traffic volumes.
- Steep slopes adjacent to shoulders make walking feel unsafe/uncomfortable.
- Cars often slide into the ditch during winter conditions making use of shoulders for walking/biking more dangerous.

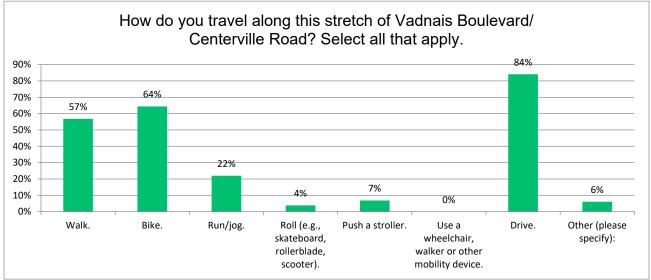
Engagement To-Date:

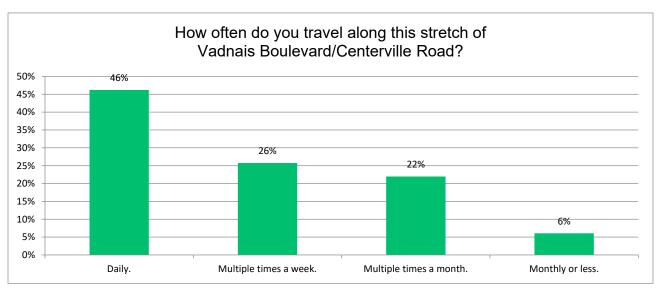
- In-person open house held Oct.
 26, 2021
- Virtual open house held Oct. 27, 2021
- 132 paper and online survey responses
- 48 interactive feedback map comments
- 493 project introduction postcards mailed
- Email blasts to project distribution list
- Yard signs posted around the project area
- 11 posts on Ramsey County social media channels



Round 1 Engagement Summary - November 2021

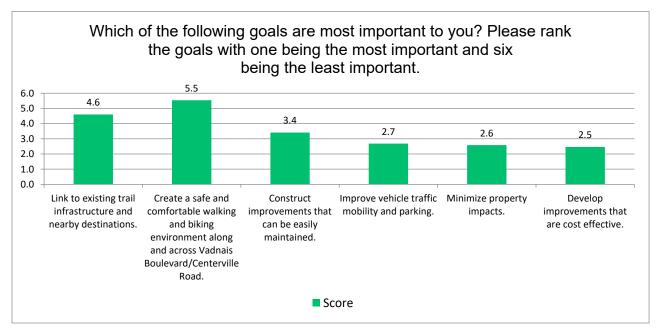








Round 1 Engagement Summary – November 2021



INTERACTIVE MAP RESULTS

Users could select a pin and drop it in a location along the project corridor where they wanted to provide feedback. Pin categories included: amenities, needs improvement and important destinations. Common feedback is summarized by comment pin category.

Amenities

 Mixed feedback on suggestion to include a parking lot and carry-in access for non-motorized watercraft near trailhead on Edgerton Street

Important destinations

 Big Wood Brewery (at Edgerton Street/Vadnais Boulevard) will bring more people on bikes

Needs improvement

- Need for painted crosswalks at Vadnais Boulevard and Edgerton Street intersection
- Need connection on Edgerton Street north of Centerville Road for people to fully circumnavigate the lake safety; would like trail to be on the lake side of the road/corridors where possible

- Concern that building a trail around the lake will bring increased bicycle traffic, impact wildlife, and compromise water quality
- There are dangerous blind corners on south and southeast edges of the lake; drivers have no visibility of pedestrians/bicyclists when going westbound
- During winter months, ditch on southern edge of lake is common site of wrecks
- Drivers coming out of driveway near
 Taco Bell onto Vadnais Boulevard have difficulty seeing traffic coming out of roundabout
- Feel that there needs to be a trail on Rice Street headed north





Appendix B. Round 2 Engagement Summary

Round 2 Engagement Summary – March/April 2022

ENGAGEMENT STRATEGIES AND APPROACH

Three rounds of engagement are planned for the Vadnais Boulevard Roadway and Trail Design Study. Ramsey County has completed the second round of engagement. In this round, the county shared initial trail design concepts and asked the public to provide feedback on them. This document summarizes the feedback received during the second round of engagement from March 25 through April 25, 2022.

ROUND 2 COMMON FEEDBACK THEMES

- Stronger preference for a trail on the north side of the roadway because it's more scenic/lakeside, crosses fewer intersections, has less impacts on homeowners, and better connects with existing trails.
- General excitement and support for this project; feel
 that a trail separated from traffic is much needed in this area; currently, it feels unsafe to
 walk/bike on this roadway.
- Supportive of implementing traffic calming elements to reduce speeds through the area.
- Like the idea of the trail meandering through the woods in the regional park/school area.
- Mixed feedback about a roundabout at the intersection of Edgerton Street/Vadnais Boulevard.
- Would like to complete the loop around the lake (e.g., incorporate a trail up Edgerton Street).
- Concern about impacts to trees/vegetation in the area; want to maintain as much as possible.

VIRTUAL OPEN HOUSE

On March 22, 2022, Ramsey County hosted a virtual open house where project staff gave a live online presentation followed by a question and answer session. Around 30 people virtually attended the open house, and 48 comments/questions were submitted. Below are some of the common comments/questions received:

- Preference for trail on the north/lake side of the roadway near the lake/woods, avoids trail crossing intersections, near Twin Lake Court and John Mitchell Preserve.
- Would like to prioritize completing the trail loop around the lake; could exclude the causeway if there's not enough funding.
- Supportive of measures to slow speeds through the area like narrowing the road width.
- Need for a trail up Edgerton Street to connect the lake loop; questioned if this connection could be part of this project.
- Mixed feedback about a roundabout at the Edgerton Street/Vadnais Boulevard intersection.



Round 2 engagement:

- Virtual open house held March
 22, 2022
- 22 online survey responses
- 41 interactive feedback map comments
- 494 virtual open house notices mailed
- Two email blasts to project distribution list (638 subscribers)
- Eight posts on Ramsey County social media outlets

Round 2 Engagement Summary – March/April 2022

ONLINE SURVEY RESULTS

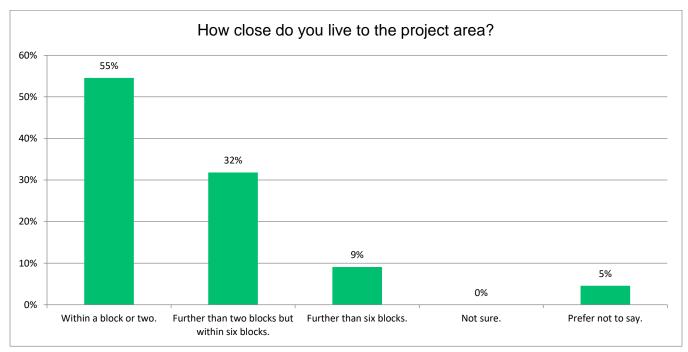
A snapshot of the online survey results are displayed on the next page. Responses to the open-ended survey questions are summarized below:

There are multiple options for each of the segments shown on the interactive map. What opportunities do you see with each option presented? What are your concerns with them?

- Stronger support for the trail on the north side because:
 - o It's more enjoyable/scenic to have the trail lakeside.
 - o It creates a loop around the lake between Edgerton Street and Sucker Lake Road.
 - o It's safer/crosses fewer roads from Rice Street to Edgerton Street.
 - o It would have less impact on homeowners.
- Support for a meandering trail through the regional park/school area.
- Preserve as many trees as possible and replace any trees removed for this project.
- General support for this project
 - Feel there's a need for a separated trail and traffic calming in this area due to motorists speeding.
 - Feel this trail would be used heavily, improve comfort for those walking/biking in the area and increase people's recreational opportunities.

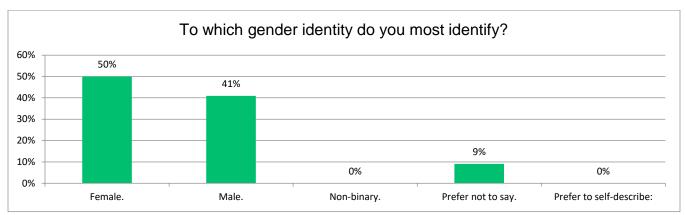
Additional comments:

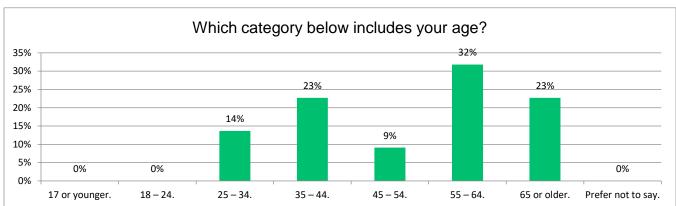
• Supportive and excited for this trail/completing the loop around the lake; it's an important link to complete for pedestrian and bicyclist safety.

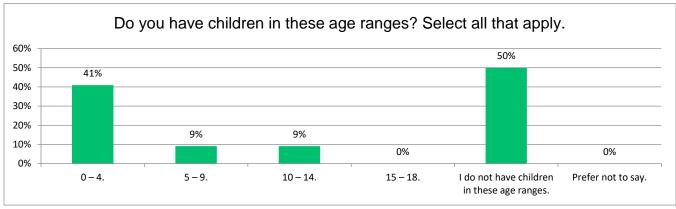


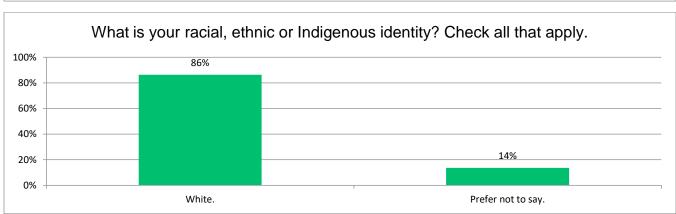


Round 2 Engagement Summary – March/April 2022



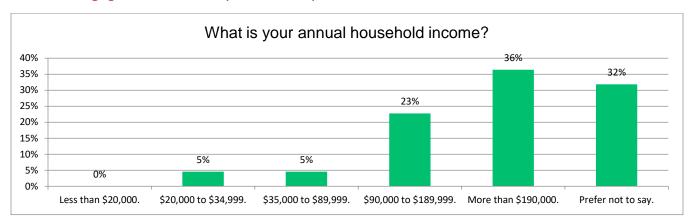


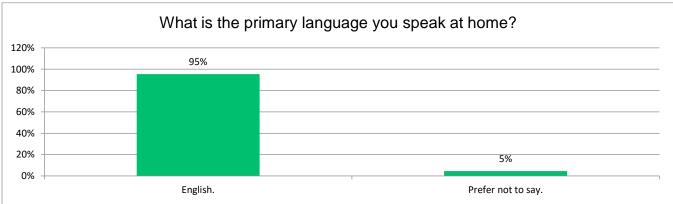






Round 2 Engagement Summary – March/April 2022





INTERACTIVE MAP RESULTS

The interactive map featured concept drawings of how the trail could fit and what it could look like on different segments throughout the project corridor. Users could leave feedback on the concept drawings or select a pin and drop it in a location along the project corridor where they wanted to provide feedback. Pin categories included: concern and opportunity. Common feedback is summarized by comment pin category.

Concept designs

Overall

- Prefer the trail is located on the north side.
 - Would only have to cross one road between Rice Street and Edgerton Street.
 - Feel that putting the trail on the south side would complicate traffic at the intersections of Vadnais Boulevard at Twin Lake Boulevard and Twin Lake Court.

Vadnais Lake Causeway

• Consider making a connection to the Trout Brook Regional Trail to connect the trail system around Vadnais Lake.



Round 2 Engagement Summary – March/April 2022

Regional Park/School Area

• Really like the idea of meandering the trail away from the roadway where possible.

Concern

- Ensure trail is cleared of snow during the winter.
- Difficult to see pedestrians/blind spots along the corridor (e.g., between Twin Lake Boulevard and Star Circle, between Vadnais Lake Drive and Edgerton Street).
- Concern about the impacts building a trail would have on private properties adjacent to the roadway.
- Some oppose this project because building a trail would have a negative impact on the
 woods/nature/scenery in the area; if a trail is built, maintain the wooded buffer zone/trees,
 minimize traffic congestion.
- Others would like to minimize tree loss but note many of the trees are buckthorn and are supportive of the project/feel a functional, safe trail will be a benefit to this area.

Opportunity

- Like the idea of the trail meandering through the woods on the north side of Vadnais Boulevard in the regional park/school area.
- Prefer the trail be on the north/lakeside because it's more scenic, requires less crossing and has fewer impacts on homeowners.
- At Edgerton Street, really like the connection with the existing trail around the lake.
- Mixed feedback about a roundabout at Edgerton Street/Vadnais Boulevard intersection.
- Supportive of traffic calming elements (e.g., reduced lane widths).





Appendix C. Round 3 Engagement Summary

Round 3 Engagement Summary – June/July 2022

ENGAGEMENT STRATEGIES AND APPROACH

Ramsey County has completed the third and final round of engagement for the Vadnais Boulevard Roadway and Trail Design Study. In this round, the county shared refined trail design concepts and asked the public to provide feedback on them. This document summarizes the feedback received during the third round of engagement from June 30 through July 31, 2022.

ROUND 2 COMMON FEEDBACK THEMES

- General support and excitement for this project; it is a needed safety improvement for the community.
- Support for the trail on the north side of the roadway because it's lakeside, crosses fewer intersections, and better connects with existing trails.
- Desire for a complete loop around the lake (e.g., extend trail on Edgerton Street).
- Concerns about trail funding, implementation timeframe, environmental impact and safety at roadway crossings.

OPEN HOUSE

On June 30, 2022, Ramsey County hosted an in-person open house where project staff gave a presentation followed by a question-and-answer session. Around 30 people attended the open house, and 10 comments/questions were submitted. Below are some of the common comments/questions received:

- Overall appreciation for this trail design study and excitement for the project.
- Strong support for the trail on the north side – safer and more connected to nature
- Concern about project funding and the implementation timeframe, would like the project to be implemented as soon as possible.
- Concern about tree loss, added traffic congestion and difficulty enter/existing driveways on Vadnais Boulevard.

Round 3 Engagement:

- In-person open house held June 30, 2022 at Vadnais Heights City Hall
- 11 online survey responses
- 494 open house notices mailed
- Two email blasts to project distribution list (749 subscribers)
- 10 posts on Ramsey County social media outlets



Figure 1. Project staff review the trail designs with open house attendees.



Round 3 Engagement Summary – June/July 2022

- Support for the trail being separated from traffic.
- Need for safe pedestrian crossings.
- Desire for trail extension from Vadnais Boulevard along Edgerton Street.

ONLINE SURVEY RESULTS

There was general excitement and support for this project and the refined trail design concepts. More specific responses to the two open-ended survey questions are summarized below:

What do you like and dislike about the refined trail design concepts?

- Support for the trail on the north side of the road better connection to the lake and nature as well as fewer roadway crossings.
- Appreciation for the buffers, greenery and opportunity to depart from the road into the wooded areas.
- Desire for a more meandering trail.
- Desire for trail to be extended on Edgerton Street to make a complete loop.
- Support for traffic calming measures and the trail's separation from vehicle traffic.
- Strong support for the idea of planned pedestrian and bicycle infrastructure all the way to the school from Centerville Road.
- Concern about lack of shoulder space on the roadway for fast bike travel particularly at the Twin Lakes Boulevard intersection.
- Some concern with the north side trail east of Edgerton Road may create conflicts with the brewery entrances.
- Supportive of fixing the skew at Edgerton, but mixed feedback about a roundabout there.

Do you have any additional feedback about the project that you would like to share?

- Phase II should consider connecting the trail with the existing trail on the northeast side of the lake to create a full loop.
- Consider other traffic calming measures.
- Would like this project to be completed as soon as possible.
- Desire for a bike crossing button and blinking light at Vadnais Lake Trail crossing.
- Desire to see the Trout Brook Trail extended to improve connectivity.
- Mixed feedback about roundabout at the Edgerton Street intersection.





Appendix D. Trail Design Concepts

Figure 12. North Side Concept – Rice Street Approach

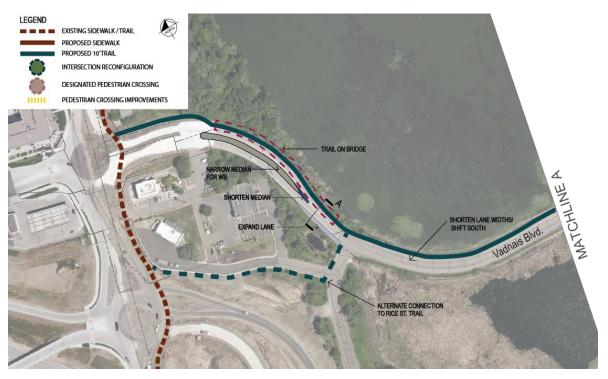


Figure 13. Typical Section A – West End Bridge Structure, North Side Concept

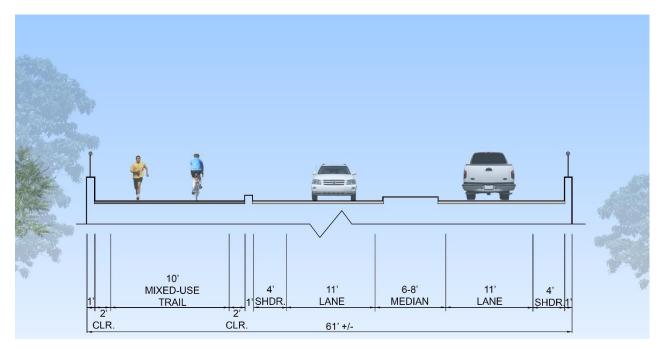




Figure 14. South Side Concept – Rice Street Approach

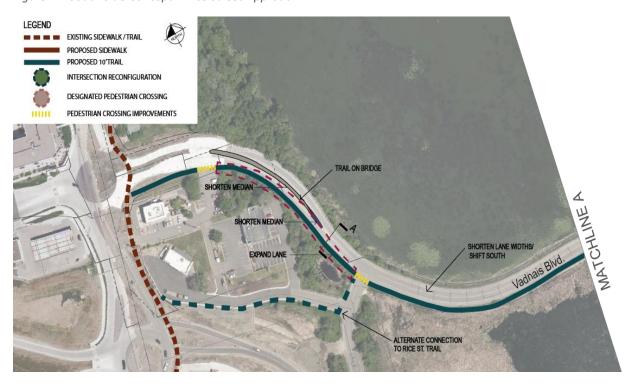


Figure 15. Typical Section A – West End Bridge Structure, South Side Concept

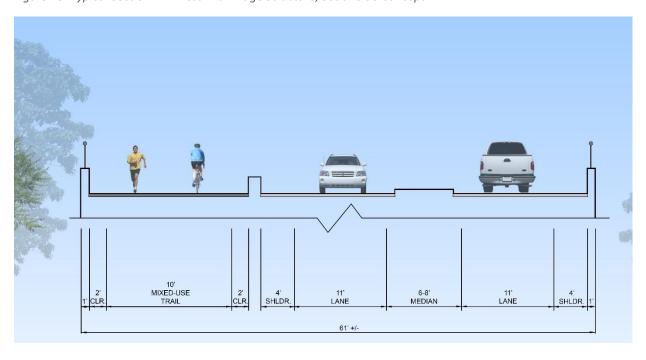




Figure 16. North Side Concept – Vadnais Lake Causeway



Figure 17. Typical Section B – Vadnais Lake Causeway, North Side Concept

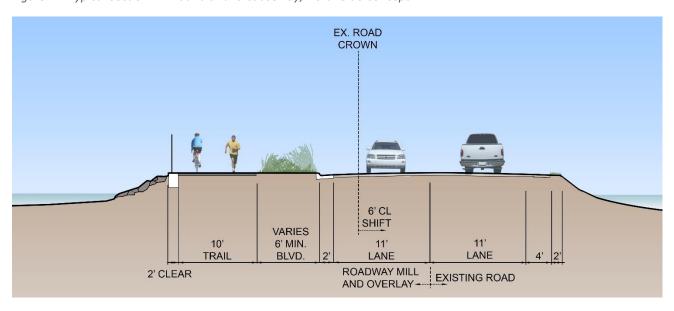




Figure 18. South Side Concept – Vadnais Lake Causeway



Figure 19. Typical Section B – Vadnais Lake Causeway, South Side Concept

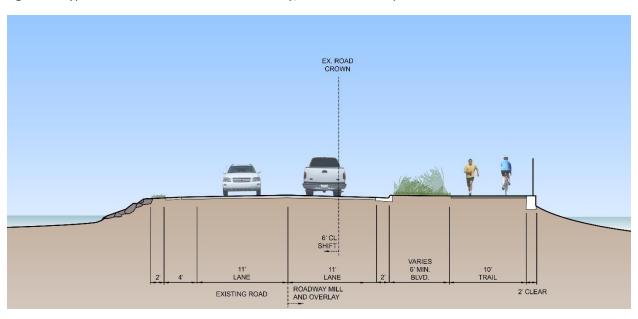




Figure 20. North Side Concept – Regional Park/School Area



Figure 21. Typical Section C – Regional Park/School Area, North Side Concept

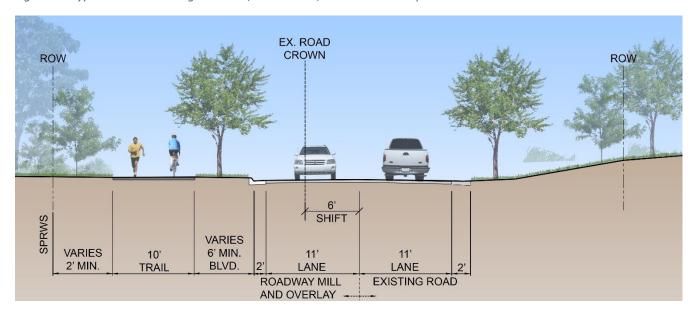




Figure 22. South Side Concept – Regional Park/School Area



Figure 23. Typical Section C – Regional Park/School Area, South Side Concept

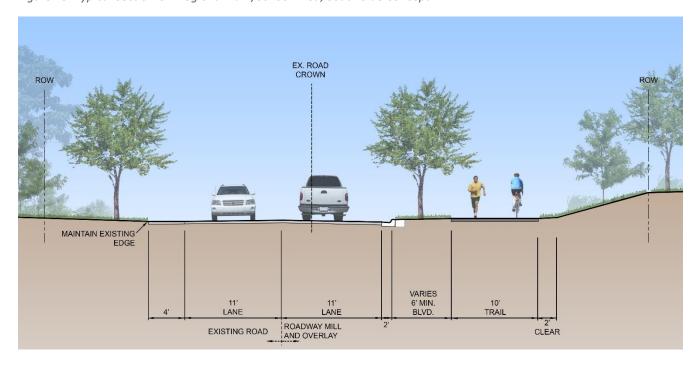




Figure 24. North Side Concept – Twin Lake Court Area



Figure 25. Typical Section D – Twin Lake Court Area, North Side Concept

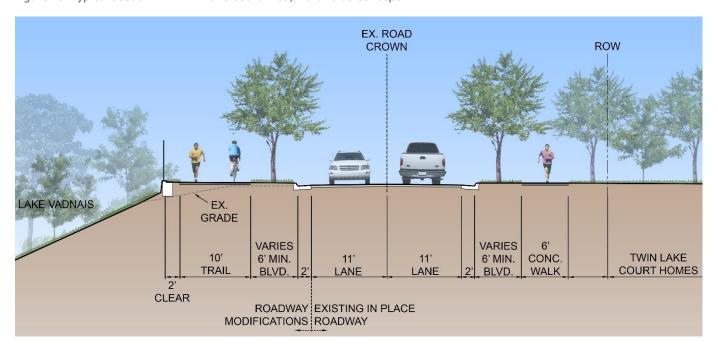




Figure 26. South Side Concept – Twin Lake Court Area



Figure 27. Typical Section D – Twin Lake Court Area, South Side Concept

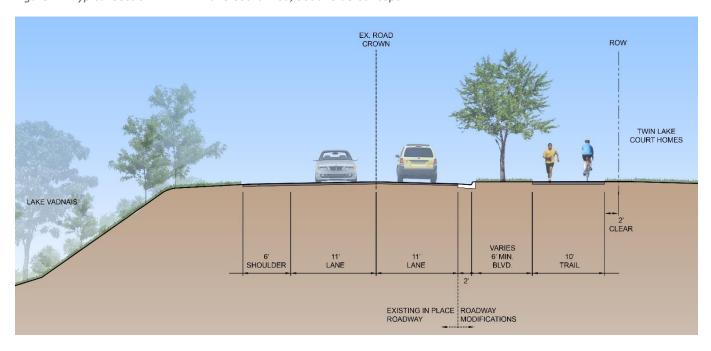




Figure 28. North Side Concept – John Mitchell Preserve Area

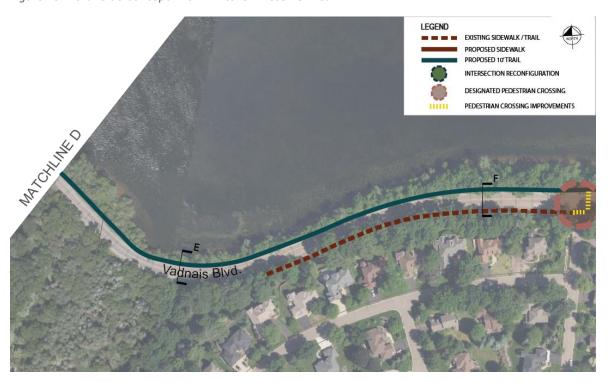


Figure 29. Typical Section E – John Mitchell Preserve Area, North Side Concept

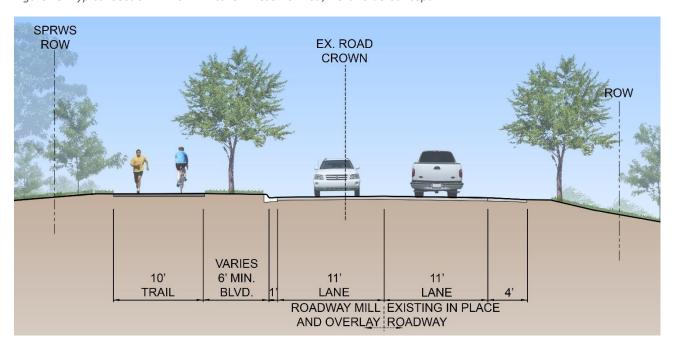




Figure 30. North Side Concept – John Mitchell Preserve Area

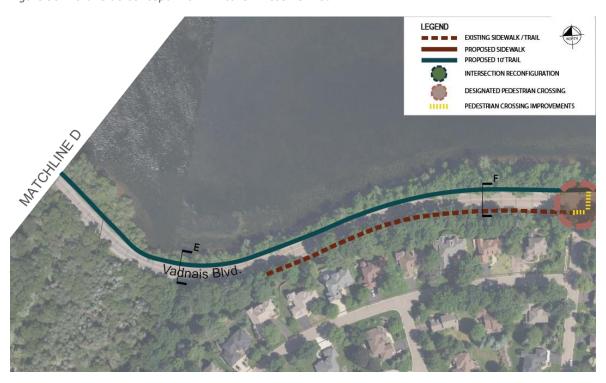


Figure 31. Typical Section F – John Mitchell Preserve Area, North Side Concept

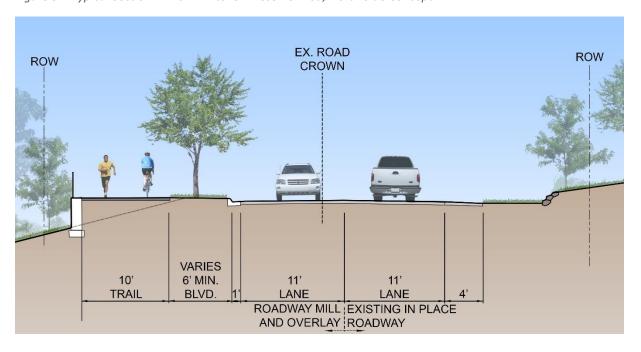




Figure 32. South Side Concept – John Mitchell Preserve Area



Figure 33. Typical Section E – John Mitchell Preserve Area, South Side Concept

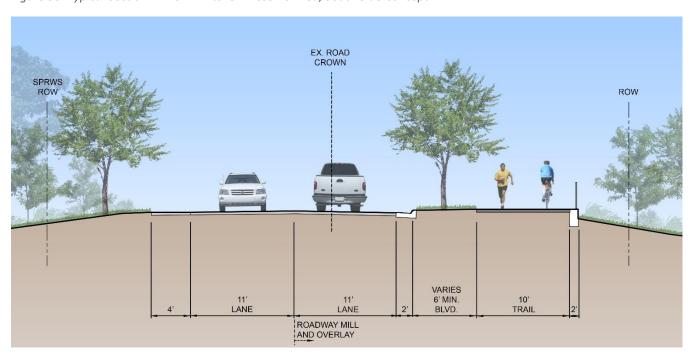




Figure 34. South Side Concept – John Mitchell Preserve Area

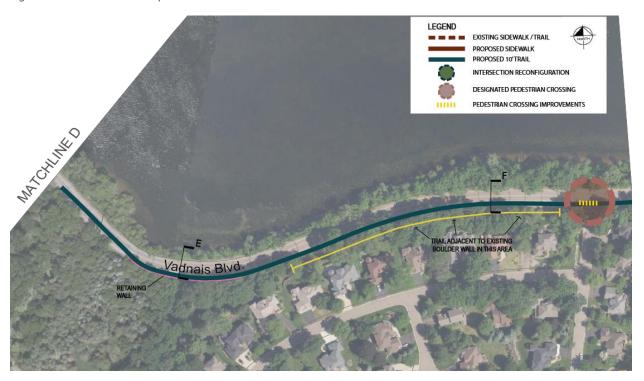


Figure 35. Typical Section F – John Mitchell Preserve Area, South Side Concept

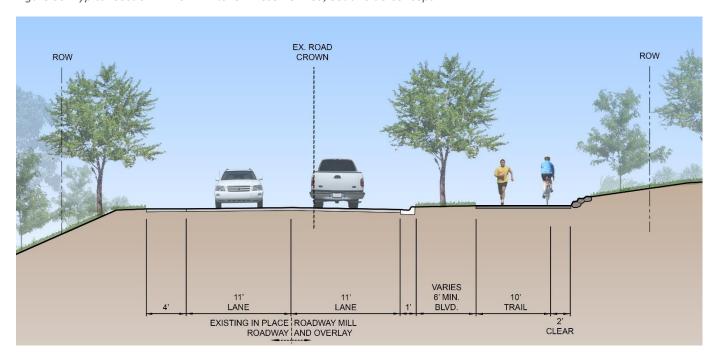




Figure 36. North Side Concept – Vadnais Lake Trailhead Area



Figure 37. Typical Section G – Vadnais Lake Trailhead Area, North Side Concept Alternative 1

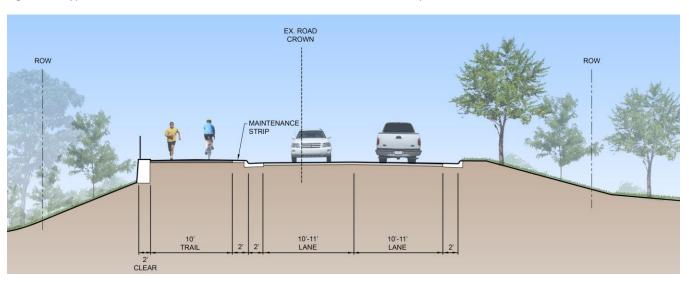




Figure 38. North Side Concept – Vadnais Lake Trailhead Area



Figure 39. Typical Section G – Vadnais Lake Trailhead Area, North Side Concept Alternative 2, Southerly Roadway Shift

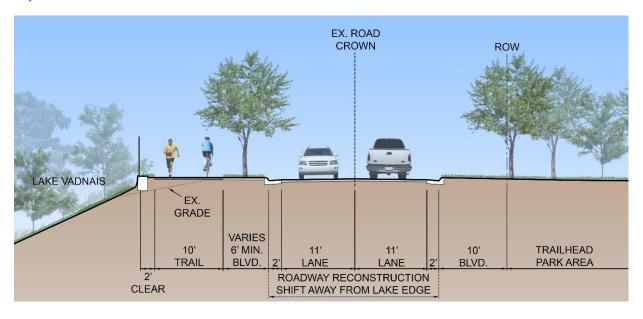




Figure 40. South Side Concept – Vadnais Lake Trailhead Area



Figure 41. Typical Section G – Vadnais Lake Trailhead Area, South Side Concept

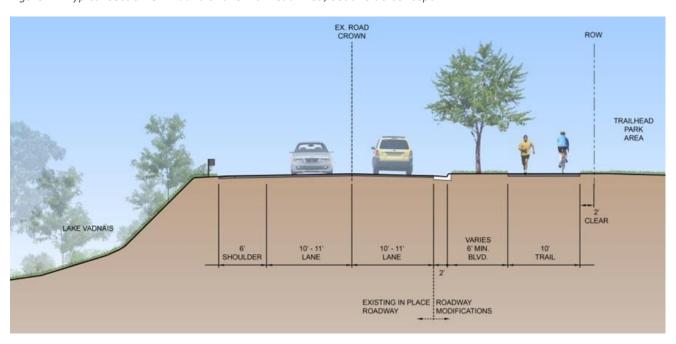




Figure 42. South Side Concept – Edgerton Street to County Road E

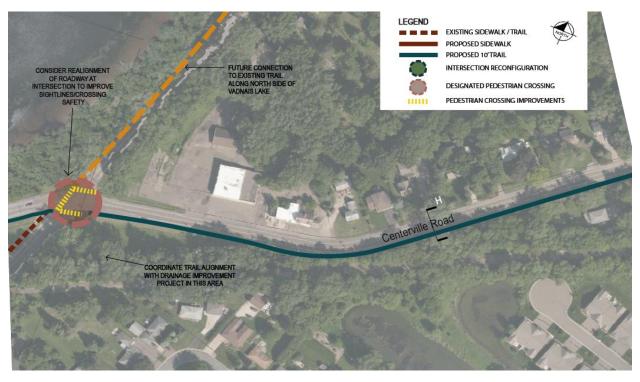






Figure 43. Typical Section H - Edgerton Street to County Road E - Alternative 1: Widen footprint to trail side

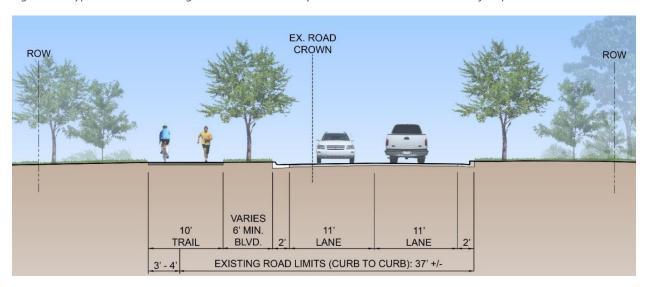


Figure 44. Typical Section H - Edgerton Street to County Road E - Alternative 2: Widening balanced east/west

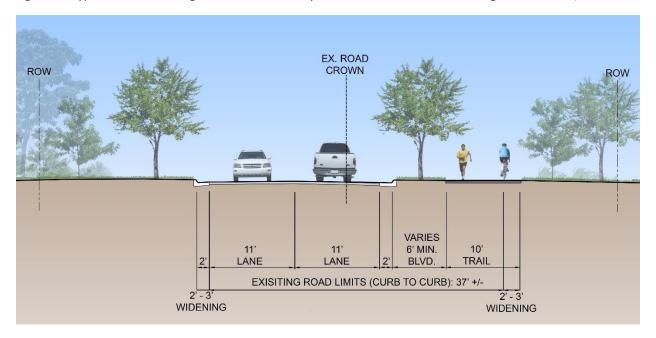
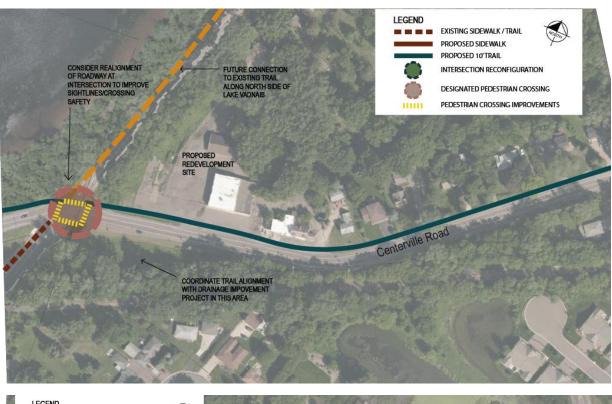




Figure 45. North Side Concept – Edgerton Street to County Road E







Appendix E. Detailed Evaluation Matrices

		Segment 1 North Rice Street to Sucker Lake Road park entrance	Segment 1 South Rice Street to Sucker Lake Road park entrance	Segment 2 North Sucker Lake Road park entrance to Twin Lake Court	Segment 2 South Sucker Lake Road park entrance to Twin Lake Court
#	Criteria				
1	User Experience (Directness, comfort, wayfinding, conflicts)	+ Trail separated by boulevard, curb + Vistas of main lake + Boulevard could include native grasses to connect to wetland/lake ecology	+ Trail separated by boulevard, curb + Vistas of wetland and main lake + Boulevard could include native grasses to connect to wetland/lake ecology	+ Trail separated by boulevard, curb + Boulevard could include trees + Potential to meander into SPRWS/regional park	+ Trail separated by boulevard, curb + Boulevard could include trees + Trail could meander through park east of school
2	Connectivity (Residential neighborhoods, parks, regional trails)	+ Adjacent to proposed redevelopment at Rice Street + Direct connection to regional park - Neighborhood to south requires street crossing	+ Adjacent to retail parcels/future redevelopment + Connects to Trout Brook Trail + Direct connection to 5 Star Mobile Estates	+ Direct connection to regional park - Neighborhood to south requires street crossing	+ Direct connection to 5 Star Mobile Estates, school, neighborhood
3	Scope of Roadway Modifications Improvements	+ Limited mill and overlay, new curb - Bridge deck modifications	+ Limited mill and overlay, new curb - Bridge deck modifications	+ Limited mill and overlay, new curb - Loss of shoulder - Shoulder narrowing	+ Limited mill and overlay, new curb - Loss of shoulder - Shoulder narrowing
4	Crossings/ Conflicts (Safety)	+ One park entrance crossing	- 2 Local Street crossings	+ No street crossings	- 1 Local Street
5	Parking Impacts	- Half parking capacity removed	- Half parking capacity removed	- Half parking capacity removed	- Half parking capacity removed
6	Grading/ Retaining Wall Scope	- Bridge modifications + Minor amount of grading, low wall potential	- Bridge modifications + Minor amount of grading, low wall potential	+ Minor amount of grading, low wall potential	+ Minor amount of grading, low wall potential



7	Right of Way/ Easement Needs	+ None anticipated	+ None anticipated	+ None required potential for agreement with SPRWS for trail meander	+ None anticipated
9	Surface Utility Conflicts (Overhead (OH) power poles, hydrants)	+ Appears clear of surface utilities	- 2 OH power poles (services, lights) near entrance of regional park	+ Appears clear of surface utilities	+ Appears clear of surface utilities
10	Cost	\$\$\$ Slightly higher cost related to more local intersection crossing improvements	<u>\$\$</u>	\$\$\$ Slightly higher cost related to more local intersection crossing improvements	<u>\$\$</u>

		Segment 3 North Twin Lake Court to Edgerton Street	Segment 3 South Twin Lake Court to Edgerton Street	Segment 4 North Edgerton Street to County Road E	Segment 4 South Edgerton Street to County Road E
#	Criteria				
1	User Experience (Directness, comfort, wayfinding, conflicts)	+Trail separated by boulevard, curb + Boulevard could include trees - Pinch point areas may require elimination of boulevard - Likely need for wall/fence along significant length of trail	+ Trail separated by boulevard, curb + Boulevard could include trees + Potential to utilize public parkland between Vadnais Lake Drive and Edgerton Street	+ Trail separated by boulevard, curb + Boulevard could include trees	+ Trail separated by boulevard, curb + Boulevard could include trees + Potential to meander into SPRWS/regional park
2	Connectivity (Residential neighborhoods, parks, regional trails)	+ Direct connection to regional park - Neighborhood to south requires street crossing	+ Direct connection to neighborhoods to south	+ Directly adjacent to new development at Edgerton Street + Better connection to school north of County Road E	+ Direct connection to County Road E business district and City Hall
3	Scope of Roadway Modifications Improvements	+ Limited mill and overlay, new curb - Pinch point area likely requires full width street reconstruction	+ Limited mill and overlay, new curb + Portion adjacent to public park may avoid need for street reconstruction/ modifications	+ Limited mill and overlay, new curb - Loss of shoulder - Shoulder narrowing	+ Limited mill and overlay, new curb - Loss of shoulder - Shoulder narrowing



4	Crossings/ Conflicts (Safety)	+ No local street crossing	- 2 Local Streets	- 24 residential driveways - Brewery Access crossing	- 14 residential driveways - No commercial driveways
5	Parking impacts	- Half parking capacity removed - Full parking removed in pinch points	No change	- Half parking capacity removed	- Half parking capacity removed
6	Grading/ Retaining Wall Scope	- Medium to significant grading, low to medium retaining wall potential	- Medium grading, low to medium retaining wall potential	+ Minor amount of grading, no wall potential	+ Minor amount of grading, no wall potential
7	Right of Way/ Easement Needs	+ None anticipated	+ None anticipated	+ None anticipated	+ None anticipated
9	Surface Utility Conflicts (Overhead (OH) power poles, hydrants)	+ Appears clear of surface utilities	+ Appears clear of surface utilities	- OH power poles, mailboxes, hydrants	- OH power poles, mailboxes + No hydrant relocations anticipated
10	Cost	\$\$\$\$ Moderately higher cost related to more retaining wall, roadway modifications	<u>\$\$</u>	\$\$\$ Slightly higher cost related to more driveway crossings, utility modifications	<u>\$\$</u>



Appendix F. North Trail Design Layout

Figure 46. Rice Street Approach

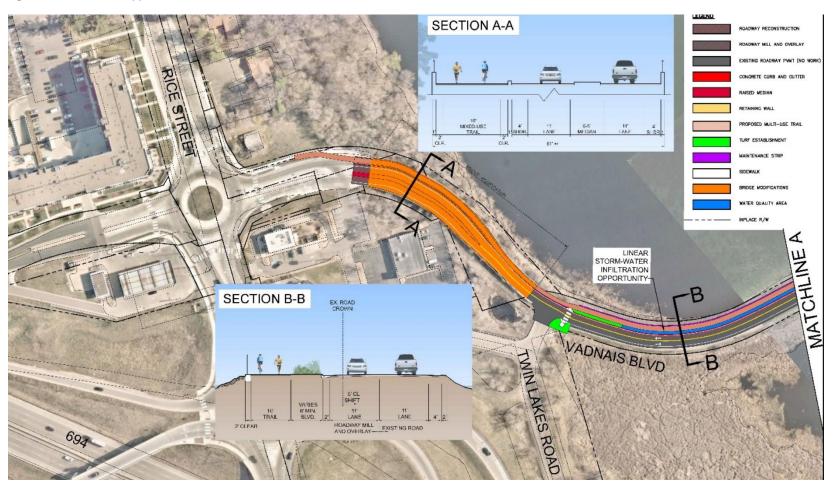




Figure 47. Vadnais Lake Causeway

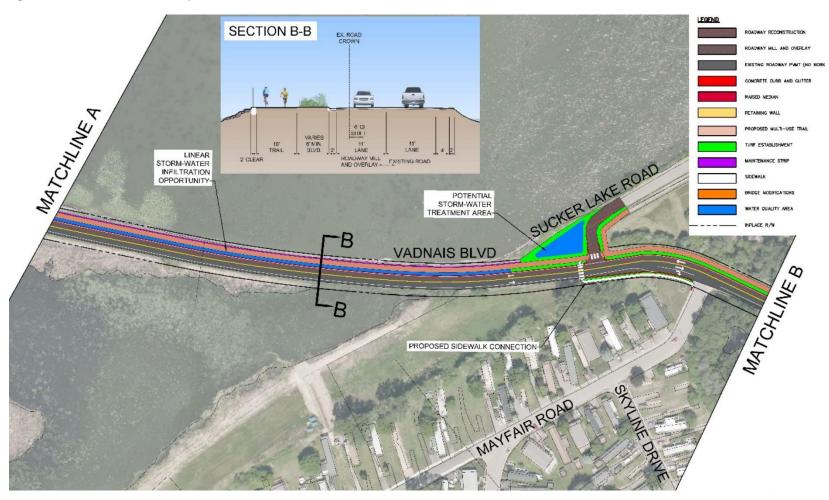




Figure 48. Regional Park/School Area

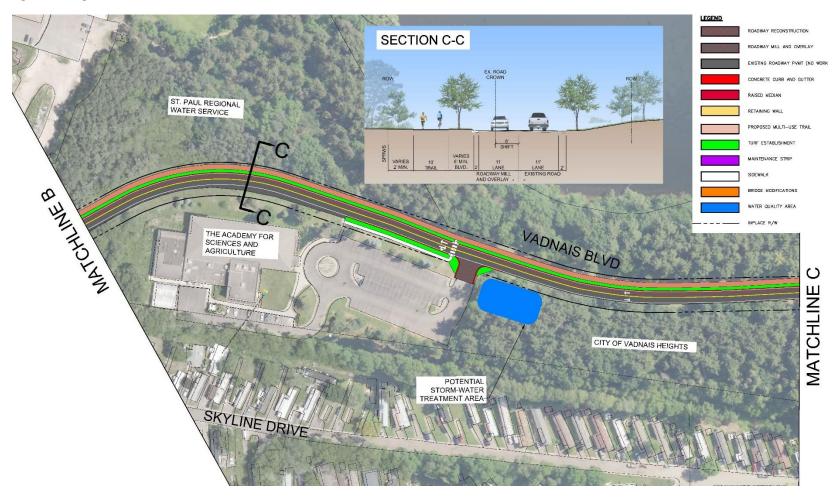




Figure 49. Twin Lake Court Area

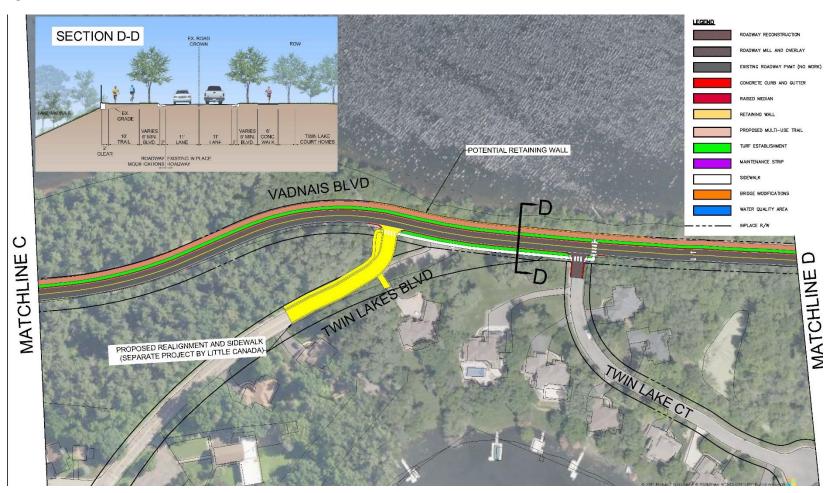




Figure 50. John Mitchell Preserve Area

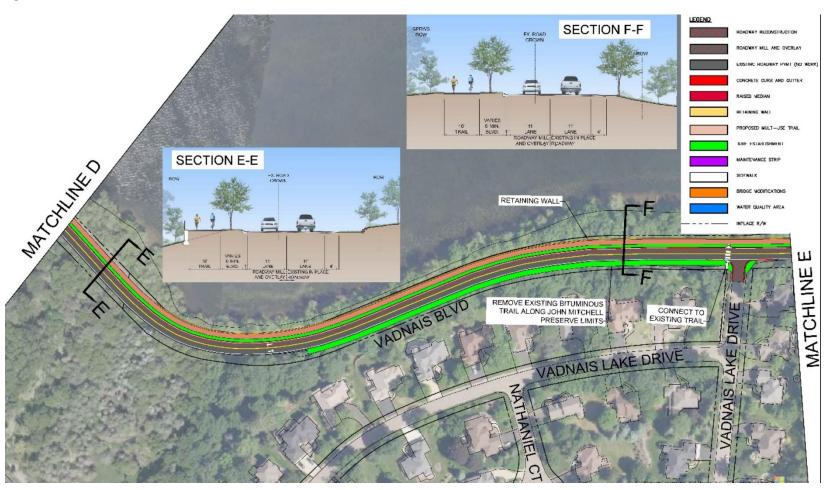




Figure 51. Vadnais Lake Regional Park Trailhead Area

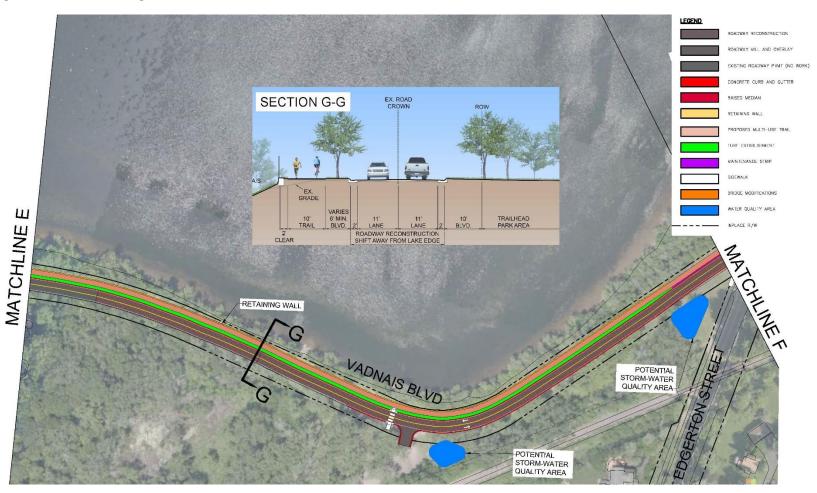




Figure 52. Edgerton Street to County Road E

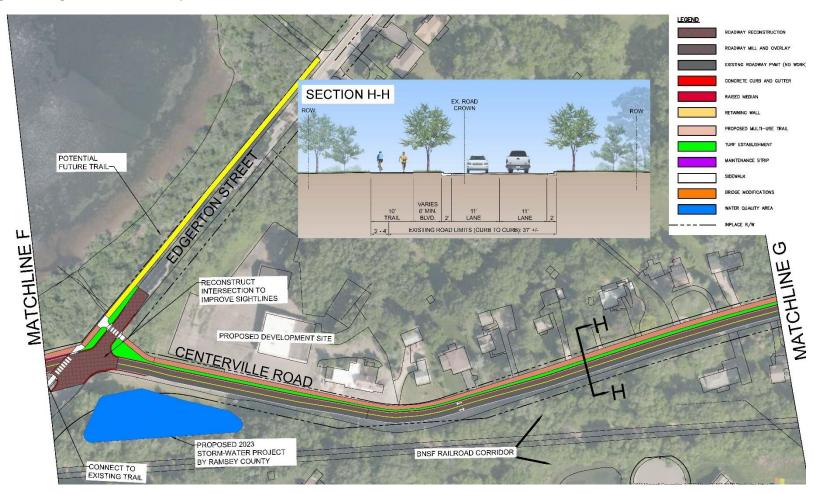
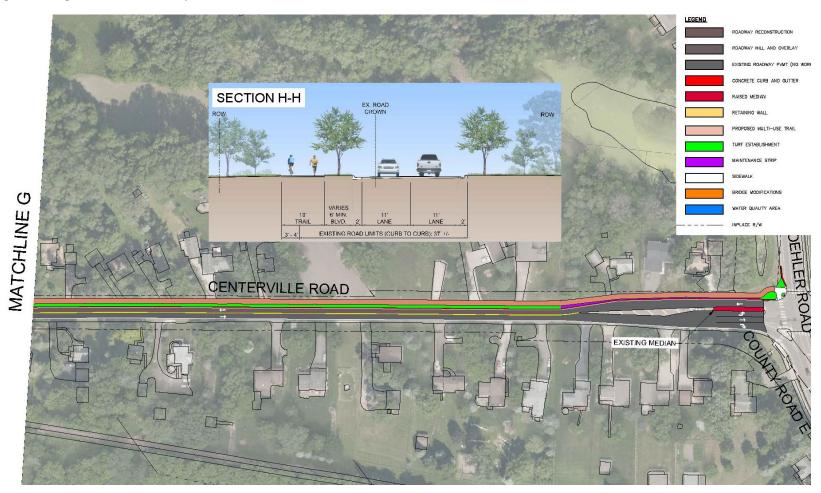




Figure 53. Edgerton Street to County Road E





Appendix G. Detailed Cost Estimate

North Alignment

Item No.	Item Description	Unit	Unit Cost	Total	Total		Agency Cost Sp	olits
				Estimated Quantities	Estimated Cost	Local Cost Participation	Vadnais Heights/ Little Canada	Ramsey County
2021.501	MOBILIZATION	LUMP SUM	\$420,000.00	1	\$420,000	0%	\$ -	\$420,000
2021.601	CONSTRUCTION SURVEYING	LUMP SUM	\$60,000.00	1	\$60,000	0%	\$ -	\$60,000
2031.502	FIELD OFFICE TYPE D	EACH	\$40,000.00	1	\$40,000	0%	\$ -	\$40,000
2101.524	CLEARING AND GRUBBING ALLOWANCE	LUMP SUM	\$25,000.00	1	\$25,000	0%	\$ -	\$25,000
2104.503	REMOVE SEWER PIPE/CULVERT	LIN FT	\$10.00	500	\$5,000	0%	\$ -	\$5,000
2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	\$8.00	11000	\$88,000	0%	\$ -	\$88,000
2104.503	REMOVE CURB & GUTTER	LIN FT	\$8.00	200	\$1,600	0%	\$ -	\$1,600
2104.504	REMOVE PAVEMENT	SQ YD	\$15.00	17500	\$262,500	0%	\$ -	\$262,500
2104.504	REMOVE DRIVEWAY PAVEMENT	SQ YD	\$25.00	600	\$15,000	0%	\$ -	\$15,000
2104.518	REMOVE CONCRETE SIDEWALK	SQ FT	\$3.50	1000	\$3,500	0%	\$ -	\$3,500
2104.601	MISCELLANEOUS REMOVALS ALLOWANCE	LUMP SUM	\$25,000.00	1	\$25,000	0%	\$ -	\$25,000
2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	\$35.00	1675	\$58,625	0%	\$ -	\$58,625
2106.507	EXCAVATION - COMMON	CU YD	\$30.00	2000	\$60,000	0%	\$ -	\$60,000
2106.507	COMMON EMBANKMENT (CV)	CU YD	\$15.00	4000	\$60,000	0%	\$ -	\$60,000
2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	\$50.00	3000	\$150,000	0%	\$ -	\$150,000



2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	\$10.00	12200	\$122,000	0%	\$ -	\$122,000
2360.509	TYPE SP 12.5 WEARING COURSE MIX (5;L)	TON	\$95.00	2600	\$247,000	0%	\$ -	\$247,000
2360.509	TYPE SP 12.5 BIT PATCHING MIX (4;L)	SY	\$60.00	200	\$12,000	0%	\$ -	\$12,000
2401.601	BRIDGE MODIFICATION ALLOWANCE	LUMP SUM	\$750,000.00	1	\$750,000	0%	\$ -	\$750,000
2411.603	RETAINING WALL	SQ FT	\$50.00	10000	\$500,000	0%	\$ -	\$500,000
2503.503	STORM SEWER PIPE	LIN FT	\$90.00	10000	\$900,000	0%	\$ -	\$900,000
2506.502	STORM SEWER STRUCTURE	EACH	\$4,500.00	50	\$225,000	0%	\$ -	\$225,000
2506.601	WATER QUALITY ALLOWANCE	LUMP SUM	\$300,000.00	1	\$300,000	0%	\$ -	\$300,000
2521.518	4" CONCRETE WALK	SQ FT	\$8.00	5550	\$44,400	50%	\$22,200	\$22,200
2521.518	6" CONCRETE WALK	SQ FT	\$12.00	3000	\$36,000	50%	\$18,000	\$18,000
2521.518	3" BITUMINOUS WALK	SQ FT	\$4.00	112000	\$448,000	50%	\$224,000	\$224,000
2531.503	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	\$35.00	13500	\$472,500	75%	\$354,375	\$118,125
2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	\$90.00	700	\$63,000	0%	\$ -	\$63,000
2531.504	TRAIL LIGHTING ALLOWANCE	LUMP SUM	\$100,000.00	1	\$150,000	100%	\$150,000	\$ -
2531.618	TRUNCATED DOMES	SQ FT	\$65.00	320	\$20,800	50%	\$10,400	\$10,400
2563.601	TRAFFIC CONTROL ALLOWANCE	LUMP SUM	\$60,000.00	1	\$60,000	0%	\$ -	\$60,000
2571.524	LANDSCAPING	LUMP	\$100,000.00	1	\$100,000	100%	\$100,000	\$ -
2573.601	ALLOWANCE EROSION	SUM	\$100,000.00	1	\$100,000	0%	\$ -	\$100,000
23/3.001	CONTROL ALLOWANCE	SUM	\$100,000.00	_	7100,000	070	, -	7100,000
2574.507	BOULEVARD TOPSOIL BORROW	CU YD	\$35.00	3000	\$105,000	0%	\$ -	\$105,000
2575.504	SODDING TYPE SALT TOLERANT	SQ YD	\$10.00	18000	\$180,000	0%	\$ -	\$180,000



2582.501	SIGNING AND STRIPING ALLOWANCE	LUMP SUM	\$50,000.00	1	\$50,000	0%	\$ -	\$50,000
	CONTINGENCY (30%)	LUMP SUM	\$1,900,000	1	\$1,900,000	30%	\$300,000	\$1,600,000
	SUBTOTAL ROADWAY AND TRAIL CONSTRUCTION				\$8,100,000		\$1,180,000	\$6,920,000
	ROW ACQUISITION - PE LANDSIDE PARCELS	SF	\$16.00	0	\$ -	50%	\$ -	\$ -
	ROW ACQUISITION - TE LANDSIDE PARCELS	SF	\$5.00	500	\$2,500	50%	\$1,250	\$1,250
	SUBTOTAL ROW ACQUISITION				\$3,000		\$1,000	\$1,000
	FINAL DESIGN ENGINEERING - ASSUME 12% of CONSTRUCTION COST				\$970,000		\$140,000	\$830,000
	CONSTRUCTION ENGINEERING - ASSUME 8% of CONSTRUCTION COST				\$650,000		\$90,000	\$550,000
	GRAND TOTAL PROJECT COSTS				\$9,720,000		\$1,411,000	\$8,300,000



South Alignment

Item No.	Item Description	Unit	Unit Cost	Total	Total		Agency Cost Splits	
				Estimated Quantities	Estimated Cost	Local Cost Participation	Vadnais Heights/ Little Canada	Ramsey County
2021.501	MOBILIZATION	LUMP SUM	\$430,000.00	1	\$430,000	0%	\$ -	\$430,000
2021.601	CONSTRUCTION SURVEYING	LUMP SUM	\$60,000.00	1	\$60,000	0	\$ -	\$60,000
2031.502	FIELD OFFICE TYPE D	EACH	\$40,000.00	1	\$40,000	0%	\$ -	\$40,000
2101.524	CLEARING AND GRUBBING ALLOWANCE	LUMP SUM	\$25,000.00	1	\$25,000	0%	\$ -	\$25,000
2104.503	REMOVE SEWER PIPE/CULVERT	LIN FT	\$10.00	500	\$5,000	0%	\$ -	\$5,000
2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	\$8.00	12500	\$100,000	0%	\$ -	\$100,000
2104.503	REMOVE CURB & GUTTER	LIN FT	\$8.00	200	\$1,600	0%	\$ -	\$1,600
2104.504	REMOVE PAVEMENT	SQ YD	\$15.00	13000	\$195,000	0%	\$ -	\$195,000
2104.504	REMOVE DRIVEWAY PAVEMENT	SQ YD	\$25.00	350	\$8,750	0%	\$ -	\$8,750
2104.518	REMOVE CONCRETE SIDEWALK	SQ FT	\$3.50	1000	\$3,500	0%	\$ -	\$3,500
2104.601	MISCELLANEOUS REMOVALS ALLOWANCE	LUMP SUM	\$10,000.00	1	\$10,000	0%	\$ -	\$10,000
2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	\$35.00	500	\$17,500	0%	\$ -	\$17,500
2106.507	EXCAVATION - COMMON	CU YD	\$30.00	500	\$15,000	0%	\$ -	\$15,000
2106.507	COMMON EMBANKMENT (CV)	CU YD	\$15.00	1200	\$18,000	0%	\$ -	\$18,000
2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	\$50.00	1500	\$75,000	0%	\$ -	\$75,000
2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	\$10.00	14000	\$140,000	0%	\$ -	\$140,000
2360.509	TYPE SP 12.5 WEARING COURSE MIX (5;L)	TON	\$95.00	1800	\$171,000	0%	\$ -	\$171,000



2360.509	TYPE SP 12.5 BIT PATCHING MIX (4;L)	SY	\$60.00	400	\$24,000	0%	\$ -	\$24,000
2401.601	BRIDGE MODIFICATION ALLOWANCE	LUMP SUM	\$400,000.00	1	\$400,000	0%	\$ -	\$400,000
2411.603	RETAINING WALL	SQ FT	\$50.00	1000	\$50,000	0%	\$ -	\$50,000
2503.503	STORM SEWER PIPE	LIN FT	\$90.00	10000	\$900,000	0%	\$ -	\$900,000
2506.502	STORM SEWER STRUCTURE	EACH	\$4,500.00	50	\$225,000	0%	\$ -	\$225,000
2506.601	WATER QUALITY ALLOWANCE	LUMP SUM	\$250,000.00	1	\$300,000	0%	\$ -	\$300,000
2521.518	4" CONCRETE WALK	SQ FT	\$8.00	2000	\$16,000	50%	\$8,000	\$8,000
2521.518	6" CONCRETE WALK	SQ FT	\$12.00	3500	\$42,000	50%	\$21,000	\$21,000
2521.518	3" BITUMINOUS WALK	SQ FT	\$4.00	110000	\$440,000	50%	\$220,000	\$220,000
2531.503	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	\$35.00	11500	\$402,500	75%	\$301,875	\$100,625
2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	\$90.00	400	\$36,000	0%	\$ -	\$36,000
2531.504	TRAIL LIGHTING ALLOWANCE	LUMP SUM	\$100,000.00	1	\$150,000	100%	\$150,000	\$ -
2531.618	TRUNCATED DOMES	SQ FT	\$65.00	400	\$26,000	50%	\$13,000	\$13,000
2563.601	TRAFFIC CONTROL ALLOWANCE	LUMP SUM	\$60,000.00	1	\$60,000	0%	\$ -	\$60,000
2571.524	LANDSCAPING ALLOWANCE	LUMP SUM	\$100,000.00	1	\$100,000	100%	\$100,000	\$ -
2573.601	EROSION CONTROL ALLOWANCE	LUMP SUM	\$50,000.00	1	\$50,000	0%	\$ -	\$50,000
2574.507	BOULEVARD TOPSOIL BORROW	CU YD	\$35.00	2800	\$98,000	0%	\$ -	\$98,000
2575.504	SODDING TYPE SALT TOLERANT	SQ YD	\$10.00	16000	\$160,000	0%	\$ -	\$160,000
2582.501	SIGNING AND STRIPING ALLOWANCE	LUMP SUM	\$50,000.00	1	\$50,000	0%	\$ -	\$50,000
	CONTINGENCY (30%)	LUMP SUM	\$1,500,000	1	\$1,500,000		\$240,000	\$1,260,000
	(3070)	33111						



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SUBTOTAL				\$6,350,000		\$1,050,000	\$5,300,000
ROADWAY AND							
TRAIL							
CONSTRUCTION							
ROW	SF	\$40.00	0	\$ -	50%	0	0
ACQUISITION - PE							
LAKEFRONT							
PARCELS							
ROW	SF	\$10.00	1000	\$10,000	50%	\$5,000	\$5,000
ACQUISITION - TE							
LAKEFRONT							
PARCELS							
ROW	SF	\$16.00	0	\$ -	50%	0	0
ACQUISITION - PE							
LANDSIDE							
PARCELS							
ROW	SF	\$5.00	3500	\$17,500	50%	\$8,750	\$8,750
ACQUISITION - TE		Ψ3.00		Ψ17,000	30,0	Ψο,, σο	ψο). σσ
LANDSIDE							
PARCELS							
SUBTOTAL ROW				\$30,000.00		\$10,000	\$30,000
ACQUISITION				430,000.00		710,000	430,000
Acquisition							
FINAL DESIGN				\$760,000		\$130,000	\$640,000
ENGINEERING -							
ASSUME 12% of							
CONSTRUCTION							
COST							
CONSTRUCTION				\$510,000		\$80,000	\$420,000
ENGINEERING -				7310,000		730,000	9-120,000
ASSUME 8% of							
CONSTRUCTION							
COST							
GRAND TOTAL				\$7,650,000		\$1,270,000	\$6,390,000
PROJECT COSTS							