PLEASE NOTE: At 5:30 p.m. Council will meet in a Study Session in the Gainey Room at the Library, 105 N Elm Avenue. The council will receive updates on the City's Culture Team and the Sanitary Sewer Study. If time permits, there will be a general discussion/update on various boards and commissions.

OWATONNA CITY COUNCIL MEETING

Tuesday, May 16, 2023 at 7:00 PM

Gainey Room at the Library, 105 N Elm Avenue

Roll Call: Council Members Burbank, Boeke, Raney, Svenby, Voss, Dotson & Schultz

1. **INTRODUCTORY ACTIONS:** Call to Order; Roll Call and Pledge of Allegiance
   - 1.1. Council Agenda
   - 1.2. Mayor Kuntz

2. **CONSENT AGENDA ITEMS**
   - 2.1. Minutes – Council Meeting – May 2, 2023
   - 2.2. Minutes - Boards & Commissions
     - 2.2.1. Park Board Meeting - April 26, 2023
     - 2.2.2. Airport Commission Meeting - April 13, 2023
     - 2.2.3. Planning Commission Meeting - April 25, 2023
     - 2.2.4. EDA Meeting - April 19, 2023
     - 2.2.5. HRA Board Meeting - April 24, 2023
     - 2.2.6. Planning Commission Meeting - May 9, 2023
   - 2.3. Department Reports:
     - 2.3.1. Building Inspection Monthly Report - April
     - 2.3.2. Fire Dept Monthly Dashboard and Activity Report - April 2023
   - 2.4. Licenses/Permits
     - 2.4.1. Annual Tree Trimmer Permit - Mike Carstens, Austin MN
     - 2.4.2. Retail Fireworks License - Lowe's Home Centers LLC
     - 2.4.3. Outdoor Public Fireworks Display - Steele County Agricultural Society - July 4, 2023
   - 2.5. Event Permits
     - 2.5.1. 2023 MnSNAP Clinics
     - 2.5.2. 2023 Farmers Markets - Saturday Mornings May through October
     - 2.5.3. 2023 11@7 Concert Series in Central Park - June, July & August
     - 2.5.4. Classic Car Shows - First Wednesdays - June to October 2023
     - 2.5.5. Downtown Thursday - Owatonna Area Chamber - June 1, 2023
     - 2.5.6. Federated Employee's Summer Club Celebration - June 16, 2023
     - 2.5.7. Amateur Radio Field Day - OSCAR Club - June 24, 2023
     - 2.5.8. 2023 Harry Wenger Marching Band Festival - June 17, 2023

2.6. Miscellaneous

2.6.1. Joint Powers Agreement - School Inspections - State of MN

2.6.2. Warsinski Chalet Operations Agreement - 2023-2024 Winter - Martin's Equipment

2.6.3. Stormwater Facility Maintenance Easement Agreement - 135 28th St NE

2.6.4. Resolution 45-23 Authorize Contract for Purchases - Fame Awards

3. ACTION ITEMS

3.1. Finance Report

3.2. Ordinances

3.2.1. Proposed Ordinance 23-10: Vacate all Rights of Way and Easements within Good Samaritan Addition

3.2.2. Proposed Ordinance 23-11: RZ-2 Mineral Springs Estates PUD

3.3. Resolutions:

3.3.1. Resolution 38-23: Accept Bids & Award Contract Project #23010 CIPPS

3.3.2. Resolution 39-23: Accept Bids & Award Contract Project #23009 Street Maintenance

3.3.3. Resolution 40-23: Approve Feasibility Report - Main Street Reconstruction & Rehabilitation

3.3.4. Resolution 41-23: CUP-5 Thompson Sanitation Outdoor Storage

3.3.5. Resolution 42-23: Preliminary and Final Plat - Thompson Corner Addition

3.3.6. Resolution 43-23: Preliminary Plat - Mineral Springs Estates

3.3.7. Resolution 44-23: Amend and Restate Utility Easement - Parkview Heights, LLP

3.4. Miscellaneous

3.4.1. City's External Social Media Policy

3.4.2. Professional Services Agreement - Facilities Master Plan - ISC

3.4.3. Proposed Park Master Plans

3.4.4. Recommendation for new Regional Park Name

3.4.5. Change Orders - Council Chamber Renovation Project - Ebert Construction

3.4.6. JPA to conduct Hotel Inspections

4. STAFF REPORTS

5. PUBLIC COMMENTS: (Please limit comments - 2 minutes and items not on the agenda.)

6. COUNCIL COMMENT AND GENERAL INFORMATION

7. ADJOURN

Mayor Kuntz

Owatonna City Council Minutes - Draft Copy
May 2, 2023

Tuesday, May 2, 2023 at 7:00 p.m. Council President Schultz called the regular session of the Owatonna City Council to order in the Gainey Room at the Owatonna Public Library. Present were Council Members Raney, Voss, Burbank, Dotson, Svenby and Schultz; Mayor Kuntz; Community Development Director Klecker; Public Works Director Murphy; IT System Administrator O'Connor, City Attorney Walbran; and Administrative Specialist Clawson. Council Member Boeke was unable to attend.

Council Agenda

Following the Pledge of Allegiance, Council President Schultz welcomed everyone to the meeting. Council Member Dotson made a motion to approve the agenda as presented, Council Member Svenby seconded the motion, all members present voted aye for approval.

Board/Commissioner Member Recognitions

Mayor Kuntz presented recognition awards to these individuals for their years of service:

James Keltgen	Airport Commission	8 years
Justin Lindee	Airport Commission	6 years
Sharon West	Airport Commission	10 years
Kirby Knutson	Fire Civil Service and Fire Code of Appeals	3+ years
Ryan Gillespie	Human Rights Commission	6 years
Susie Effertz	Human Rights Commission	3+ years
Matt Kottke	Owatonna Public Utilities	10 years
Greg Posch	Park Board	4+ years
Meredith Mattison	Library Board	9 years
Christy Tyrhus	Library Board	5+ years
Jim Linder	Shade Tree Commission	11+ years
Roger A. Wacek	Shade Tree Commission	12 years

Present to accept a small token of appreciation were Sharon West, Ryan Gillespie, Matt Kottke, Jim Linder and Roger A. Wacek.

Board/Commissioner Reappointments and New Member Recommendations

Mayor Kuntz requested reappointment of Board/Commission Members:

Housing & Redevelopment Authority: Vicki Olivo
Park & Rec Board: Jonathan Douglas
Planning Commission: John Eickhoff, Rachel Springer and Kelly Rooks
West Hills Commission: Dan Gorman

New Member Appointments recommended by Mayor Kuntz were:

Airport Commission: Daren Tarpenning, Anthony Louris, Madeleine Haberman
Fire Civil Service & Fire Board Code of Appeals: Gordon Henricksen
Human Rights Commission: Mustafe Ismael and Edgar Esquivel
Owatonna Public Utilities Commission – 4th Ward: Gregory Vetter
Park & Rec Board: Nan Silkunas
Library Board: Amy Tapp and Quinn Meyer
Shade Tree Commission: Caleb Whalen and Doug Elsner

Council Member Raney made a motion to approve these reappointments and new member recommendations, Council Member Voss seconded the motion, all members present voted aye for approval.

Mayor Kuntz administered the Oath of Office to new board/commission members present: Daren Tarpenning, Anthony Louris, Mustafe Ismael, Gregory Vetter, Amy Tapp, Quinn Meyer, and Doug Elsner.

Proclamation – National Day of Prayer

Mayor Kuntz made a proclamation that the National Day of Prayer will be this Thursday, May 4, 2023. Our nation's great strengths is the freedom to exercise our faiths freely and prayer is an essential act of worship and a daily discipline for many Americans.

Proclamation – National Travel and Tourism Week

Mayor Kuntz proclaimed the week of June 8-14, 2023 as the National Travel and Tourism Week in Owatonna. travel enables success for all industries, including manufacturing, agriculture, defense, healthcare and more by driving sales growth, innovation, education and operations that move our economy, our nation and Owatonna forward.

Consent Agenda Items

Council President Schultz explained council members review the Consent Agenda items prior to the meeting for approval in one motion. Consent Agenda items for this meeting include:

Minutes - City Council Meeting - April 18, 2023
Minutes - OPU Meeting - March 28, 2023
Minutes - Planning Commission - April 11, 2023
Minutes - Human Rights Commission Meeting - April 11, 2023
Minutes - West Hills Commission Meeting - April 20, 2023
Fire Department Monthly Dashboard and Activity Report - March 2023
Exempt Permit - Raffle - June 16, 2023 - Owatonna Fire Relief Association
Exempt Permit - Raffle - July 14, 2023 - Community Pathways of Steele County
Exempt Permit - Raffle- September 21, 2023 - Ducks Unlimited Steele County
Retail Fireworks Permit - Target #1068
Renew Tree Trimmer Permit - Asplundh Tree Expert LLC
Amend Event Permit - 2023 Safety Camp - June 8-9, 2023
Amend Event Permit - 2023 Memorial Day Parade - Canceled
Event Permit - 2023 Harry Wenger Marching Band Festival - June 17, 2023
Event Permit - Event Permit - 2Classic Car Show - May 3, 2023
Event Permit - Alley Cafe - Central Park Coffee Co
Event Permit - Smokin' in Steele Blues & BBQ - June 2 & 3, 2023
Event Permit - Juneteenth Celebration - June 17, 2023 in Manthey Park
Event Permit - Owatonna Chamber After Hours - June 27, 2023
2023 Annual Deer Cull proposed to occur between October 2 – November 19, 2023 and November 20 – December 17, 2023. Parks available for archers are: Cashman Park, Hammann Park, Kaplan’s Woods Park, Kaplan’s Woods Parkway, Kriesel Park, Leo Rudolph Nature Reserve, Manthey Park, Maple Creek Parkway, Mineral Springs Park, Nass Woods Park and North Straight River Parkway. Park maps with predetermined stand locations and where signs are located are prepared before registration opens.
DNR Outdoor Recreation Grant - $5,000 No Child Left Inside grant to support and increase efforts to expand programming that connects young people to the outdoors. In 2022, the City implemented an archery program that provides opportunities for young people and families seeking ways to enhance adaptability and inclusivity in this program. This grant will allow the purchase of additional equipment, supplies and staff training for the enhancement to the archery program.
Substantially Completed Project - 18004 Mosher Avenue
Substantially Completed Project - 22005 Maple Creek Estates

Fire Department Prairie Burn Exercise – May 3, 2023 -Minnesota Pheasants Inc. – Steele County Chapter
Mutual Lease Cancellation Agreement - Airport Lot 8 - Peter Dahl
Airport Non-Commercial Use Hanger Land Lease Agreement - Terry Barta
Renew License Agreement - Bird Rides, Inc.
Amendment 2 - Software Services Agreement - OpenGov, Inc. - change the contract to unlimited users for maximum utilization of Cartegraph.

Council Member Raney commented he requested additional information about the Harry Wenger Band Festival and made a motion to table this Event Permit. Council Member Voss seconded the motion, and all members present voted aye in approval. Council Member Raney commented he supports the application received for an alley café at Central Coffee; however, he requests this item also tabled until a written policy for outdoor patio space on public property is approved. Council President Schultz commented he prefers to not set a precedence and agrees a written policy in place for outdoor patios usage on public property and right of way should be first approved. Additional outdoor seating was needed during 2020 because of Covid restrictions. During 2021 and 2022, this café was authorized because the N Cedar Streetscape Project was in process and this outdoor amenity promoted shopping to the downtown area. Council Member Svenby seconded this motion, all members present voted aye in approval. Council Member Burbank made a motion to approve the Consent Agenda with the exception of these two items. Council Member Voss seconded the motion, all members present approved.

Finance Report

Council Member Raney recapped payments made for amounts greater than $20,000 during this period. The total amount of bills presented was $823,867.62. Council Member Burbank made a motion to approve payment of all bills presented, Council Member Voss seconded the motion Council Member Dotson questioned if a second Bearcat vehicle was purchased for the SCDIU. Council President Schultz explained this payment was for the first/only SCDIU vehicle. Production was delayed and delivery just completed. The City of Owatonna serves as the fiduciary agent for the SCDIU and contributed $30,000 towards this purchase. Funds were received from other entities for Owatonna to issue the full payment amount. With no additional comments, all members present voted aye in approval.

Second/Final Reading Proposed Ordinance 23-07: CenterPoint Minnesota Gas Franchise Agreement

City Attorney Walbran requested approval of Proposed Ordinance 23-07. During the April 18, 2023 Council Meeting, the first reading of this ordinance was approved and there have been no changes since. This ordinance will renew the franchise agreement with CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas (CenterPoint Energy). Council Member Raney made a motion for approval, Council Member Dotson seconded the motion. With a roll call vote, voting aye were Council Members Dotson, Burbank, Raney, Svenby, Voss and Schultz; No nay votes cast, the motion carried. This will be known as Ordinance 1646 to be effective upon publication.

Summary Publication – Ordinance 1646 CenterPoint Minnesota Gas Franchise Agreement

City Attorney Walbran commented that new Ordinance 1646 is lengthy and requested approval of a Summary Publication. Council Member Voss made a motion for approval, Council Member Raney seconded the motion all members present voted aye for approval.

Resolution 32-23: Approve Plans & Authorize Bids for the 2023 Street & Utility Project

Public Works Director Murphy requested approval of Resolution 32-23 approving the plans, specifications, and authorization to advertise for bids for the 2023 Street & Utility Project. The project involves various levels of reconstruction on Butternut Avenue, Riverview Place, and School Street. The existing street improvements have exceeded their useful life. Council authorized staff to prepare the plans and specifications for this project with Resolution 22-23 following the Public Hearing held on

March 7, 2023. The proposed bid opening date is May 31, 2023 with approval of bids by council on June 6, 2023. The 2023 Street & Utility Project will be financed through a combination of City Funds and Special Assessments. Council Member Raney made a motion for approval, Council Member Burbank seconded the motion, all members present voted aye for approval.

Resolution 33-23: Approve Plans & Authorize Bids for the 2023 Havana Road Project

Public Works Director Murphy presented Resolution 33-23 for approval of the plans, specifications, and authorization to advertise for bids for the 2023 Havana Road Project. The project involves reconstruction of Havana Road from Truman Avenue to Smith Avenue. The existing street improvements have exceeded their useful life. Council authorized staff to prepare the plans and specifications for this project with resolution 21-23 following the Public Hearing held on March 7, 2023. The proposed bid opening date is May 31, 2023 with approval of bids by council on June 6, 2023. Budget Impact: The 2023 Havana Road Project will be financed through a combination of State Aid Funds, City Funds, and Special Assessments. Council Member Boeke made a motion for approval, Council Member Burbank seconded the motion, all members present voted aye for approval.

Resolution 34-23: Order Main Street Reconstruction and Rehabilitation Feasibility Report

Public Works Director Murphy requested Council approval of Resolution 34-23 ordering a Feasibility Report for the Main Street Reconstruction and Rehabilitation Project. Main Street (CSAH 48) from Oak Avenue to Chambers Avenue needs rehabilitation and possibly reconstruction. Steele County is leading the effort on this project as it is a County State Aid Highway. Significant pavement deterioration and less than optimal intersection controls have been on the radar of the City and County and are proposing to move forward with evaluation and obtaining recommendations for improvements. This is a joint project with Steele County. Costs will be paid for using a combination of special assessments, state aid funds and city funds. Council Member Voss commented there have been several open houses with a lot of residents attending, Murphy commented plans can be viewed on the Steele County website. Council Member Voss made a motion for approval, Council Member Dotson seconded the motion, all members present voted aye for approval.

Resolution 35-23: Approve Plans - CSAH 48 at 18th Street Roundabout

Public Works Director Murphy requested Council approval of Resolution 35-23 to approve the plans and specifications prepared by WSB for the construction of a roundabout at CSAH 48 and 18th Street SE. Resolution 30-21 approved a joint project with Steele County and ISD 761 for construction of a roundabout at 18th Street SE and CSAH 48. The next phase of the project is approving the plans followed by advertising for bids. Bids will be advertised and received by Steele County. The goal is for the roundabout to be open before school commences in the fall of 2023. The project will be paid for by state aid construction funds and costs are in line with preliminary estimates. Council Member Dotson commented he has concerns regarding the design for this roundabout, this will be a high traffic intersection near the new high school. Murphy advised a full-sized roundabout is being proposed, we have worked through some issues with the smaller mid-sized roundabouts in town, but this will be full sized. We have had time to review plans to be sure the needs of the city, county, school and community are met; plans allow use of semi-tractor trailers and large ag equipment. Council Member Raney commented the school referendum included plans for city, county and school to each pay one-third of the roundabout costs, this was planned to be $700,000. This memo shows the city's cost estimate to be $1.2 million, that is an increase of $500,000. Murphy confirmed costs will be divided equally between the city, county and school. This higher estimate was used in the Steele County CIP last August, at that time we were negotiating with the railroad for layout and design and included a high estimate for costs with anticipated land acquisitions needed. Plans finalized with the railroad and included a smaller area, there will be some inflation factors added to the original $700,000 estimated in 2021 but will be less than $1.2 million. Council Member Voss asked if this project depletes the City's

State Aid Funds; Murphy responded, no, there are other roads needing and using these funds. Council Member Burbank made a motion for approval, Council Member Raney seconded the motion, all members present voted aye for approval.

Resolution 36-23: Approve Final Plat - Skjeveland Addition

Community Develop Director Klecker requested approval of the Final Plat for the Skjeveland Addition. Chris Skjeveland and Mathy Construction are requesting plat approval of Skjeveland Addition, a two-lot industrial plat. The applicants are platting the property to accommodate a sale of land to Skjeveland to allow them to own what they have been leasing since 2016. Operations on both properties will not change from what they are today. The applicant is also adding a 20' strip of land south of the property into this plat. This piece of land is currently unplatted even though it is owned by Mathy. When combining platted and unplatted land, it is all required to be replatted. The Planning Commission held a public hearing on this request and recommend approval with these conditions:

1) The final plat shall be recorded within 60 days.
2) The title opinion shall be approved by the City Attorney prior to recording of the final plat.
3) All conditions of C-1389 shall still apply to the Skjeveland property regarding their outdoor storage.

Council Member Svenby motion for approval as recommended, Council Member Burbank seconded the motion, all members present voted aye for approval.

Resolution 37-23: Approve Purchase Agreement – Grace Baptist Church

Community Develop Director Klecker requested approval of Resolution 37-23 authorizing the Purchase Agreement for property from Grace Baptist Church just north of Manthey Park. When Miracle Field and adaptive playground were constructed at Manthey Park, there were also plans to add a secondary driveway to 3rd Avenue NE. This plan required the purchase of property from Grace Baptist Church. Discussions have continued with the Church that included the value of the land, how to replace the soccer field that was lost with the construction of the Miracle Field, removal of the Church garage that is in the way of the new access, drainage and how to provide separation between the Church property and Manthey Park. Those discussions have led to the proposed Purchase Agreement. Under the Purchase Agreement, the City would pay Grace Baptist Church $170,000 for 1.85 acres of land. The land would be used for an access driveway that would connect 24th Street NE to 3rd Avenue NE, a future trail along the north side of 24th Street NE from Cedar Avenue to Manthey Park and a mid-sized soccer field. The City will need to construct a fence along the north side of the soccer field, ensure all tile lines remain connected to the storm water system and ensure there are no assessments now and into the future to the Church for this driveway. The City will also need to plat the property in order to split this property from the Church. The Church will move the garage from its current location at their expense. The plan is for this project to be constructed in 2024. The property will need to be subdivided so there will be future public hearings held on this matter. The soccer field will be a mid-sized field similar to those used teams in grades 5-8, the intent is for this field to be available for public use. Council Member Raney made a motion for approval, Council Member Dotson seconded the motion, all members present voted aye for approval.

Obstruction Permit at Vine Street & N Cedar Avenue - Mohs Contracting

Public Works Director Murphy requested Council consideration of a request from Mohs Contracting to obtain an extended Obstruction Permit on the corner of Vine Street and Cedar Avenue North for a dumpster to remain in the City Right of Way during the project at the former Jerry's Supper Club Building. An extension was previously issued on October 18, 2022 and expired on April 15, 2023. Kevin Springborg, Field Superintendent at Mohs Contracting advised there was a delay in construction start and unforeseen circumstances that led to additional required work. This project is anticipated to be done mid-June 2023. The proposed location of the obstruction has been identified as the least obstructive to pedestrian traffic and as the most direct route out of the building. Three

parking spaces will be used along the south side of the building on Vine Street. The permit holder acknowledges that the area around the obstruction must be maintained. Engineering staff propose an initial fee of $200 for the first two-week period and $50 for each two-week period after, until the obstruction has been removed, for an estimated fee of $375. $775 in fees was collected for the previous permit at this site. Council Member Dotson made a motion for approval, Council Member Voss seconded the motion, all members present voted aye for approval. .

Obstruction Permit at Federated Insurance - Benike Construction

Public Works Director Murphy requested the Council consider a request from Benike Construction to obtain an extended Obstruction Permit on the corner of East Broadway Street and North Elm Avenue. This is request for a dumpster to remain in the City Right of Way for the duration of the project at Federated Insurance, which is anticipated to end late this year, 2023. The location of the dumpster has been identified as the safest and most direct route out of the building. An extension to the original permit, applied for on July 28, 2021, was approved by the Council on September 7, 2021. An additional extension was approved by the Council on August 16, 2022 and expired on April 15, 2023. The permit holder acknowledges that the area around the dumpster must be maintained. Engineering staff proposes an initial fee of $200 for the first two-week period and $50 for each two-week period after, until the obstruction has been removed, for an estimated fee of $1,850. $1,207.14 in fees has previously been collected. Murphy commented that the applicant has a parking lot close to the building, but requests continued use of the public right of way. Council Member Schultz commented he would support their request to extend this permit if there weren't any problems over the winter with this dumpster at this location. Council Member Svenby commented he would also support this request, but future requests should not be as private space is available for their use. Council Members Burbank and Dotson each commented that the current location is the easiest for the contractors to use. Council Member Voss made a motion for approval, Council Member Dotson seconded the motion, all members present voted aye for approval. .

Stormwater Facility Maintenance Easement Agreement - Home2Suites

Public Works Director Murphy presented a stormwater facility maintenance agreement with Home2Suites for their new facility located at 230 Allan Avenue. The City requires that on-site stormwater management must be maintained by the property owner to meet the requirements of the MS4 permit held by the City. The property owner agrees to the terms and conditions as outlined in the agreement. Council Member Voss made a motion to approve this agreement, Council Member Burbank seconded the motion, all members voted aye in approval.

Professional Service Agreement - 2050 Comprehensive Plan – Stantec

Community Development Director Klecker requested approval of the contract for Comprehensive Planning Services with Stantec for services related to the 2050 Comprehensive Plan. The City is commencing a Comprehensive Planning process. As part of this project, the City will be hiring a consultant to lead this process. The City received seven responses to our Request for Proposal and interviewed four firms. Following this interview process, Stantec was chosen to be the consultant on this project. Following the execution of the contract, Stantec will commence the process as laid out in their proposal. This will encompass the next 12-18 months and include numerous opportunities for community engagement throughout this process. Ultimately, the consultant will draft a final plan that the City will use to guide development, regulation, and funding for the foreseeable future. Council Member Svenby made a motion to approve this agreement, Council Member Burbank seconded the motion, all members voted aye in approval.

Staff Comments

Community Development Director Klecker commented that the month of April is now past, and we are one-third into the year 2023. We have issued a value of $41,000,000 New Construction Building

Permits which is a really good start, this is more than half of total value of permits issued last year. Construction of single-family homes is running slow but hopefully when the new development area begins, we will see those numbers up. Projects in process include:

Monson Eye Clinic – have issued the Certificate of Occupancy
Westlake Apartments – four garages and one building are up
Baldwin Supply in the Industrial Park – have issued a Certificate of Occupancy
Storage Units on 26th Street - nearly complete
Cemstone – Walls up and fully enclosed
CDI – waiting on delivery of windows
North Cedar Apartments – framing complete and working on roof trusses
Profinium Bank – installing dry wall and interior walls
Jersey's Mike – waited for spring weather and now have footings poured
Roma's – working on the interior, installing their kitchen, they hope to be open in July
The City Council Chamber Project has groundwork started with some of underground utility work be completed.

Public Works Director Murphy commented staff in Public Works have been very busy. Work continues on the Wastewater Treatment Facility, we just received another drone video showing progress made during April, which will be added to our website for viewing. The second half of the City's 2022 Street & Utility Project on NE 15th Street began last week, and we are working with the county on several projects in process. We receive a lot of permit applications at this time of the year and keep busy.

Public Comments

Doug Elsner, 1030 Minnesota Avenue, asked if there are currently other full-sized roundabouts in the City similar to the roundabout proposed at intersection of 18th Street and Bixby Road. Public Works Director Murphy responded that the roundabout on the corner of 26th Street and State Avenue is a full-size roundabout.

Mayor and Council Comments:

Council Member Raney thanked the City's Culture Team for hosting the 2023 Employee Recognition Event last week. This event was well attended, and several employees were recognized for 25 and 35 years of service to the City. He also thanked IT System Administrator Tim O'Connor for helping with the video screen operation during tonight's meeting. Hopefully the Council Chamber Project goes as planned and we will have only nine more council meetings at this location.

Council Member Voss thanked Administrative Specialist Clawson for the work she does, this last week she assisted researching information about the proposed roundabout project.

Mayor Kuntz extended an invitation to council members that he received from Federated Insurance. There will be a celebration for the 100th anniversary of the Charles I Buxton Building on Tuesday, May 16th with an open house from 4 pm -6 pm. Guests will hear about the history of the building, walk through on a self-guided tour and enjoy root beer floats.

Council President Schultz commented this was a good meeting as we were able to get a lot done tonight.

Adjournment

At 8:07 p.m., Council Member Raney made a motion to adjourn, Council Member Dotson seconded the motion and with no objection, the meeting ended.

Respectfully submitted,

Jeanette Clawson, Administrative Specialist

Board and Commission Minutes

MINUTES - UNAPPROVED
OWATONNA PARK AND RECREATION
REGULAR PARK BOARD MEETING
APRIL 26, 2023
6:00 PM

Members Present:
Chair: Jon Thiel
Vice Chair: Gina McGuire
Board Members: Tyler Cochran, Sara Baird, Kara Perry

Members Absent: Greg Posch, Jonathan Douglas

Staff Present:
Jenna Tuma, Parks, Recreation and Facilities Director
Tomas Gorycki, Recreation Supervisor
Eric Anderson, Recreation Manager

Council Member:
LOCATION: Buckham West 15 W Division St. Faribault

OPENING BUSINESS

A. Call to Order at 6:00 pm
B. Roll Call:

APPROVAL OF THE MARCH 13, 2023, MINUTES

Motion by Tyler Cochran to approve the March 13, 2023, Park Board Meeting Minutes and second by Jon Thiel. All members voted aye.

PERSONS WISHING TO APPEAR

None

NEW BUSINESS

- Tour of the Faribault Senior Center and connect with Faribault Park Board and staff to share ideas and understanding each parks department, and have a better understanding of their work plans.
- Buckingham West Senior Facility tour and operations discussion
    - Tour of the facilities, original facilities, and addition
    - Senior operation is a 501 3c, separate from the City operations, staffing and operations is funded through the 501 3c.
        - 3 Full-time staff with volunteer support.
        - Operate a thrift store through volunteers, funds used for the senior center.
        - The City pays 45k annually to operations and picks up the utilities and custodian work. Successful model, well used by seniors, positive energy.
- Faribault Parks & Recreation information

- Have about 45 parks of various sizes
- Starting a task force for a new community center, will be at a new location, exploring a sales tax funding option. Will kick off this summer.
- Recently went through a department reorganization with staffing changes.
- The PR has a park dedication policy on residential, commercial and redevelopment.
- Their annual CIP is between $400-700k depending on projects.
- Discussion around adaptive programming and meeting the needs of the community in programming.
- Discussion on their scholarship process and funding ideas.

Small OPD meeting

- Reviewed upcoming May meeting topics and holding workshops during the summer at the Social Commons to work on a business or strategic plan…starting with a SWOT Analysis.
- Reviewed upcoming City Council agenda items for
  - May 2: Study Session PM on May 2, TPL presentations,
  - May 16th: MP approval, Regional Park naming, ICS agreement, Discussion of future facilities needs and funding.

OLD BUSINESS

PARK PERMITS

MEMORIALS AND DONATIONS

SENIOR DATE

6. COMMUNICATIONS

Announcements

- In the News
  1. Weekly Owatonna People's Press articles: http://ci.owatonna.mn.us/Blog.aspx?CID=3
  2. Owatonna Live Straight Talk Straight Talk (owatonnalive.com)
- Actions Requested from past meetings

ADJOURNMENT:

The next board meeting is at the West Hills Social Commons and will be held on Monday, May 8, 2023, at 4:30 p.m.

Airport Commission Meeting Minutes
April 13, 2023 – Owatonna Degner Regional Airport
"DRAFT"

1. Call to Order

   Vice Chair Lipelt called the meeting of the Airport Commission to order at 5:00 PM.

2. Roll Call

   Attending

Justin Lindee	Commissioner
Angie Lipelt	Vice Chair
Paula Snitker	Commissioner
Sharon West	Commissioner
Dave Beaver	Airport Manager

   Visitors

Nick Grahek	Bolton and Menk
Tony Loris	

3. Approval of Agenda

   Commissioner West made a motion to approve the agenda and Commissioner Snitker seconded the motion. The motion was approved.

4. Minutes

   Commissioner Lindee made a motion to approve the minutes from the March 2, 2023 Airport Commission meeting and Commissioner West seconded the motion. The motion was approved.

5. Action Items

   Chair Reports
   Vice Chair Lipelt welcomed everyone to the meeting. There were no further chair reports.

   Staff Reports
   Airport Manager Beaver reported on airport activities and presented the combined aviation fuel volumes dispensed year to date. There was a brief discussion on activity, recent business aircraft arrivals, and airport maintenance activities.

   Mr. Beaver announced that the airport has been selected as a route point for the June 2024 all women Air Race Classic. The race has been held for ninety plus years and this year the course spans from North Dakota to Florida. There was a discussion regarding the potential need for volunteers as well as working with community stakeholders to accommodate the event.

Airport Manager Beaver explained that a Request for Qualifications is being prepared for competitive selection of the airport engineering consultant. Mr. Beaver explained that the Federal Aviation Administration (FAA) requires airports to complete a competitive engineering consultant selection process approximately every five years. Mr. Beaver explained that the Request for Qualifications (RFQ) advertisement should be ready to publish in the coming weeks with the selection process to conclude this summer. There was a brief discussion regarding the process and development of a selection committee.

Regarding the T-hangar project Airport Manager Beaver introduced Nick Grahek with Bolton and Menk to provide an update on the T-Hangar project. Mr. Grahek reported that there are a number of punch list items remaining for the contractor to complete once the outside temperatures are higher. Mr. Grahek reported that the contractor has recommended a floor treatment to remove excess curing compound and add a concrete sealant. This will first be completed on a test panel. There was a brief discussion regarding the remaining project items.

Security Fencing Project Update

Airport Manager Beaver explained that work is being completed to review final cost estimates and layout. Mr. Beaver added that the next step will be to obtain formal quotes for the work. There was a brief discussion regarding the project including the proposed federal grant requirements and timing.

Other Business

For other business, Airport Manager explained that there are a number of current Airport Commission members with terms expiring. Mr. Beaver reported that the Mayor is currently reviewing a number of applications for new appointments and that new appointments will be considered at the May 2nd City Council meeting. There was a brief discussion and gratitude expressed to outgoing members. Mr. Beaver thanked Commissioners James Keltgen, Justin Lindee, and Sharon West for their service on the Airport Commission.

6. Adjournment

The Airport Commission meeting was adjourned at 5:45 PM with a motion made by Commissioner Snitker and seconded by Commissioner West.

OWATONNA PLANNING COMMISSION MINUTES
APRIL 25, 2023 - DRAFT COPY

The Owatonna Planning Commission met in regular session at 5:30 pm in the Gainey Room of the Owatonna Public Library with Chairperson Kelly Rooks conducting the meeting. Present at roll call were Commissioners David Effertz, John Eickhoff, Mark Meier, Nick Peake, Kelly Rooks, Rachel Springer-Gasner, and Mark Wilson. Community Development Manager Greg Kruschke, Planning Specialist Sydnee Stroeing, and Planning Technician Kristen Kopp were also present.

A motion was made by Springer-Gasner and seconded by Wilson to approve the minutes of the regular meeting of April 11, 2023. All Commissioners voting Aye, the motion carried.

Skjeveland Addition Final Plat, which is a 9.86± acre tract of land zoned I-2 Heavy Industrial District, owned by Chris Skjeveland and Mathy Construction and located at 665 32nd Avenue NW, was presented by Community Development Manager Greg Kruschke. (Refer to report on file.) A motion was made by Effertz and seconded by Wilson to recommend City Council approval of this final plat of Skjeveland Addition with the following conditions:

1) The final plat shall be recorded within 60 days.
2) The title opinion shall be approved by the City Attorney prior to recording of the final plat.
3) All conditions of C-1389 shall still apply to the Skjeveland property regarding their outdoor storage.

All Commissioners voting Aye, the motion carried.

Kruschke gave an update on the 2050 Comprehensive Plan Update. He said that they are working on contract with Stantec and the Commissioners all have a copy of the proposal. They lay out how they're going to go through this process and how the schedule will look for the next 12 to 18 months. Kruschke said they had seven proposals in and have worked with all of them.

Kruschke gave an update on items from the last meeting. Everything was approved and is moving along.

The next meeting on May 9 will have several items on the agenda and there are about 150 notices going out. He said he's expecting a full house. There will be a public hearing on Mineral Springs Estates, Thompson's Sanitation plat, and a sign variance for Roma's.

There being no further business to come before the Planning Commission at this time, a motion was made by Meier and seconded by Peake to adjourn the meeting at 5:38 pm. All Commissioners voting Aye, the motion passed.

Respectfully Submitted,

_____
Greg Kruschke
Community Development Manager

EDA
Minutes
April 19, 2023

The Owatonna Economic Development Authority met in regular session at 4:00 PM in the second floor conference room at the City Administration Building with Vice President Voss presiding. Commissioners present: Dan Boeke, Andrew Cowell, Brenda DeVinny, Corey Mensink, Tom Peterson, and Doug Voss. Commissioner Kevin Raney was absent. Also present were Troy Klecker, Bill Owens, Brad Meier, Lisa Cochran, Glenda Smith, Dave Beaver, and Kristen Kopp.

Approval of Minutes. Commissioner Boeke moved approval of the minutes of the January 18, 2023 meeting with second by Commissioner DeVinny. All Commissioners voting Aye, the motion passed.

Treasurer's Report. Troy Klecker presented the revenue and expense reports for March. He said they're one quarter of the way through the year. There hasn't been a lot of activity. The first half checks for contracts should be in the mail. We've switched over to new software and are still learning about it. Peterson asked about the $352,000 grant funds in and $352,000 funds out. Klecker said that he would check with finance on that. Klecker said that they made a payout to the MNIF for Daikin.

Loan Report. Bill Owens presented the Loan Report for March. Klecker said that Wagner's missed two payments for September and October last year and have made every payment since then. They have since paid September and still owe for October. Voss asked if the City plays any role in the water pipe issue. Klecker said the EDA doesn't, but the City to some level because it was our project. Owens said that there is a renewed interest in the forgivable loan program and he has two applications in from Nick Lewis and John Havelka. Sarah Schmidt with A Family First is looking for an application as well.

OACCT Report. Chamber Director Brad Meier presented the OACCT Report for March. He said he had the opportunity to meet the new president of Riverland, Dr. Kathleen Linaker. She is coming from Western Technical College in La Crosse, WI, and will take over on July 1. A Made in Owatonna Day was held today as 56 students toured Wenger's and Gopher Sport with the focus on business administration and IT. Missy Koch is the new SteeleCoWorks Workforce Coordinator. She's working with Brian Coleman at OHS and also other schools. The Learn to Earn effort is pushing forward with needs assessment focus groups on May 4 and 11. They want to use this to continue to advocate for growth at the Owatonna campus. Signing Day is scheduled for 4 pm on May 31 at Torey's. Owatonna was voted the top Micropolitan community in Minnesota, which is great. Meier passed out copies of the OPED Annual Report.

MainStreet Report. MainStreet Director Lisa Cochran presented the quarterly MainStreet Report. She highlighted the quarterly report, which is what she sends to Minnesota MainStreet. She said it was a slow quarter downtown, but it will look a lot different in the coming months with buildings being finished and new businesses opening. She said that she submitted for a grant that was approved and they decided to use that for new banners once branding is done. She

said they made two videos and she's made 32 visits to downtown business. She's starting to work on Downtown Thursdays. She attended the MainStreet national conference at the end of March which was by far the most high energy, positive conference she's been to. She said she'd be happy to talk about anything if anyone wants to sit down one on one. Cowell asked about the wayfinding signs. Cochran said that once branding is done, they will take a look at that. Somewhere down the line they will be changed, but she didn't think it would be the first thing on the list. Glenda said that the research phase is complete for the rebranding. Once they're through the creative process, they'll be able to prioritize projects. Voss asked about the criteria for what's on the sign. He said businesses would like to be on the sign, too. Klecker said it's not a business directory, but sites worth visiting. It's geared more towards tourists. Cochran said that the QR code on the sign goes directly to Visit Owatonna and that's always up to date.

Tourism Report. Tourism Director Glenda Smith presented the quarterly Tourism Report. Smith said being on Minnesota Live was fun. One of the top three focuses is community wide branding. They just finished the research phase and will start to move into the creative phase. They've been working on the Governor's Pheasant Opener. Some of the things in discussion are the exhibits at the History Center, the Arts Center, and the Orphanage. They're looking at possibly doing a 5K and are hoping a few of the events will continue. There are a lot of opportunities to volunteer. They continue to focus on group tours, meetings and events, and accessibility. Smith gave an update on the lodging tax. Voss said he likes the format of the report. Smith said occupancy in January and February were up a little from last year. 12,000 visitor guides were printed. So far they've had four group tours this year and continue to see new groups scheduled. She did the Chicago Travel Show with Minne Road Trip. She said she has done some more focus marketing. There was a high increase in the group tour planning. Pageviews are up about 4%. Boeke said that he heard just recently that Crookston did a survey and came up with a $2 Million impact to the economy. He said he wondered if Minnesota State does something like that. Voss asked about occupancy with the new hotel properties. Smith said that Motel 6 was included for January, but not for February. Klecker said that Motel 6 is bank owned and will be listed for sale at the end of the month if a deal is not made. There are a number of parties interested in it. We have expressed to the bank that we would like to keep it as a hotel.

OPED Report. Troy Klecker provided the OPED Report. He said that they're working with developers to do a project which includes single family homes.

OABDC Report. Bill Owens presented the OABDC Report for March. He said that consulting hours are down from last year. Occupancy at the center is straight and he has not had any requests for room. He said they're a part of a cooperative agreement with SE MN organizations. An expo is coming up on Monday in Rochester at the St. Mary's campus. They've got a quote on fencing for the maker space to limit the access. One item on the agenda of a recent board meeting was continuity or succession planning. Boeke asked if he heard anything back on doors. Owens said that he will get bids on it. He said he will try to call Rocon, who constructed the building.

Airport Report. Beaver said that activity at the airport has been good. Fuel volumes are a good indicator and they are continuing a five-year trend of increases. They have a couple units open in

the hangars, which are in demand. The biggest tenant is the flight school. The school has an arrangement with the Comfort Inn, but it's not always what the students want. They're hiring a second mechanic and an office manager. The Fly-In Breakfast will be after the fair week in August. We were selected as a waypoint for the Women's Air Race Classic, which will be held in June 2024. He and the mayor have been looking at candidates for the airport board. The focus is on airport growth and community growth. He said he likes to see how the airport can impact economic development. If anyone has any ideas, he'd love to hear them. They talked about Riverland and the pilot shortage and asked if there are ways we can be involved in expanding aerospace education in the community. Boeke asked about the security fencing. Beaver said they're looking into quotes and are looking at a $200,000 project. Boeke asked about the idea of a shared jet. Beaver said that both Ellingson and Tralo have jets. There is a lot of benefit to that, and we've seen some interest.

EDA Projects. Community Development Director Troy Klecker presented the EDA Projects for March. Klecker said that there is going to be a new buyer for the former Hardees / Budget Mart lot and hopefully we'll see some motion on that. Cemstone is working on their plant and next year they will be working on offices and garage space. Monson Eye Care is finishing up and we'll be taking over their old spot and demolishing that building. He said he just had a conversation with Oscar about Bubba's. The project has been delayed a bit due to costs, but he's refocused on this after moving his office. He's got Mohs on board and an investor on board with him. He is hoping to start construction in the fall and open next spring. They'll have to modify the development agreement to accommodate the new timeline. Roma's is the last piece of the hotel project. They will probably be applying for a variance on signage. There's interest in 117 West Bridge Street and he's shown it three times in the last few weeks. They currently have a letter of intent to do a coffee shop at 148 West Main Street. They're in the due diligence period. 202 West Bridge is nearly complete. The upper level is still empty and they're going to build it out to attract tenants. CDI is moving along. Peterson said they're supposed to be done October 2. Klecker said that Kamp Automation has closed on their property and have plans in review. There were a couple of approvals for the Riverfront Project. They close on the Chamber property on May 1 and the Chamber will move their offices in May. They're looking at demolishing the buildings in June. Scooter's Coffee will be starting in the spring. The tower will be coming down as well because of the condition it's in. They're working to try to get the piece of land the tower sits on to Scooters and that should be done by the end of summer. Mensink asked what the plan is for the parking lot on Vine Street. Klecker said they're still in negotiations with US Bank. There is a draft easement to keep the sign there. He said they are conceptually in agreement and are working through the details. The plan is still to do the parking lot project this year, though it will probably be later this year. Mensink asked how many spots they will have with the redesign. Klecker said they're ending up with a lot more public parking. It will be redesigned to be more efficient.

New Business. Owens said that Nick Lewis is applying for both interior and exterior loan for 113 Main Street West. Klecker said that the loans need official approval from the EDA and they will go to the design committee. A motion was made by Cowell and seconded by DeVinny to approve $10,000 interior and $10,000 exterior forgivable loan for 113 Main Street West. All Commissioners voting Aye, the motion passed.

Owens said that John Havelka is applying for an exterior grant for 143 Bridge Street West. Peterson abstained from this request as the applicant is his nephew. A motion was made by Cowell and seconded by Boeke to approve a $10,000 exterior forgivable loan for 143 Bridge Street West. With Commissioner Peterson abstaining from this motion and all other Commissioners voting Aye, the motion passed.

Klecker said that the EDA identified the 100 block of East Fremont Street as an area for redevelopment. There is a house in tough shape in the middle of the block—126 Fremont Street East. Staff has been in touch with the owner about purchasing the property, but the owners weren't ready to sell. They are ready to sell now. The house is in tough shape and can't be rented out. The sellers want to leave items in the house, and that is a cost to us, so Klecker said he would negotiate the purchase price. He said it's on the north side of the 100 block of Fremont. He said the City owns one vacant lot to the west of this property and two vacant lots to the east. A motion was made by Boeke and seconded by DeVinny to authorize the purchase the property at 126 Fremont Street East. All Commissioners voting Aye, the motion passed.

Klecker said that 151 West Bridge Street, on the corner of Main Street and Oak Avenue, has been mentioned to him many times. It's owned by Darrin Stadheim. This is a building that Stadheim is possibly not all that interested in renovating. Cowell abstained from discussion and motion. Earlier that day, Klecker, Community Development Manager Kruschke, Building Official Ken Beck, and Housing Manager Ghassan Madkour all walked through it with Stadheim. Stadheim wondered if the City is interested in purchasing this property. There are five rental units above, so there is cashflow coming in. Pupuseria la Paz is renting a portion of the main floor. One option would be that the City could buy it and do some improvements. We'd more so be marketing to get a project on that main floor and could do some improvements in the short term. We'd do a redevelopment TIF to get our investment back. The reason Stadheim is proposing that we buy it is he knows that if he puts it on the market, someone will buy it and they will leave it as is. If we are looking for true change downtown, this is the busiest intersection in all of Owatonna. Mensink asked what he sees going in there. Klecker said that the City has the ability to own land and not make money on it. They can funnel all revenue into improvements on the building. The City is the bridge between what a developer isn't able to do up front. They would want the first floor to look nice and something to go in. Main Street will be redone – this section probably in 2025. There is the ability to do streetscape improvements at that time. They have the ability to hang onto it while that gets redesigned. By owning it, it doesn't mean it comes off the tax rolls—it stays on the tax rolls because it's rentable property. Meier said he wouldn't normally advocate for the City buying this, but this is a unique situation. Klecker said that the City has purchased properties, but this is a little different. If we don't take the opportunity, there might not be an opportunity. People will complain that it is a detriment to the downtown. Voss said ideally, what would that corner look like. Mensink said the main thing is you control the narrative if you own it. Klecker said he'd prefer Stadheim redevelop it rather than the City. TIF can be used on it. He would rather the City have control over it than it be put up for sale. Klecker would work on a purchase agreement to bring back to the EDA if Stadheim is not going to do something. Voss said the ultimate goal would be to move it to a different buyer. Mensink asked if there has been any environmental due diligence on it. Klecker said if there are environmental issues, it's actually better that the City owns it because we have access to grant dollars that a private owner wouldn't. A motion was made by Boeke and seconded by

Peterson to allow Klecker to proceed with negotiations on 151 West Bridge Street. With Commissioner Cowell abstaining from this motion and all other Commissioners voting Aye, the motion passed.

Schedule Next Meeting. The next EDA meeting is scheduled for **May 17, 2023** at 4:00 PM in the 2nd Floor Conference Room at City Hall.

Adjournment. There being no further business, a motion was made by Commissioner Boeke and seconded by Commissioner DeVinny to adjourn the meeting at 5:20 pm. All Commissioners voting Aye, the motion passed.

MINUTES
OWATONNA HOUSING AND REDEVELOPMENT AUTHORITY
REGULAR MEETING on APRIL 24, 2023

The regular meeting of the Owatonna Housing and Redevelopment Authority was called to order at 4:01 p.m. in the 2nd Floor Conference Room by Board Member Dotson.

Members present were Nathan Dotson, Shari Kropp, and Hussein Osman. Also present were Community Development Director Troy Klecker and Administrative Technician Kristen Kopp.

Approval of the Minutes: Board Member Dotson called for a motion to approve the minutes of the March 27, 2023 meeting. A motion was made by Kropp and seconded by Osman to approve the minutes. All Commissioners voting Aye, the motion carried.

Executive Director's Report: Klecker said that the North Cedar Apartment project is going slowly. They've had some issues with getting people on site. He said that Westlake Meadows is progressing. They have one building framed and are getting ready to do footings on another. They're planning to have the first building done in the fall, which is good. They just received an application for a new development that will be going to Planning Commission for public hearing on May 9 and City Council after that. This is the first larger new development in several years. The developer is looking to do Phase 1 this year, which is close to Lee Street. They're widening the spectrum of housing that we have. The development will include traditional single family, twin homes, three-story flats, and some row houses as well. They will build some of each and see what the market demands. They have the ability to adapt the project according to what the needs are. HAS Capital is a larger developer and there are cost savings to doing it in bulk. There are four phases, and they can move as quickly as they need to. They would like to get it all built out in a seven-year period. Some of their team, including the job supervisor, is out of Rochester and some out of the Cities. They will use local subcontractors and the realtor is out of Rochester. Dotson said that the best part is their flexibility to tailor it to what the needs are. They were open to the fact that their plan may change to suit the needs of the community.

Old Business: The Housing Choice Voucher program monthly report was presented by Klecker, including the City of Owatonna monthly balance sheet and revenue/expense report. Program utilization: The Housing Voucher program for March totaled 92. Total year to date assistance and administration costs were $192,655.82 and revenues were $209,324.54. The Housing Choice Voucher Program fund balance at March month end is $127,055.53. The HRA Revenues year to date total is $128,865.00 and the expenses total $123,197.99 The HRA General Fund balance is $581,956.75.

Klecker said that there are 168 total clients with no major movements in the numbers. There are about 15 families with vouchers still searching for units. It's pretty status quo, we just need to get more units.

A motion was made by Osman and seconded by Kropp to approve the reports as presented. All Commissioners voting Aye, the motion carried.

Others: Klecker said within the HCV Program, there has been a subprogram that would allow those on vouchers to purchase a home that would help with their mortgage payments. We have two clients on this program and we've talked about opening that up again. That could be one of our efforts to promote homeownership for these families on our voucher program. With homeownership comes building wealth and getting out of that cycle. Staff is getting information on opening that up again for housing voucher recipients. There's more to come on that, and they're trying to structure what it will look like. One of the current clients has asked whether we could use some voucher dollars to assist with home maintenance costs as they are doing some home repairs. The guidelines don't specify. Part of the reason for the program is to assist them as they learn how to manage repairs so that they can be self-sufficient. Many other HRAs do have guidelines. The Board won't act on this today, but we'll probably want to decide next month. Many HRAs do provide a little assistance for home repairs. The most common one is reimbursing

5% of the current payment standard. The payment standard for a two-bedroom unit is $1,032. Under this scenario, they would receive about $50 for each repair after they've spent the money. This is just to provide a little assistance to help them graduate from rental assistance to standalone homeownership eventually. Another option is reimbursing 5% of the entire repairs. Dotson asked if there would be a max dollar amount. Klecker said that the HRA can decide what they want. The third option is not providing assistance at all. We could do something in between as well. It's really up to the board. Kropp asked where this money comes from. Klecker said that it's through the federal voucher program, not local dollars. Kropp asked if there was a risk of not being able to come up with the assistance dollars. Klecker said that it may impact whether we can assist more vouchers, but we're talking about pretty minimal amounts of money. Kropp asked if we're really trying to incentivize them, would it be out of line to offer 10% of the repairs up to $250? Dotson said that he would be willing to look at a percentage of the repair with a max dollar amount and he said he would like to give pre-approval. We can still police it if we don't have the money. Approval could be based on the availability of funds. Klecker said this assistance is for repairs only, not for something like new cabinets. Kropp said she likes the pre-approval and asked if a new water heater would qualify under repair. Klecker said yes. He said he will talk with Ghassan about whether pre-approval works or not, or whether we have to set the criteria. Dotson said they could even allocate a certain dollar amount a year. Kropp said she likes the idea of a little higher amount to make a positive impact, but agrees with some parameters and a maximum amount so it's not taken advantage of. Klecker said he will talk with Ghassan and will bring something back at the next meeting for more discussion and a vote.

Klecker spoke about affordable housing efforts. He said that he is on the United Way task force on housing. They've had some meetings with landlords on affordable housing. Many ideas have come back on forgiving building permit fees for improvements to fix up apartments or whether there could there be tax abatements for new affordable housing. Klecker said that his response has been that he'd rather see groups like the HRA or the Housing Trust Fund, that are involved in trying to provide more affordable housing, provide assistance to help in those situations. That is more sustainable and politically acceptable way, because once you start a forgivable program, it's hard to stop. An incentive program is much easier to start and end. No decisions have been made. The County Board is on board with the Trust Fund, it opens the door for other businesses that find housing as an obstacle to hiring to contribute to the Trust Fund. There is a CEO meeting on Thursday that Klecker will be attending. He will bring up the Trust Fund idea to make them at least aware of that option as this might be an easier way for them to assist with affordable housing.

Klecker said they still have a lot on 22nd Street NW that they're trying to get ready for an affordable housing project. He's spoken with Habitat for Humanity who's interested in doing more homes. They're interested in this lot and maybe a different concept. They could do maybe four row homes. We're getting the lot ready and would do a Request for Proposal to see what else is out there. Hopefully we can get it ready before the end of the year. We did get the land for free and his thought is that they could convey it for free, but if there are other thoughts, let him know.

He's had conversations with the management group at Colonial Manor about potentially expanding. They're open to the idea and this is still in discussion.

The City owns a lot on South Cedar Avenue behind Fareway that is being marketed for sale right now. The thought is to make it for sale for housing.

Klecker said that they will be applying for a tax credit project for Eastgate Phase 2 in July. This would be a 49 unit apartment. They are talking with Rise Modular about using that technology. They'd be utilizing TIF and would probably have to convey the land for free. They would also potentially dedicate up to 12 housing vouchers to this project. They're working on the application. Osman asked if it's possible to ask for three-bedroom units. Klecker said he will check. He said that the City is partnering with the developer on this and we can let them know if there is a need we're trying to meet. They have to make sure everything works, as this is a very financially tight project. He said he will check into it. He said construction probably wouldn't be until 2025.

The next meeting will be Monday, May 22, 2023.

Adjournment: There being no further business, a motion to adjourn was made by Hussein, seconded by Kropp. All Commissioners voting Aye, the motion carried. The meeting adjourned at 4:42 p.m.

Respectfully Submitted,
Troy Klecker
Executive Director

OWATONNA PLANNING COMMISSION MINUTES
MAY 9, 2023 - DRAFT COPY

The Owatonna Planning Commission met in regular session at 5:30 pm in the Gainey Room of the Owatonna Public Library with Chairperson Kelly Rooks conducting the meeting. Present at roll call were Commissioners David Effertz, John Eickhoff, Mark Meier, Nick Peake, Kelly Rooks, Rachel Springer-Gasner, and Mark Wilson. Community Development Manager Greg Kruschke, Planning Specialist Sydnee Stroeing, and Planning Technician Kristen Kopp were also present.

A motion was made by Effertz and seconded by Peake to approve the minutes of the regular meeting of April 25, 2023. All Commissioners voting Aye, the motion carried.

Application VAR-2, which is a request by Craig Korvela on behalf of Roma Italian Eatery, LLC for a sign dimension variance of 26.7 square feet in surface area where 16 square feet in surface area is required for a projecting business sign at 203 Cedar Avenue North was withdrawn by the applicant.

Preliminary and Final Plat of Thompson Corner Addition, which is a 3.35± acre tract of land zoned I-2 Heavy Industrial District, owned by Thompson Sanitation Inc. and located at 1255 Kilworth Drive NW, was presented by Planning Specialist Sydnee Stroeing. (Refer to report on file.) She said that they have heard back from Soil and Water Conservation and they have found no evidence of wetlands on this property.

Conditional Use No. CUP-5, which is a request by April Paxton on behalf of Mohs Homes, on behalf of Thompson Sanitation, Inc. to allow for the outdoor storage of recycling dumpsters and semi-trailer and truck storage on the subject property at 1255 Kilworth Drive NW, was presented by Planning Specialist Stroeing. (Refer to report on file.)

Public hearing for both requests opened at 5:38 pm. John Schulte of Jones, Haugh, and Smith was present on behalf of Thompson Sanitation. He said that the applicant has one request. One of the Engineer's comments were for a 10' easement on all sides of the proposed plat. There are already easements on all sides of this plat except the southeast side. Assuming that the request is due to either future utilities or drainage, the applicant would request that the requirement would be a 5 foot easement on their side and similarly the City could provide a 5 foot easement on their side of the lot line as is typically done. Andy Michaletz, who owns property on State Avenue near this request, handed out pictures he took about a half an hour ago. The pictures were of a similar facility that came before this very Commission a few years ago for a conditional use permit for the same type of business with outdoor storage and dumpsters. They were told to keep it neat and orderly; it's anything but that. He said he doesn't know what we can do with a conditional use permit to put some more teeth into it. He said it looks like a nice plan, but he doesn't know how the business will be run. He doesn't know if it's an unenforced conditional use permit, but that's what happens—there are mattresses piled up, appliances, roll-offs with garbage in them, stuff blowing around. He said he thinks of the existing recycling facility run by a different company. It's a disaster—especially on Monday mornings. Things aren't attended to over the weekend and it piles up—it's like a garbage dump. We want to prevent that from happening. We have a wonderful commercial corridor out there on State Avenue. He said he wants to make sure what is decided today has more than just vague language. He said the submitted drawing shows that all of the dumpsters are placed within the required 50 foot setback. He just wants to clarify that the conditions are 50 feet, as the drawing is showing the storage within the 50 feet. He said it's a tough thing because the County wants this here. He thinks it should be out at the new County shop. He said the conditional use runs for the entire duration of the property, so what the Commission decides today can run in perpetuity. There has to be a way to balance the needs of the applicant and the neighbors and community. Public hearing closed at 5:44 pm. Eickhoff

asked about the 50 foot setback and if that condition would change the set up. Kruschke said absolutely. They will have to slide the dumpsters back onto the paved area and there is plenty of space to accomplish that. The setbacks will have to be adhered to. Meier said the conditional use permit is based on several items and asked if the permit can be retracted? Kruschke said that is correct—through a hearing process as laid out in the Zoning Ordinance, a conditional use permit can be reviewed and thus revoked if they are not meeting the conditions through a process similar to this. Eickhoff said that overall this is a need in the community. Trash blowing around is definitely an issue, but he said he thinks they are doing some things to address that as well as the conditions that are being proposed.

A motion was made by Eickhoff and seconded by Springer-Gasner to recommend City Council approval of this preliminary and final plat of Thompson Corner Addition with the following conditions:

1) The title opinion shall be approved by the City Attorney prior to recording of the final plat.
2) The final plat shall be recorded within 60 days of the date of approval.
3) Perimeter drainage and utility easements shall be dedicated on the final plat as proposed.
4) See Engineering comments for engineering and stormwater conditions.
5) No access allowed from State Avenue (CSAH 45). Access is only allowed from Kilworth Drive per Steele County approval.

All Commissioners voting Aye, the motion carried.

A motion was made by Eickhoff and seconded by Effertz to recommend City Council approval of this conditional use permit to allow for the outdoor storage of dumpsters, semi-truck trailers, and trucks with the following conditions:

1) See Engineering Department staff review comments for stormwater conditions.
2) No outdoor storage within the required setbacks of 50’ of the front and rear lot lines and 30’ of the side lot lines.
3) If privacy fencing is within the utility easements, applicant must apply for a fencing permit.
4) Continued maintenance and upkeep of fencing and landscaping to ensure adequate screening of public rights of way.
5) Dust control may be required to meet outdoor storage performance standards.
6) Outdoor storage shall be maintained and in good condition.
7) Shall be contingent upon the approval of the final plat of Thompson Corner Addition.
8) All permits shall be issued by the City of Owatonna prior to work commencing for that item.
9) Routine debris and trash clean ups are conducted to ensure cleanliness of the area.

All Commissioners voting Aye, the motion carried.

VACA-23-4, which is a request by Chad Lange, Festal Farms, and Prairie LaSalle Partners to vacate all rights of way and utility easements within Good Samaritan Addition, was presented by Community Development Manager Greg Kruschke. (Refer to report on file.) Back in the late 2000s there was a plat called Good Samaritan Addition as well as a PUD. With that final plat, it laid out these streets of 7th Avenue NE and Stoneridge Lane NE. At this time the applicant is requesting to vacate the streets as well as the easements. To date there are no utilities or anything that actually physically exists on this property.

Application RZ-2, which is a request by Prairie LaSalle Partners / Chad Lange, Festal Farms for a Planned Unit Development (PUD) of Mineral Springs Estates, a residential development with single family, two family and multi family units to be constructed, was presented by Community Development

Manager Greg Kruschke. The total development consists of 328 units over the 82 acres for a total density of 3.96 units per acre. The development also consists of more than 16 acres of open space. (Refer to report on file.) Kruschke explained the different types of units within the development. There is single family detached around the outside transitioning to some heavier, more dense units in the center of the development and then transitioning back to single family detached units again. The intent of this development is to create a walkable neighborhood. They have sidewalks on both sides of all streets and a number of 10 foot wide trails. They are maintaining areas around the wetlands. The development has submitted an Environmental Assessment Worksheet that will be published by the Environmental Quality Board next Monday. The Planning Commission will be holding a hearing on that later. There will be a 30 day comment period and eventually the City Council will need to determine either a finding of no significant impact or a determination for an environmental impact statement. The plan is that they will all marry at the July 5 City Council meeting. The developer held a neighborhood meeting on Thursday, May 4, and his understanding was that 20-25 people attended. He said that there are a number of waivers that are being requested that vary from standard zoning requirements. They have a private street, which requires a PUD. They also have multiple principal buildings on one lot. They will come forward with a Common Interest Community plat so that they can individually sell these units separately. They'll have an association that maintains all of the common space. They're requesting that some units have a closer front yard setback of 20 feet because the parking will be in the back on the private drive. With that, they also want to balance the street, so they are requesting that the single family detached homes across the street have a 25 foot front yard setback. They are requesting a 15 foot setback on the corner lots. They're asking for a minimum side yard setback of 6 feet that will meet a total of 15 feet between structures. They're asking for a rear setback variance of 25 feet for Outlot K. With the detached garages, they will have 5 feet between garages. Phasing for the proposed development is a four-phased development. Phase 1A allows them to start construction of units this fall. As they're grading this, they will mass grade Phase 1A and Phase 1B, but Phase 1B will probably be next spring. Phase 2 on the west and Phase 3 on the east and Phase 4 on the north end. They hope to finish this in 8 to 10 years but that will depend on the market. Some of the concerns will be addressed in a development agreement. They meet all of the density requirements. Overall parking is a minimum of two stalls per unit. The City has identified a sanitary sewer main on Stoneridge Lane NE. Stormwater will outlet into a pond for Phase 1A. He shared a number of photos of what the units will look like. Gable roofs are a theme as well as a front porch entrance area. Colors tend to be earth tones and the garages will be required to tie into the principal structures. He said that the City is requiring at least three species of trees throughout. The trash enclosure will need to be discussed. They do need a lighting plan for the private areas. They will also be providing sidewalks. There are more than 16 acres of open space. It's undecided if this will be privately owned. They are proposing a monument style sign at each of the six entrances. Staff is recommending that those signs be knocked down to 32 square feet which is our standard, and also that each of these signs is located outside of the public right of way. That takes away any ownership issues and keeps them away from the snowplows.

Preliminary Plat of Mineral Springs Estates, which is an 82.72± acre tract of land to be zoned PUD, Planned Unit Development, requested by Prairie LaSalle Partners, owned by Chad Lange, Festal Farms and located east of St. Paul Road and north of Lee Street NE, was presented by Community Development Manager Greg Kruschke. (Refer to report on file.) They did a traffic study and there weren't any issues and no recommendations for anything different.

Public hearing for all three requests opened at 6:18 pm. Gary Sigler, 2819 St. Paul Road NE, asked how they came up with the name Mineral Springs Estates when it's not anywhere close to Mineral Springs. Craig Britton with Widseth, representing the developer, was present and said even though the rights of way will vary, the street width will remain the same at 37 feet. The nice thing about the layout that is being proposed with parking in the rear of the multi-family units is that it eliminates curb cuts on the

street. He said as for the name, the developers have been in this area for a long time and that name kind of grabbed them. He said it is something that will provide a need for the community with the mix of housing units. He thanked the Commission for their time. Jennifer and Chris Candulo, 670 Lee Street NE, said they were at the neighborhood meeting and had a few questions and a few concerns. Jennifer said the first question is about the safety around the water park. Widseth said they'd be bringing their construction equipment off St. Paul Road. There is a lot of traffic that goes to the water park and she wanted to know what was in place to ensure safety during construction and after the development is finished. Chris said that Phase 1A has 7th Avenue NE as the only point of access for a period of time, even into Phase 1B. It looks like there are several homes, so there will be a lot of traffic, maybe 60-100 cars, moving up through the neighborhood up 7th Avenue NE with no other point of access into this section. He said you have Hemlock Avenue, that's not built out yet until some point in Phase 1B, maybe. There is a choke point on 7th Avenue NE and 26th Street NE. He said that there are many neighborhoods in town that have many access points. Here there is one access point for a brand new neighborhood. There need to be more access points so we are not funneling through a neighborhood. He said when they were doing Lee Street NE, they had put speedbumps from 26th Street NE because people thought it was a speedway. He said they need some protection as there are a lot of kids. Jennifer said that one of the concerns is that Phase 1B is one of the denser areas, and you will have one access point for a while. Chris said that there was talk of the ponds reconditioning the water and that was dependent on the ponds being maintained. He wanted to know who's going to be maintaining the ponds. There weren't too many answers at the neighborhood meeting. If they're only good for 10 years, what happens after that? Jennifer said that another concern is the impact of traffic on 26th Street NE and St. Paul Road. It's currently a four-way stop, and prior to the roundabout being done at Cedar Avenue North and 26th Street, there was always a huge traffic back-up. Now you're adding the apartment buildings. She wondered if they would have more back-ups at that intersection. She wondered what safety and traffic control would be put in place because now it's just a crosswalk. The builders have talked about matching the current neighborhoods. She said that the lots don't match up with the current design, as the 11 proposed lots don't match up with the 10 lots to the south fronting on Lee Street, stating they are staggered. Jennifer said another question was within the easement, there are some fairly mature trees and they were concerned about whether they'd be able to continue to be there or would they be torn out? She said they had a couple of different answers on that. Chris said that there is quite a bit of waterflow when it rains. You can actually see a river of water coming through between lot lines. He said he understands that the desire is to push the water north rather than push it to the south and he wanted to know that was the actual plan. Tom McInerny, 675 Willow Brook Drive NE, which is somewhat to the south of Lee Street NE. He wanted to reiterate the terrific choke point for a large number of potential people moving into the area. The access points are restricted to only one access point. He said he appreciates the comment that it is a speedway. Further down the line there is an elementary school. The idea of putting a high density into that area at the same time as the apartment building going on by the roundabout—you're creating all kinds of traffic situations that he doesn't know if they're ready to handle yet. You're talking about traffic lights and roundabouts. He said there is an awful lot of stuff going into a small space all at once and he's concerned about that. He said that the wetlands that exist are minimal and it would be interesting to see how the flow plan is going to work. He said to the south of Lee Street where they are, they get an awful lot of water sliding down the rather poorly situated storm drains. It's a funny situation. Why the big move to put high density into a place that's maybe not so high density appropriate? Maria Hove, 675 Lee Street NE, said that traffic is a huge concern. She said it's really upsetting to hear a City person say that we don't need big, wide streets. She said that her street isn't a big street. If you lived on Lee Street, you would know. People park on both sides of the street, and sometimes you can't drive side by side. Their street is narrow. It has not held up. She and her husband put a request in to put the street in. It's falling apart at the end of street mostly because there are water issues in the neighborhood. She said if they get a bad rainstorm, they have to wonder, is this going to be the storm that I get a wet basement? They have a lot of water issues. The

drainage pond at the end of the road doesn't get taken care of. It rises and rises and rises when there is a bad storm, and maybe someone complains to the City and finally someone comes out and does something about it. We can't do that with this development; somebody needs to know who's dealing with these ponds and who's taking care of them. It's not fair to the rest of them. The water has a natural flow in that area. Knowing what happens in her backyard and Tom McInerny's backyard, you guys were supposed to handle that. We're the high spot and it's supposed to drain a certain way, but it doesn't. There has been sitting water for four days. The City's opinion is, after so many days, if the water recedes, they're not going to deal with it. These developments will increase the water in their backyards. She said that Hemlock will not happen until those people on that one lot will sell their house. They won't sell to put that road through. She said 7th Avenue is it. She wants to see safety and people in the neighborhood are really concerned about water issues. Donna Bong, 710 Willow Brook Drive NE, said this is her fourth year here in Owatonna. She lives one house off of 7th Avenue NE. She said that at school time, there is a lot of traffic on 7th Avenue. She said they were promised by the builder that construction traffic will not go up and down 7th Avenue and she hopes that's true. She said she was told by the builder that this would not happen, that his truck would be the only truck going through 7th Avenue. She said she came from the Chicago area where, when you were done with construction for the day, the last hour or so was spent cleaning the street. She said she's concerned about the mud on the street. Crossing 26th Street from 7th is deadly – it's not an easy cross. You have traffic coming from the north and south. There are people turning onto 7th Avenue. She said that she spent four minutes waiting to turn onto 26th Street this morning. She said that that crossing is deadly. Tom McInerny said that the speed limit is listed at 45. Donna said that if they don't believe her, go at 7:45 or 8:00 and try to cross the street. That really needs to be addressed from a safety issue. She said that the builders also promised they'd be using Stoneridge as their way in and out of the area. If they have to come down 7th Avenue that will be a huge issue. It's going to be eight to ten years, and they have to put up with that for eight to ten years? There's got to be a better way. Amy Bong, 710 Willow Brook Drive NE, said she works from home and she sees a lot. 90% of this town has a recreational vehicle. Their street is not wide. Why is it when she has called the police non-emergency number numerous times, nobody comes by, because she was told that they're supposed to rotate days which side they can park. Not one time did a police officer stop or ask them to move. There are little kids up and down that street—it's going to take someone being killed. She's seen the little kids up and down the street—cars have to go way around because you have a trailer, or a boat. She said if you're going to do this, make people rent something so that they can put RVs somewhere other than the street. She said there are already traffic issues on 26th Street. She has a kid who just learned how to drive and it's scary for him. She's worried that he's going to get hit or he's going to hit something. She said she's worried about safety issues. She said she comes from Chicago and she knows all about safety. There are a lot of issues in town that need to be addressed. She doesn't see enough police officers, there's always something going on, there's a volunteer fire department. There is staff, but God forbid there's a major emergency. She witnessed an accident on 26th Street last winter—a car full of kids got thrown into Good Shepherd parking lot. It takes 10-15 minutes for the police officer to get down the road because this town doesn't believe in salt because they're worried about the water. What are you going to do to make the streets better? You Band-Aid the streets. This is a big huge impact on that side of town. She asked if any of the Commissioners live on that side of town, because she sees it all day long. Something needs to be done with the RVs parking up and down the street because it's frustrating. She asked what they're going to do about Wi-Fi. She said she is a freight broker—she provides everybody everything here—food, clothing, and everything else. If she can't get Wi-Fi, she can guarantee dozens don't get what they need. She said that now we get a cable company that's based in Evansville, Indiana. Have you been there? You can see flying saucers because there's nothing there. She said the biggest concern is safety and RVs and boats on the street. She never sees a cop going up and down the street, even when she's called. There are no street lights in this town. If you don't have street lights, how are you going to see the boats parked on the side of road? This is a recreational state—you have space issues now. What are you going to do when

you're adding all these people here and there is nowhere for them to go? She said she never saw the builder once last week, and her office window faces the street. She said she's the crotchety neighbor that's going to call on you because she doesn't think it's appropriate or right that you have your big vehicles blocking everything and the kids can't go up and down the street. If you're going to do that, you need to provide those cones or those kids or have a flagger sit up and down at every corner so someone doesn't get hit. Kids are getting hit at school and God forbid it happens again. You're going to have all these people—you don't have enough staff. Marie Hove, 675 Lee Street NE, said that 7th Avenue is the only street. All the high density housing will have a private drive and will take care of cleaning the back part. The City is responsible for cleaning up 7th Avenue in the winter. She said that this winter she had a storm and she didn't have her road cleaned until 1 pm in the afternoon. She said last winter there were two storms that her street didn't get plowed out until 11 or 12:30 pm. She said that these people are paying an awful lot of money to live in this neighborhood, and they won't even be able to go to work. They don't live by the hospital, the fire station, or the cop shop. She said she doesn't know if we have enough plows or enough people. She's from Northern Maine. It's not unusual to get a foot of snow overnight, but the streets are plowed and sanded, and in the morning you didn't even know they had a foot of snow. Don't wait until 10 minutes to five to start plowing the roads. The roads are a big deal. When you put in a development like this, it will add traffic and that's a big deal. She said she doesn't know if they get that. Public hearing closed at 6:49 pm.

Kruschke said that the Planning Commission is a volunteer commission appointed by the mayor and City Council to serve and discuss land use issues, to take public comment, and give a formal recommendation to the City Council who makes the final decision. All of these comments will go to City Council packets as they go forward to City Council. He said that their comments are heard and will be passed on and they will see them verbatim. He said they had a concern on 7th Avenue when they started meeting with the developer, that's where the construction coming off St. Paul Road came from. They will keep that traffic off 7th Avenue and off Lee Street. They will build a construction entrance at the future Stoneridge Lane. There will be a lot of truck traffic coming in there. As we know those items continue to go with the truck traffic as they move forward. As we look big picture, Steele County is the road jurisdiction of 26th Street or otherwise known as County State Aid Highway 34. Steele County did a corridor study in 2015 on how future access would look on 26th Street moving forward. Hemlock Avenue was identified as the through street going north and south as the connection point. When Hemlock is constructed, the County plans to close 7th Avenue and that will no longer connect. 7th Avenue was built as a convenience moving into that area because Hemlock Avenue wasn't able to be constructed at that time. The plan and the reason for some of those delays is the four-way stop at St. Paul Road. The idea is to push the traffic to St. Paul Road and Hemlock Avenue in the future. 7th Avenue would be a secondary local street in the future. Theoretically the traffic would come out Lee Street to St Paul Road and down to 26th Street. That isn't always what happens in action, but that is a way to reduce those wait times. The applicant was required to provide a traffic study. Working with traffic engineers, we had them study a number of intersections around the area, from Hemlock Avenue and 26th Street, St. Paul Road and 26th Street, Lee Street and St. Paul Road, as well as the future connection on Stoneridge Lane and St. Paul Road. They are not recommending any intersection buildout improvements. We also had them examine the first phase. I believe they defined it as a five year lookout on a 2028 intersection analysis of 7th Avenue and 26th Street. Within the traffic study, they have not seen any issues or have any formal recommendations of improvements that were not included in the Steele County Corridor Study. Thus you don't see any recommendations with regards to traffic in our staff reports or from the City Engineer. We do recognize the street width item, however, the City tries not to regulate people parking on the street and allow people to have as many rights as possible as they go through there. The City does have future maintenance concerns with the wider streets. The majority of our City streets are actually 37 feet wide. Our higher classification streets are wider to allow for turn lanes and things like that. A 37 foot wide street allows for

two lanes of travel as well as parking on both sides of the street. If there are winter enforcement issues, that's an enforcement issue as well as speed limits. Pond maintenance is required and monitored by the Minnesota Pollution Control Agency. There are annual checks that are required that the City has a Water Quality Specialist that performs a mandated checklist. If the water is going up and down in those ponds, the ponds are designed to take the water and fill up and take 48 hours to drain back down. There are standards to the design of how these ponds are made. As far as the overland drainage—this is designed to drain to the backyard and then drains off to the sides. As some of these homes are built, some people re-grade these areas and we end up with damming issues that have to be resolved. As we go through, we know Widseth isn't very happy with the City with the amount of requirements as far as stormwater calculations, detailed grading plans, house elevations, emergency overflows, and a very detailed package of how the stormwater will work through this development. That is a very regulated process and very designed process by the Civil Engineer society There are some very common standards. The City does recognize that Owatonna has had a number of drainage issues, however that is why we have strengthened our standards. The review on this stormwater side will be thorough and accurate. Does that mean that there will be cattails or long grass around those ponds. Absolutely. Some of that is a quality issue to take the sediment out and help filter into those ponds, as well as keeping people out of the ponds. That's not always how they look, but that's not feasible with these stormwater ponds. As far as pedestrian safety – they do have the trail on St. Paul Road. Construction traffic is going to have to stop as they're coming in and out of there. Stoneridge Lane will be a regular street and a four-way intersection from now going forward. There will be some stop signs on Stoneridge at St. Paul Road. We did not want the construction traffic going down Lee Street and up to 7th Avenue from the safety side of things. We know there are a lot of kids out there, and if we can keep the heavy equipment away from the kids and pedestrians, it makes things a lot easier. He said as far as the lot lines matching on the south side of the development, we don't get into how they match across. At the end of the day, the houses aren't going to match as far as building envelopes. There are areas around town that stagger. We keep them how they fit in so the lots measure out so they can fit a structure. As far as tree preservation in the wetland area. That area will be clear cut in the stormwater area, but the wetlands will be avoided and there will be buffers around that area. We see the advantage to keeping as many trees as possible, and the developer has an interest in that, but we do have to see where the ponds work out. As far a development stormwater, generally speaking, when we develop areas and are able to get it out of original agricultural drainage where water flows in its natural direction, we are able to see a little improvement. That's where the emergency overflows come in and we make sure they are not blocked or impeded. That has been significantly tightened down in the last 10 years. As far as density, there is some in the middle. Overall, this development is just shy of 4 units per acre. When you get into high density areas, it's a little bit subject to the eye of the beholder, but the City has no concerns. This Lee Street area has some smaller lots than standard single family areas. The Lee Street neighborhood is actually zoned R-2, which is a low density residential district. It's a step down from an R-1 Single Family Residential District as far as lot size. They can go down to 66 foot wide lots that are only 7,800 square feet in area. Comparatively speaking, the R-1 lots are required to be 75 feet wide and 9,000 square feet in area. Generally speaking around town, there are a lot of 80 – 90 foot wide lots, but with the costs of utilities, there are certainly some benefit to doing some smaller lots. As far as snow plowing, we recognize that everyone has a desire to be one of the first plowed out. The City Council adopts a Snow and Ice Policy every fall and goes through a public process. That is where they set their priorities and allocate their resources as far as number of plows, types of plows, number of drivers, and overtime. Those are more budgetary decisions than this group deals with. OPU has a street lighting policy. OPU will install those lights at the developer's expense. There is a full section in the development agreement on street lighting.

Craig Britton, Widseth stated that all of the stormwater is regulated by City and MPCA. The goal for the overall grading plan is to keep the water away from the existing residential. The overall flow is to the

northwest the pond will serve all of Phase 1A and most of Phase 1B. There is some on the south side. That direction of flow is straight to the west. As far as any trees – our first objective is to get the water away. They will try to preserve as many trees as they can. He said there was concern about the maintenance of the pond. There is a lot of runoff from the farm field. With the increased grass coverage and impervious surface less silt will be carried to the ponds. They're taking it and capturing it into the pond and gives them a chance to settle out. That should help the sediment. As far as the streets holding up, we have heavy clays in Owatonna which holds moisture. We're proposed a sub-drainage tile system behind the curb. We find that this helps in the long term condition of the street. With the traffic, we do have to meet requirements with the fire department. They have to have one outlet per 50 units. As Phase 1B begins to develop, they will have two outlets. Wilson asked when Phase 1B begins, Stoneridge Lane will be open. Craig said not until Phase 2 goes. Eickhoff wondered if the City could address the traffic. Kruschke said that if for some reason Stoneridge needed go earlier or doesn't go in, it could be negotiated. That is why they are being platted as outlots at this time. There's the importance of Stoneridge from the City side of things. From the developer side of things, Stoneridge serves no purpose. They don't have a lot of need for it. Phase 2 is the balance we found for getting this constructed. We asked for a five-year look within the traffic study and it shows no issues. We have some streets that are designed to carry everything. Eickhoff said he used to live in that area and that is a busy intersection. Kruschke said that Hemlock is outside of this developer's control. This commission could make a recommendation that CC needs to look at that. It would have to be acquired and annexed. Up until this point, there was no need to connect Hemlock. Steele County does have spacing guidelines across 26th Street. Eickhoff said with Phase 1A, all of these lots won't be built this year. Craig said correct. Eickhoff said that gives the City time to see how that's developing.

A motion was made by Wilson and seconded by Meier to recommend City Council approval of this vacation of a portion of all public rights of way and all utility easements within the plat of Good Samaritan Addition as described above with the following conditions:

1) Vacation is contingent upon approval of the plat of Mineral Springs Estates.

All Commissioners voting Aye, the motion carried.

A motion was made by Peake and seconded by Meier to recommend City Council approval of this PUD of Mineral Springs Estates with the following conditions:

1) The Good Samaritan PUD adopted as Z-302 is hereby repealed and replaced with the PUD of Mineral Springs Estates.
2) The PUD is contingent upon the approval and recording of the Mineral Springs Estates Plat.
3) The Developer and the City shall enter into a Development Agreement laying out the roles and expectations of the development.
4) A full photometrics plan shall be submitted and approved by the City.
5) All signs shall be issued sign permits.
6) All CIC plats and declarations shall be submitted and approved by the City.
7) A turn around area shall be provided on all temporary dead end streets.
8) A trash enclosure plan shall be submitted to the City prior to the Second Reading.
9) All permanent signs shall be reduced to 32 square feet and a maximum of 8 feet in height.
10) All signs shall be located outside of the public right of way and on private property.

11) All grading, utility, and stormwater work shall be approved by the City Engineer prior to commencing any construction.

All Commissioners voting Aye, the motion carried.

A motion was made by Effertz and seconded by Eickhoff to recommend City Council approval of this preliminary plat of Mineral Springs Estates with the following conditions:

1) The final plat shall be approved within one year of the date of approval of the preliminary plat.
2) The title opinion shall be approved by the City Attorney prior to recording of the final plat.
3) The final plat is contingent upon the approval of the PUD referred to as RZ-2.
4) The development agreement will contain provisions and timing with regards to the construction of Stoneridge Lane and the trunk main for the sanitary sewer.
5) A development agreement will need to be recorded along with the final plat.
6) A final decision on the Environmental Assessment Worksheet shall be made by the City Council prior to approval of the final plat.
7) The plans shall adhere to the approved wetland delineation and replacement plan as determined by the Soil & Water Conservation District.
8) Temporary turn arounds are required to be constructed at all dead end streets that do not connect immediately as required per fire code.
9) All conditions included in the City Engineer's memo shall be met.

All Commissioners voting Aye, the motion carried.

A motion was made by Meier and seconded by Eickhoff to nominate Kelly Rooks as Chairperson and Mark Meier as Vice Chair Person. All Commissioners voting Aye, the motion carried.

Kruschke gave an update on the 2050 Comprehensive Plan Update. He said that City Council approved the contract last week and the attorney is working through that. There was a conversation on starting the student led focus groups prior to Memorial Day. They're working with the Social Studies department for May 24 – they'll hit all four hours and have lunch conversations as well.

There being no further business to come before the Planning Commission at this time, a motion was made by Meier and seconded by Springer-Gasner to adjourn the meeting at 7:23 pm. All Commissioners voting Aye, the motion passed.

Respectfully Submitted,

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Greg Kruschke
Community Development Manager

Department Reports

COMPARISON REPORT OF BUILDING DONE IN CITY OF OWATONNA IN YEARS 2022 AND 2023														Ken Beck, Building Official	
	DWELLINGS		ACCESSORY		COMMERCIAL		INDUSTRIAL		ADD. & ALT.		DUPLEX/APTS		DEMO	TOTAL	
Month	NO.	VALUE	NO.	VALUE	NO.	VALUE	NO.	VALUE	NO.	VALUE	NO.	VALUE	NO.	NO.	VALUE
Jan '22	0	0	4	7,640	14	104,970	11	3,775,051	68	419,719	0	0	0	97	4,307,380
Jan '23	0	0	5	16,600	8	443,880	7	5,117,850	66	494,614	0	0	0	86	6,072,944
Feb '22	0	0	12	22,742	24	1,753,403	16	4,817,476	139	855,061	0	0	0	191	7,448,682
Feb '23	0	0	8	24,850	22	1,113,838.30	11	25,861,730.75	136	834,982.70	0	0	0	177	27,835,401.75
Mar '22	5	1,901,925	33	67,493	35	2,161,547	26	5,560,379	284	1,747,846	0	0	1	384	11,439,190
Mar '23	1	200,000	17	44,100	42	2,497,648	20	26,251,710	243	$ 7,323,261.26	0	0	0	323	$ 36,316,719.26
Apr '22	5	1,901,925	51	96,566	58	2,827,402	30	5,592,069	411	2,785,871	0	0.00	0.00	555	13,203,833
Apr '23	4	1,968,586	26	96,900	74	31,047,283		**see below	329	8,699,343.89	0	0	1	434	41,812,112.89
May '22	6	2,141,925	62	112,316	75	5,328,038	36	6,191,103	585	4,336,520	0	0	0	764	18,162,974
May '23															
Jun '22	8	3,061,925	76	155,666	107	6,779,903	40	7,384,127	738	6,392,230	0	0	3	970	23,826,923
Jun '23															
Jul '22	10	3,631,925	94	282,866	130	8,869,882	48	8,653,897	870	7,489,327	2	10,500,000	3	1,155	39,427,897
Jul '23															
Aug '22	11	4,031,925	101	303,866	160	10,139,786	56	8,902,182	986	8,302,718	3	17,000,000	3	1,320	48,680,477
Aug '23															
Sep '22	12	4,531,000	126	332,386	184	11,910,289	67	19,440,272	1,104	10,577,868	4	24,500,000	3	1,499	71,291,815
Sep '23															
Oct '22	16	6,306,000	142	368,736	197	13,206,075	72	19,560,069	1,223	11,308,018	4	24,500,000	3	1,657	75,248,898
Oct '23															
Nov '22	16	6,306,000	152	380,936	209	17,318,397	79	19,922,914	1,320	13,572,135	4	24,500,000	3	1,783	82,000,382
Nov '23															
Dec '22	16	6,306,000	164	405,736	211	17,445,397	87	20,108,379	1,398	14,120,570	4	24,500,000	3	1,883	82,886,082
Dec '23															

**Starting April 2023, Commerical and Industrial are combined

Owatonna Building Inspection Department Comparison Report- Construction to Date 2022/2023

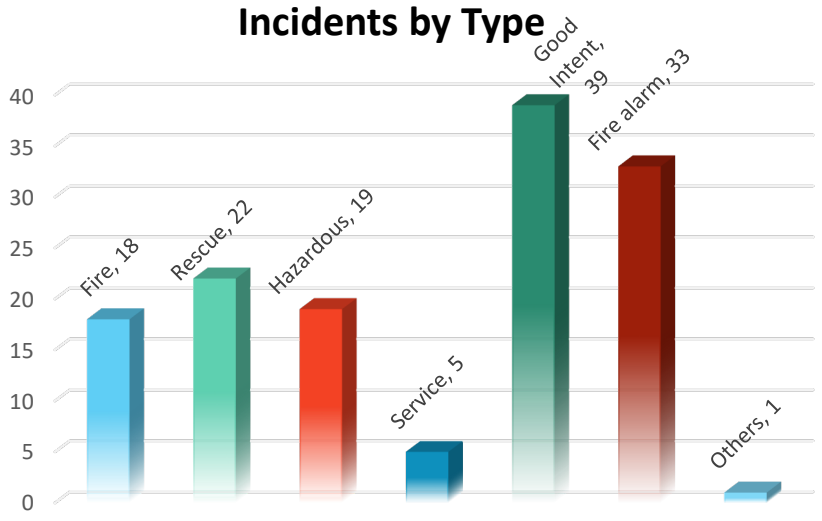
Construction Report for Permits Issued through April, 2023

TYPE OF WORK	2022 PERMITS ISSUED	PERMITS ISSUED FOR CONSTRUCTION COST	Units	2023 PERMITS ISSUED	PERMITS ISSUED FOR CONSTRUCTION COST	Units
NEW DWELLINGS	5	1,901,925	0	4	1,968,586	0
ACCESSORY BUILDINGS	51	96,566		26	96,900	
(INCLUDES GARAGES, UTIL. BLDGS, SW. POOLS, ETC.)						
COMMERCIAL AND INDUSTRIAL PR	88	8,419,471		74	31,047,283.00	
RESIDENTIAL ADD. & ALT.	411	2,785,871		329	8,699,343.89	
DUPLEXES & APTS.	0	0	0	0	0	0
(INCLUDES ATTACHED SF)						
DEMOLITION PERMITS		-		1	0	
TOTAL PERMITS ISSUED	555	13,203,833	0	434	41,812,113	0

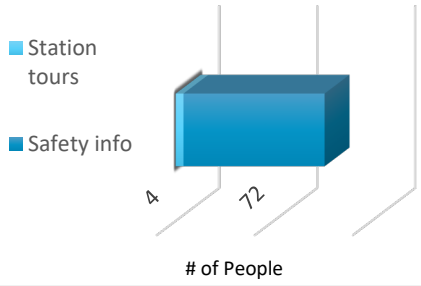
OWATONNA FIRE DEPARTMENT DASHBOARD

2023 STATISTICS

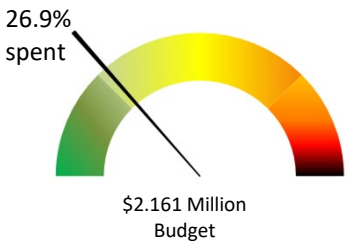
Incidents by Type



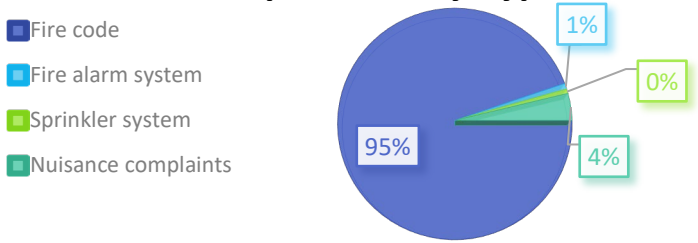
Public Education



Expenditures

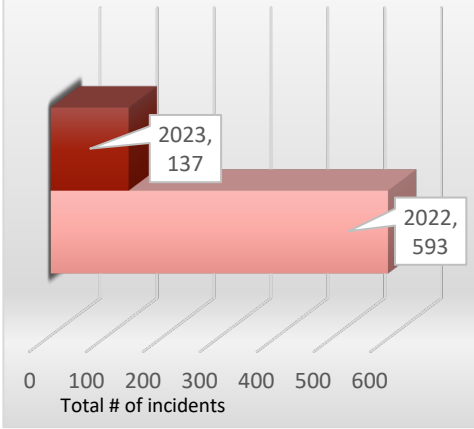


Inspections by Type

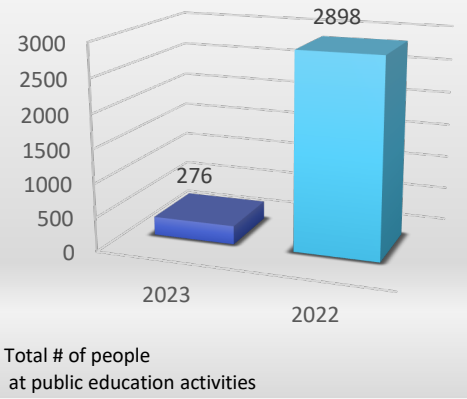


2023 VS 2022 STATISTICS

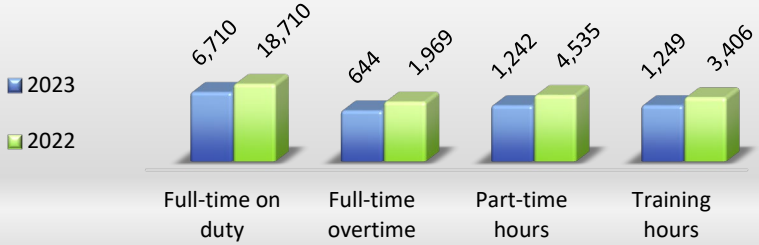
Incidents



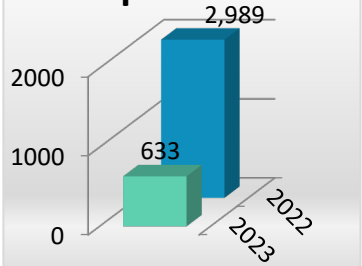
Public Education



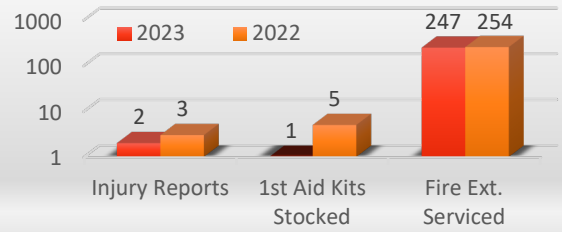
Staff Hours



Inspections



Safety Services



Updated through April 2023

2023 OWATONNA FIRE DEPARTMENT MONTHLY ACTIVITY REPORT

INSPECTION SERVICES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2022
Fire code inspections	134	153	201	112									600	1988
Fire alarm inspections	2	1	1	1									5	20
Sprinkler system inspections	0	1	2	1									4	49
Nuisance inspections	3	3	6	12									24	382
Weed inspections	0	0	0	0									0	550
Sprinkler system permits issued	2	2	2	1									7	21
Fire alarm system permits issued	2	0	1	1									4	15
Hood/Suppression system permits issued	0	2	0	1									3	5
Plan reviews	4	7	7	6									24	65
Code reviews	6	1	8	6									21	38
# Knox boxes checked	1	0	0	2									3	14

PUBLIC EDUCATION SERVICES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2022
# people given tours	0	0	4	0									4	307
# people given extinguisher demos	0	0	0	0									0	100
# people at truck visits	0	0	0	200									200	738
# people fire safety information	72	0	0	0									72	1753
# people juvenile firesetters	0	0	0	0									0	0

EMERGENCY RESPONSE SERVICES		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2022
Incidents	City incidents	31	23	22	39									115	482
	Rural incidents	5	3	5	9									22	105
	Mutual aid given	0	0	0	0									0	6
Monthly Totals		36	26	27	48									137	593
Type of Incidents	Fire	4	7	2	5									18	67
	Rescue calls	5	4	3	10									22	119
	Hazardous conditions	3	7	2	7									19	77
	Service calls	1	0	2	2									5	31
	Good intent calls	14	3	12	10									39	113
	Fire alarms	8	5	6	14									33	179
	Others	1	0	0	0									1	7
Monthly Totals		36	26	27	48									137	593
Total training hours		146.00	273.29	338.35	491.00									1249	3406

SAFETY SERVICES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2022
# injury reports	1	1	0	0									2	3
# lost work hours	0	0	0	0									0	0
# fire extinguishers serviced	201	34	0	12									247	254
1st aid supplies checked	0	0	0	1									1	5
Full-time shift hours worked	1724.25	1584.00	1743.50	1658.50									6710.25	18709.75
Full-time overtime hours worked	129.49	159.80	116.81	237.91									644.01	1969.09
Part-time hours worked	268.02	187.00	315.75	471.50									1242.27	4535.00
Monthly Hours Worked Total	2121.76	1930.80	2176.06	2367.91									8596.53	25213.84

Licenses - Permits

Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jeanette Clawson, Administrative Specialist
SUBJECT: Annual Tree Trimmer Permit - Mike Carstens, Austin MN

Purpose:

Council approval of applications received from Mike Carstens, Austin MN for a Tree Trimmer Permit.

Background:

The City Code considers it “unlawful for any person to cut, trim, prune, remove, spray or otherwise treat trees, shrubs or vines which are located on or extend over any public street, boulevard, park or other public place, for another, without a license therefor.”

License will be in effect upon approval for the remainder of the current license period to expire March 31, 2024.

Completed application, payment of the annual permit fee and insurance information was received from for this license.

Budget Impact:

The annual permit fee is $50 for a Tree Trimmer's Permit.

Staff Recommendation:

Staff recommends Council approval.

Attachments:

1. Asplundh Tree Expert LLC Application

City of Owatonna

04/27/2023

T-23-5

Tree Trimmers License

Status: Active **Date Created:** Apr 26, 2023

Applicant

First Name
Patrick

Last Name
Warren

Applicant is:
Corporation

Business Name
Asplundh Tree Expert LLC

Mailing Address
4501 103rd Ct. NE, Suite 180

City, State, Zip Code
Blaine

Phone Number
16129191857

E-Mail Address
pwarren@asplundh.com

Application Information

Vehicle - Make
Ford

License No.
3251436

Vehicle - Make
Ford

License No.
2998505

Employee (name)
Justin Vick

Employee Name
Charles Schneider

Employee Name
Steve Eastman

Employee Name
Patrick Ludlow

Equipment - List equipment, other than vehicles, that will be used
3 additional Ford lift trucks, 4 chippers, Backyard lift machine, trailer

Timeline

Label	Status	Activated	Completed	Assignee	Due Date
License Fee Payment	Paid	Apr 26, 2023 at 5:24 pm	Apr 26, 2023 at 5:26 pm	-	05/26/2023
Administrative Review	Complete	Apr 26, 2023 at 5:24 pm	Apr 27, 2023 at 8:32 am	Jeanette Clawson	05/01/2023
City Council Agenda	Complete	Apr 27, 2023 at 8:32 am	Apr 27, 2023 at 8:55 am	Jeanette Clawson	-
City Council Decision	Active	Apr 27, 2023 at 8:55 am	-	Jeanette Clawson	-
License Issued	Inactive	-	-	-	-

Fire Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Ed Hoffman, Fire Chief
SUBJECT: Retail Fireworks License - Lowe's Home Centers LLC

Purpose:
Standard retail fireworks license for Lowe's for 2023

Background:
This is a standard retail fireworks license application for Lowe's for 2023.

Section 111.03. License Required.
No person shall keep for retail sale or wholesale distribution, sell at retail or wholesale, or otherwise supply or furnish as part of a commercial transaction any permitted consumer fireworks without first having obtained a current license hereunder, paid the required license fee and conspicuously posted the license on the licensed premises.

Section 111.04. License Fee; Term of License.
(A) The annual license fee shall be in the amount duly established by the Council from time to time. The license fee shall cover the administrative and enforcement costs, including the conduct of unannounced compliance checks, inspections by the Fire Chief, inspections by the Police Department or other city department, as well as sampling and testing of the merchandise to ascertain chemical content. Full payment of the required license fee shall accompany the application.
(E) The annual license expires December 31 of each year.

Budget Impact:
Revenue generated for the license is $100.00.

Staff Recommendation:
Recommend approval of the retail fireworks license.

Attachments:
1. Lowes Fireworks Application

Owatonna Fire Department

107 West Main Street
Owatonna, Minnesota 55060-2913

Michael Johnson
Fire Chief
(507) 444-2454

FIREWORKS DEALER'S LICENSE APPLICATION

SECTION 420

1992 ORDINANCE CODE OF OWATONNA

Name of Applicant LOWES HOME IMPROVEMENT 2518

Circle One: Natural person, (Corporation,) Partnership, Business Association, Organization

Address 1280 21st Avenue NW

Phone Number (507)446-4900 Hours of operation M-Sa 6am-9pm Sun-8am-8pm

Street Address of premises to be licensed 1280 21st Avenue NW

Zoning District of licensed premises B-2

Are all real estate and personal property taxes that are due and payable for the premises paid? X YES ____ NO

Does applicant own the business premises? X YES ____ NO If not, a true and correct copy of the current, executed lease and the written authorization of the property owner for the applicant's use of the property for the sale of permitted consumer fireworks is required.

Description of on-site management and parking facilities Sold & stored inside store, along main aisle between registers & garden center door.

Submit detailed site plan illustrating and describing proposed sales and storage areas to be covered by this license. Display in Store

Name of Person in Charge of Premises Timothy Michael Ward

Address ____

Phone Number 507-461-4978

I have read the above mentioned Section 420, 1992 Ordinance Code of Owatonna and have knowledge of its terms and provisions, and I agree to obey all the terms, provisions and requirements of said ordinance and all other ordinances of the City of Owatonna and all the laws of the State of Minnesota.

Signature of Applicant

5/9/23
Date

TNT® FIREWORKS

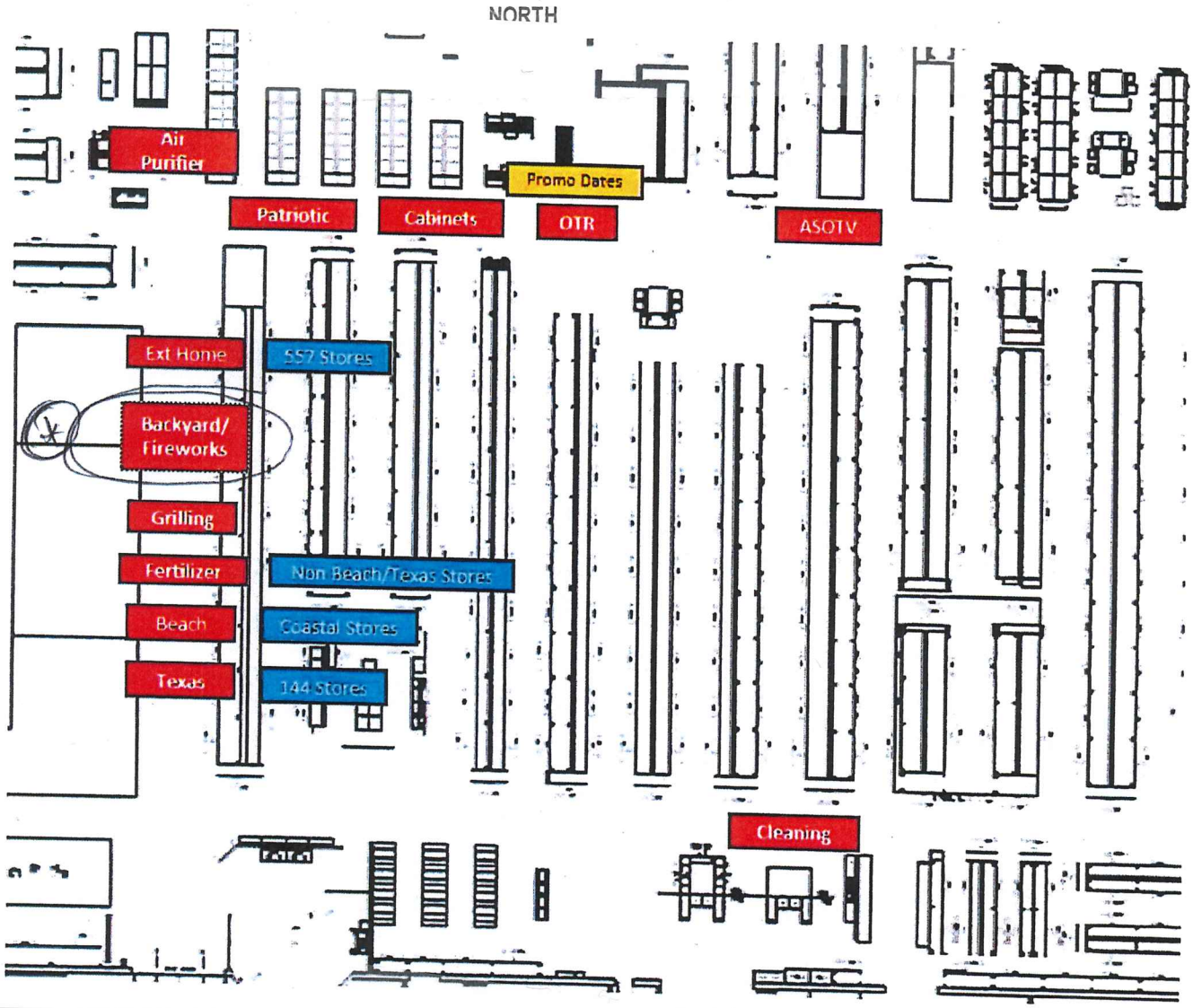
Site Plan Worksheet

ADDRESS 1280 21st Avenue NW

CITY Owatonna **STATE** MN **ZIP** 55060 **PHONE** 507-446-4900

STORE NAME / LOCATION # Lowe's Home Centers, LLC #2518

TYPE OF EVENT: **In-store sales of state-approved fireworks**



SIGNATURE _____ **DATE** 5/9/23

STORE MANAGER / TNT® Representative

Wholesale Distributor — Projected Order — TNT000
OC TNT FIREWORKS — NEWTON

Account No | Date | Location | J2

3210514 | 2/21/2023 | LHI2518

Sold To: LOWES HOME IMPROVMENT -GP
100 LOWE'S BLVD
MERESVILLE NC 28117

Ship To: LOWES HOME IMPROVEMENT 2518
1280 21ST AVENUE NW
OWATONNA MN 55060

Item No	Description	Qty Cases	Total Weight
**********	NOVELTIES	**********	
320680A	FDP 4 PAK SNAP 80 J21	2	42.00 LBS
320739	UNICORN POOP J20	1	14.17 LBS
**********	SPARKLERS	**********	
380398	FDP #8 SPARKLER ASST(110) J22	1	28.11 LBS
**********	COUNTER CASES	**********	
674322	DSP AG SS HALF J23 NR SML	1	
200722	SUPER VALUE PACK REV J09		12.00 LBS
351052	SMOKE BALLS BOX OF 8 J12		3.91 LBS
730644E	SIGN NFPA SM FRWKS NO SMOKING		
201249	WHIMSY J18		14.67 LBS
380320	MORNING GLORY #12-8PK J19		6.25 LBS
201525	FISH ON YP J21		5.51 LBS
201567	DISCO TURKEY PDQ J22		2.50 LBS
201571	MAD TROLLS J22		5.00 LBS
201566A	GAME MODE PDQ J22		5.33 LBS
102716	RAZZLE DAZZLER USA SS RR J22		34.35 LBS
102717	PROUD EAGLE SS USA RR J22		36.96 LBS
102718	COLOR BLAST SS USA AG J22		20.00 LBS
102719	PATRIOT PACK TRAY SS USA J22		14.58 LBS
380393	#8 SPARKLERS ASST 2 PDQS J22		9.50 LBS
200924F	SHORT STACK		6.29 LBS

TOTAL CASES	5
TOTAL WEIGHT OF FIREWORKS	177.61 LBS
TOTAL WEIGHT OF NOVELTIES	83.52 LBS
TOTAL NEC	44.40 LBS

TNT FIREWORKS
CORPORATE OFFICES
P.O. Box 3417 • Industrial Park • Florence, AL 35631
256-764-6131

February 21, 2023

ATTN: STORE MANAGER –

With fireworks season quickly approaching, we need your help with ensuring a representative of your store completes the enclosed application and contacts Fire Chief Michael Johnson at 107 West Main Street (507)444-2454, within a timely manner. We apologize for this inconvenience but know that strong 4th of July sales will more than compensate. If you have any questions or if there is any additional information that the city may require you to provide, please do not hesitate to contact me at 1(800)243-1189. As always thank you for your continued support and we look forward to working with you this season.

Sincerely,

Nikki Newton

Nikki Newton
TNT® Fireworks
newtonb@tntfireworks.com

Fire Department

Fire Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Ed Hoffman, Fire Chief
SUBJECT: Outdoor Public Fireworks Display - Steele County Agricultural Society - July 4, 2023

Purpose:
Seeking approval for a standard outdoor public fireworks permit for the display sponsored by the Steele County Agricultural Society. The display is planned for July 4, 2023 at Steele County Fairgrounds, 1525 S Cedar Ave, Owatonna.

Background:
This is a standard outdoor public fireworks permit for the Steele County Agricultural Society for the 4th of July display. The pyrotechnic operator is Jeff Jahnke with J&M Displays, Inc., Fireworks Outdoor License Certificate #O0644.

Budget Impact:
No impact on the budget is expected.

Staff Recommendation:
Recommend approval of the outdoor public fireworks permit.

Attachments:
1. Steele Co Ag Society Fireworks Application

City of Owatonna
APPLICATION / PERMIT
OUTDOOR PUBLIC FIREWORKS DISPLAY

Applicant instructions:

1. This application is for an **outdoor** public fireworks display only and is **not** valid for an indoor fireworks display.
2. This application must be completed and returned at least 15 days prior to date of display.

Name of Applicant (Sponsoring Organization): Steele County Agricultural Society

Address of Applicant: PO Box 650, Owatonna, MN 55060

Name of Applicant's Authorized Agent: J&M Displays, Inc.

Address of Agent: 9405 River Road SE, Clear Lake, MN 55319

Telephone Number of Agent: 320-300-4823 Date of Display: July 4, 2023 Time of Display: 10pm

Location of Display: Steele County Fairgrounds, 1525 S Cedar Ave, Owatonna, MN 55060
Rain date of July 5, 2023

Manner and place of storage of fireworks prior to display:

None - delivery and usage of day of display

Type and number of fireworks to be discharged:

1.3 G product - up to 6" aerial shells, Multi-shot box items and large roman candles

MINNESOTA STATE LAW REQUIRES THAT THIS DISPLAY BE CONDUCTED UNDER THE DIRECT SUPERVISION OF A PYROTECHNIC OPERATOR CERTIFIED BY THE STATE FIRE MARSHAL.

Name of Supervising Operator: Jeff Jahnke Certificate No.: O 0644

Required attachments. The following attachments must be included with this application:

1. Proof of a bond or certificate of insurance in amount of at least $ 10 million
   (Suggested Amount: $1.2 million minimum. $1.5 million minimum beginning July 1, 2009.)
2. A diagram of the ground at which the display will be held. This diagram (drawn to scale or with dimensions included) must show the point at which the fireworks are to be discharged; the location of ground pieces; the location of all buildings, highways, streets, communication lines and other possible overhead obstructions; and the lines behind which the audience will be restrained.
3. Names and ages of all assistants that will be participating in the display. Corey Jahnke, 32
   Nate Harris, 32

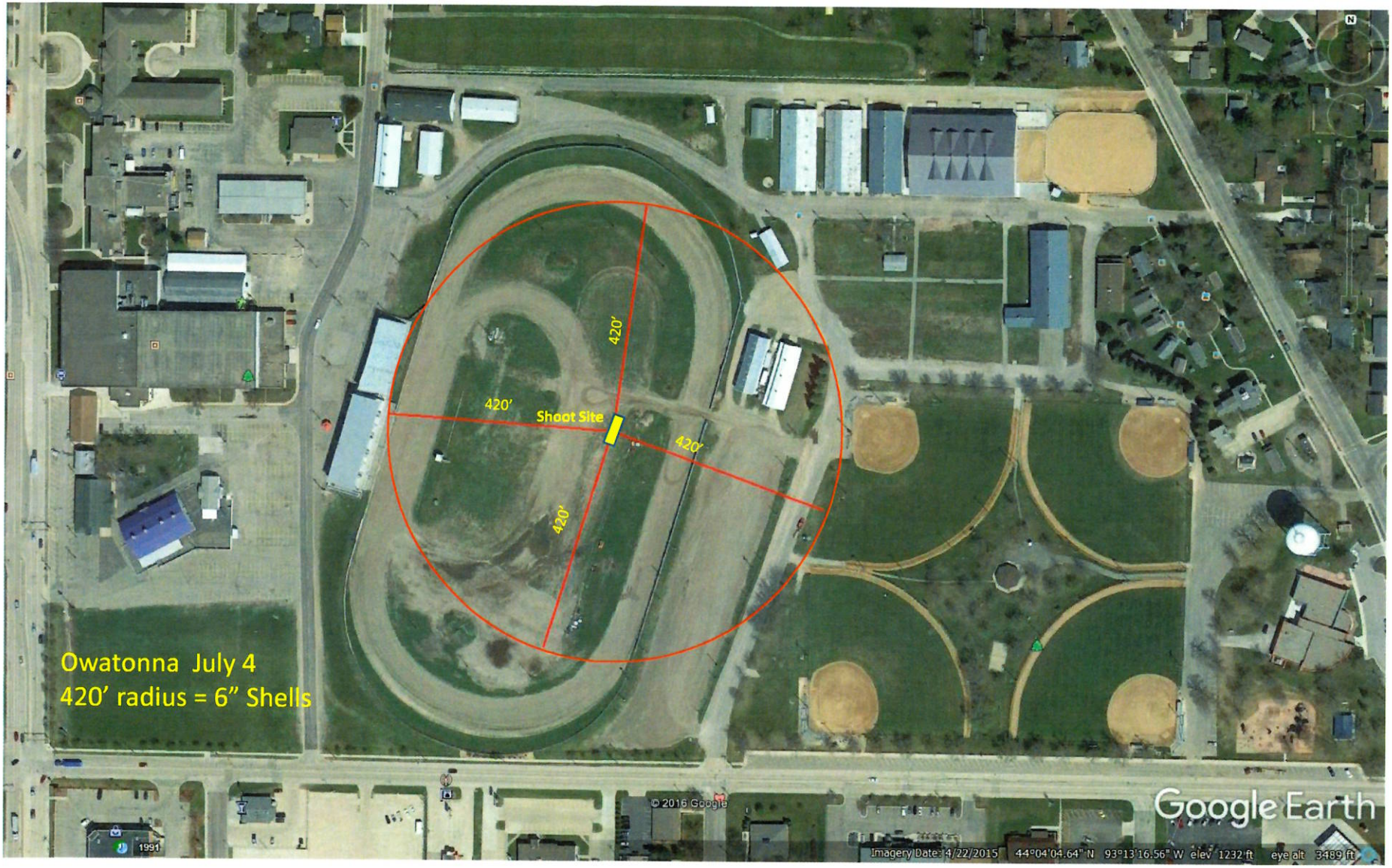
The discharge of the listed fireworks on the date and at the location shown on this application is hereby approved, subject to the following conditions, if any:

I understand and agree to comply with all provisions of this application, MN Statute 624.20 through 624.25, MN State Fire Code, National Fire Protection Association Standard 1123 (2006 edition), applicable federal law(s) and the requirements of the issuing authority, and will ensure that the fireworks are discharged in a manner that will not endanger persons or property or constitute a nuisance.

Signature of Applicant (or Agent): Becky Hanson Date: 5-11-2023

Signature of Fire Chief/County Sheriff: Date:

Signature of Issuing Authority: Date:


420'
420'
Shoot Site
420'
420'
Owatonna July 4
420' radius = 6" Shells
© 2016 Google
Google Earth
Imagery Date: 4/22/2015 44°04'04.64" N 93°13'16.56" W elev 1232 ft eye alt 3489 ft

MINNESOTA DEPARTMENT OF PUBLIC SAFETY

STATE FIRE MARSHAL

Fireworks Operator License
Search By Name Results

Your search for jahnke resulted in 1 hits

Name	Certificate Type	Certificate #	Issue Date	Expiration Date	Certification Status
Jahnke, Jeffrey T	Outdoor Only	0644	11/24/2021	12/31/2025	Valid

Records 1 to 1 of 1

[NEW SEARCH]

Last Modified: May 11, 2023 .

*For additional information, contact **James G. Smith**, Minnesota State Fire Marshal Division, at james.g.smith@state.mn.us or (651)201-7200.*

Minnesota State Fire Marshal Division
444 Cedar St., Suite 145
St. Paul, MN 55101-5145

651-201-7200 - voice
651-215-0525 - fax
651-282-6555 - TDD

Please review, sign and return the fireworks permit application to me.

J&M Displays, Inc.

9405 River Road SE

Clear Lake, MN 55319

Email: bhanson@jandmdisplays.com

If you have any questions, my number is 320-300-4823.

Thank you for your help with this.

Becky Hanson, J&M Displays, Inc.

Event Permits

Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jeanette Clawson, Administrative Specialist
SUBJECT: 2023 MnSNAP Clinics

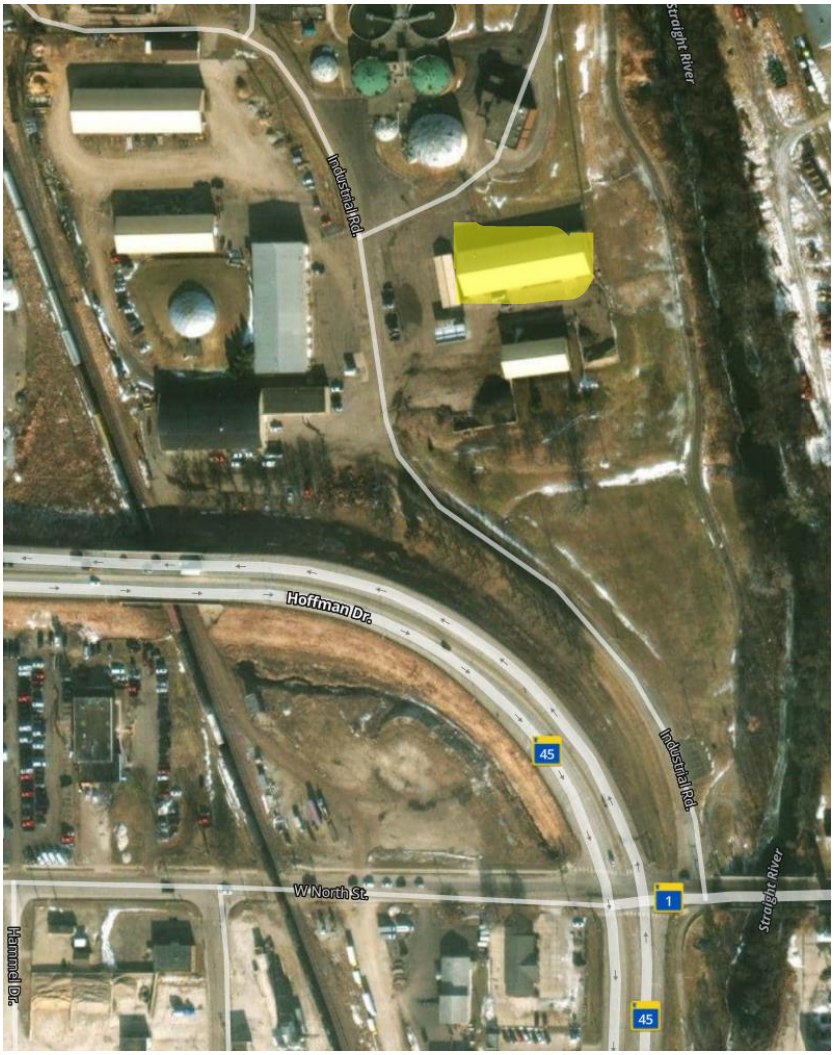
Purpose:
Request Council approval of Event Permit Application received from the Steele County Humane Society to conduct MnSNAP Spade/Neuter Clinics in Owatonna during 2023.

Background:
Request use of the City garage for dropoff/pickup for animals attending MnSNAP spade/neuter clinics. Clinics held to reduce pet overpopulation and planned as in previous years. Items requested: access to electrical power for med-van; 10 tables and 25 chairs (they set-up and take down). 2023 clinics are planned on Sundays: June 25, July 23, August 6, September 17 and October 15. Set-up begins at 7:30 am and they will be cleared out by 5:00 pm. The Steele County Humane Society has used this city site for many years; they are building an animal rescue shelter on N State Avenue and plan the 2024 MnSNAP Clinics will be held at their new location.

Budget Impact:
None.

Staff Recommendation:
Police, Fire, Park & Rec and Public Works all recommend approval.
Park & Rec commented: *A building key will be issued prior to and returned after each clinic.
* Anticipate will be last year applicants request use of our city building; the rental/usage fees for use of tables and chairs have been waived as clinics do help to control the animal population within the City.
* Tables must be cleaned and disinfected by the applicant at the end of the day.
* Prefer clinics held at times when a park maintenance person on duty (6:30 am -2:00 pm) but has previously worked and, as this will be their last year of request, we can make it work.

Attachments:
1. 2023-04-30 Mn Snap Clinic Sites



Clinics held in the City Garage at 1100 Industrial Road.

Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jeanette Clawson, Administrative Specialist
SUBJECT: 2023 Farmers Markets - Saturday Mornings May through October

Purpose:
Council to approve Event Permit received for the Saturday morning Farmers Markets in Central Park, May - October 2023 received from Owatonna Business Partnership along with MainStreet Owatonna.

Background:
An Event Permit Application was received in March for the 2023 Farmers Markets via our previous application process, CivicPlus. Staff spoke with applicant and discussed reapplication using the current Event Permit Application, OpenGov, or submitting a Park Permit Application. There was a misunderstanding and the applicant believed everything in the process for Council approval.

Application request use of Central Park, an electrical source if entertainment is scheduled on stage (they have access to open/close Central Stage). This event begins at 7:00 am and ends at noon. Vendors will begin set-up as early as 5:00 am and should be cleared from the park area shortly after 12:00 noon.

Last week, a vendor called to ask the City to open bathrooms in Central Park at 4:30 am on the mornings of the Farmers Markets. This request was not from the permit applicant, they acknowledge bathrooms should be opened by 7:00 am.

Budget Impact:
None

Staff Recommendation:
Staff recommends approval with this comment from Park & Rec: Approved, advise that if P&R staff is called to open the stage, there will be a fee charged.

Attachments:

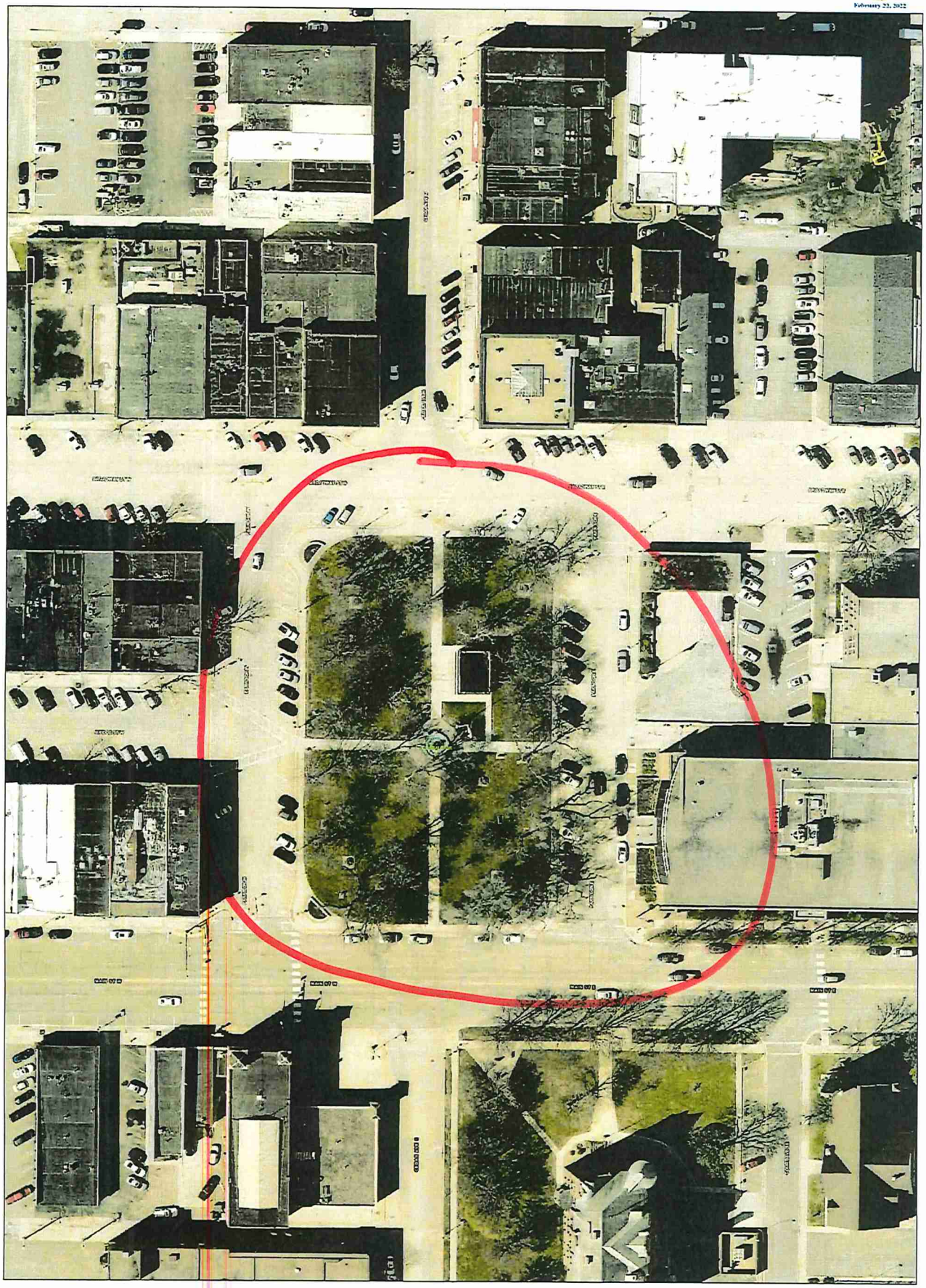
1. Central Park - Farmers Market

1 inch equals 30 feet

0 30 60 Ft.

Central Park
City of Owatonna

February 22, 2022



Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jeanette Clawson, Administrative Specialist
SUBJECT: 2023 11@7 Concert Series in Central Park - June, July & August

Purpose:
Council approval of the Event Permit for the 2023 11@7 Summer Concerts. Owatonna Main Street and the Owaotnna Business Partnership sponsor eight of the concerts and Owatonna Main Street sponsors the concerts planned for the three Downtown Thursday Events on the first Thursdays of each summer month which will be submitted on separate applications.

Background:
Concerts will be held in Central Park on Thursday evenings, June 1st to August 10th beginning at 7:00 pm. Request potential to use the two most northerly parking spots on Park Square W for food trucks. Currently, no food trucks are contracted but could be added and we prefer to amend the application for preapproval processing.

Budget Impact:
None.

Staff Recommendation:
Staff recommends approval with one comment received from Public Works: If cones are needed please contact Public Works two days prior to event.

Attachments:
1. Central Park - 11 @ 7 Concerts

1 inch equals 30 feet

0 30 60 Ft.

Central Park
City of Owatonna

February 22, 2022

Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jeanette Clawson, Administrative Specialist
SUBJECT: Classic Car Shows - First Wednesdays - June to October 2023

Purpose:
Council approval of the Event Permit Application received from Jon Simon to hold a classic car show on N Walnut on the first Wednesday of each month, June - October 2023.

Background:
Council approved a previous permit for this event held during the first Wednesday of this month. The applicant is planning to hold this event each month through October. The request N Walnut be blocked in front of Mineral Springs Brewery for a classic car show. The brewery will be open but not extending the premises of their liquor license. No alcohol will be allowed outside of the brewery's licensed patio area.

They realize construction in this area may prohibit this event being held but want to request approval to use of the public right of way if construction allows. Each event will begin set-up at 5:00 pm and the event ends at 7:00 pm.

Budget Impact:
None

Staff Recommendation:
Police, Public Works, Fire and Park & Rec departments notified of proposed events and all approved with no comments made.

Attachments:
1. 2023-05-03 Classic Car Show

Disclaimer: Steele County, MN makes no representations or warranties, express or implied, with respect to the use or reuse of the data provided herewith, regardless of the format or the means of transmission. THE DATA IS PROVIDED "AS IS" WITH NO GUARANTEE OR REPRESENTATION ABOUT THE ACCURACY, CURRENCY,SUITABILITY, PERFORMANCE, MERCHANTABILITY, RELIABILITY, OR FITNESS OF THE DATA FOR ANY PARTICULAR PURPOSE. Steele County, MN. shall not be liable for any direct, indirect, special, incidental, compensatory or consequential damages or third party claims resulting in the use of this data, even if Steele County, MN. has been advised of the possibility of such potential loss or damage. This data may not be used in states that do not allow the exclusion or limitation of incidental or consequential damages.

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Tax Parcel Viewer

January 20, 2022

Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jeanette Clawson, Administrative Specialist
SUBJECT: Downtown Thursday - Owatonna Area Chamber - June 1, 2023

Purpose:
Council approval of the Event Permit received from Lisa Cochran, Main Street Director at the Chamber of Commerce for the June Downtown Thursday event. Downtown Thursday events are being planned for the first Thursday of each summer month. This application is for the June event planned for Thursday, June 1, 2023.

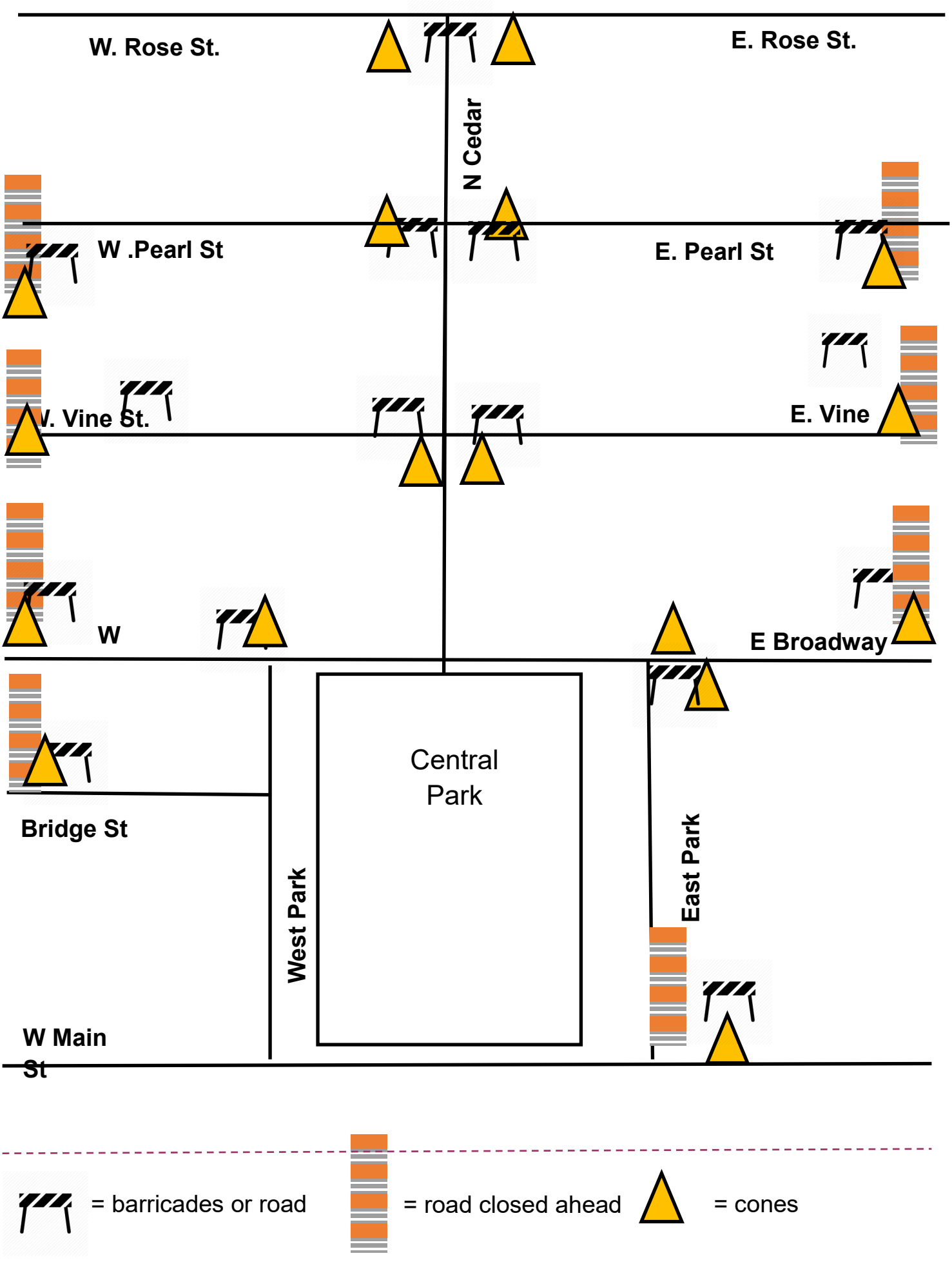
Background:
This will be the third year for Downtown Thursdays in Owatonna. This event is in the 100-300 blocks of North Cedar Avenue between 5:00 pm and 9:00 pm. The street will be blocked from traffic beginning at 1:00 pm as vendors and bands begin set-up. Everything should be cleared and the street reopened by 10:00 pm. Requesting the use of 15 barricades, 75 cones and 60 "No Parking" signs for the streets in the downtown area.

A band will perform on the Central Park Stage and from the SCFF Showmobile located on N Cedar Avenue just south and parallel to Rose Street. Several restaurants/food vendors will participate and some hold a caterers' license with an alcohol endorsement to provide sale of alcohol which requires verification of age for sale.

Budget Impact:
None.

Staff Recommendation:
Staff recommends approval with two comments received:
Park & Rec - will need a Certificate of Insurance if inflatables are added. The must call before staking in the park and no staking on impervious surfaces.
Police - will have officers within the area.

Attachments:
1. Streets Barricaded


W. Rose St.
E. Rose St.
N Cedar
W .Pearl St
E. Pearl St
W. Vine St.
E. Vine
W
E Broadway
Central Park
Bridge St
West Park
East Park
W Main St
= barricades or road
= road closed ahead
= cones

Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jeanette Clawson, Administrative Specialist
SUBJECT: Federated Employee's Summer Club Celebration - June 16, 2023

Purpose:

Council approval of an Event Permit received from Federated Insurance for an employee event within the Steele County Fairgrounds on June 16th from 4 pm -11 pm.

Background:

The company's annual employee event with items requested from the City to allow amplified music to play outdoors past 10:00 pm and wants to block traffic from S Elm Avenue within the fairgrounds and the parking lot on the east side of S Cedar. Request the use of 4 barricades and 20 cones to block traffic at the north and south entrances on Elm Avenue into the fairgrounds. They will staff these entrance points to allow entrance for their guests. They estimate 1,500 will attend this event.

The event set up begins at 8:00 am with 10 food vendors and a band setting up in Fair Square. The Owatonna Country Club will be providing alcohol via a caterer's license in the Beer Garden and will ID and issue wrist bands for alcohol purchases.

Budget Impact:

$150.00 for the exception to the City Noise Ordinance. The band is scheduled to play until 11:00 pm. The City Code prohibits amplified noise outdoors after 10:00 pm unless an exception has been granted. Property owners within 350' of the event site have been advised of this event and have no objection to granting this exception.

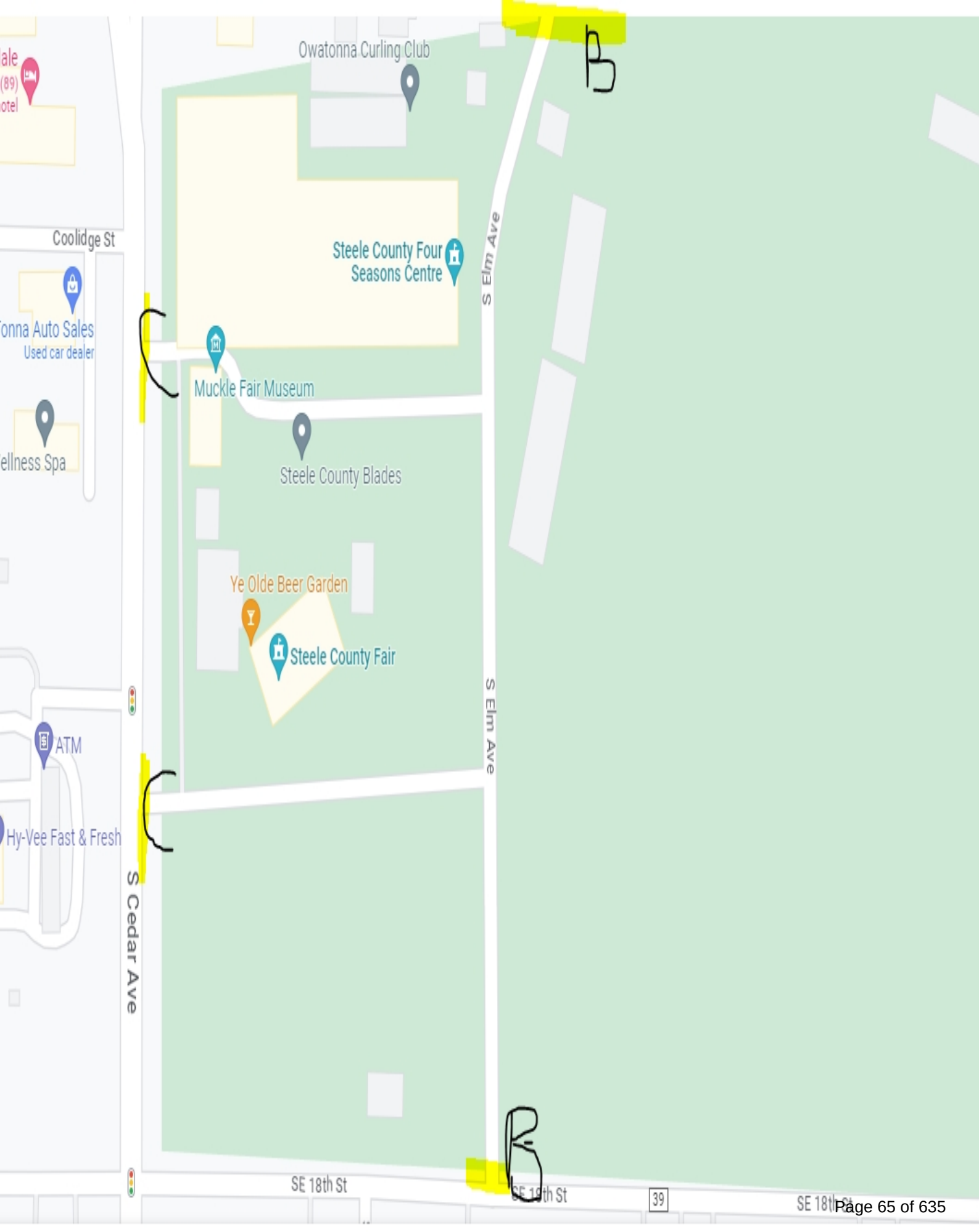
Staff Recommendation:

Staff recommends approval with these comments:

Park & Rec - no department impact
Police: Contact Captain Andrew Drenth at 774-7207 for OPD security and traffic control.
Public Works: Contact the Street Department two days prior to event, 774-7051, to arrange cones and barricade pick-up.

Attachments:

1. Site Plan - 2023 Federatated Employee Event


Owatonna Curling Club
Coolidge St
Steele County Four Seasons Centre
S Elm Ave
Muckle Fair Museum
Steele County Blades
Ye Olde Beer Garden
Steele County Fair
ATM
Hy-Vee Fast & Fresh
S Cedar Ave
SE 18th St
39

Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jeanette Clawson, Administrative Specialist
SUBJECT: Amateur Radio Field Day - OSCAR Club - June 24, 2023

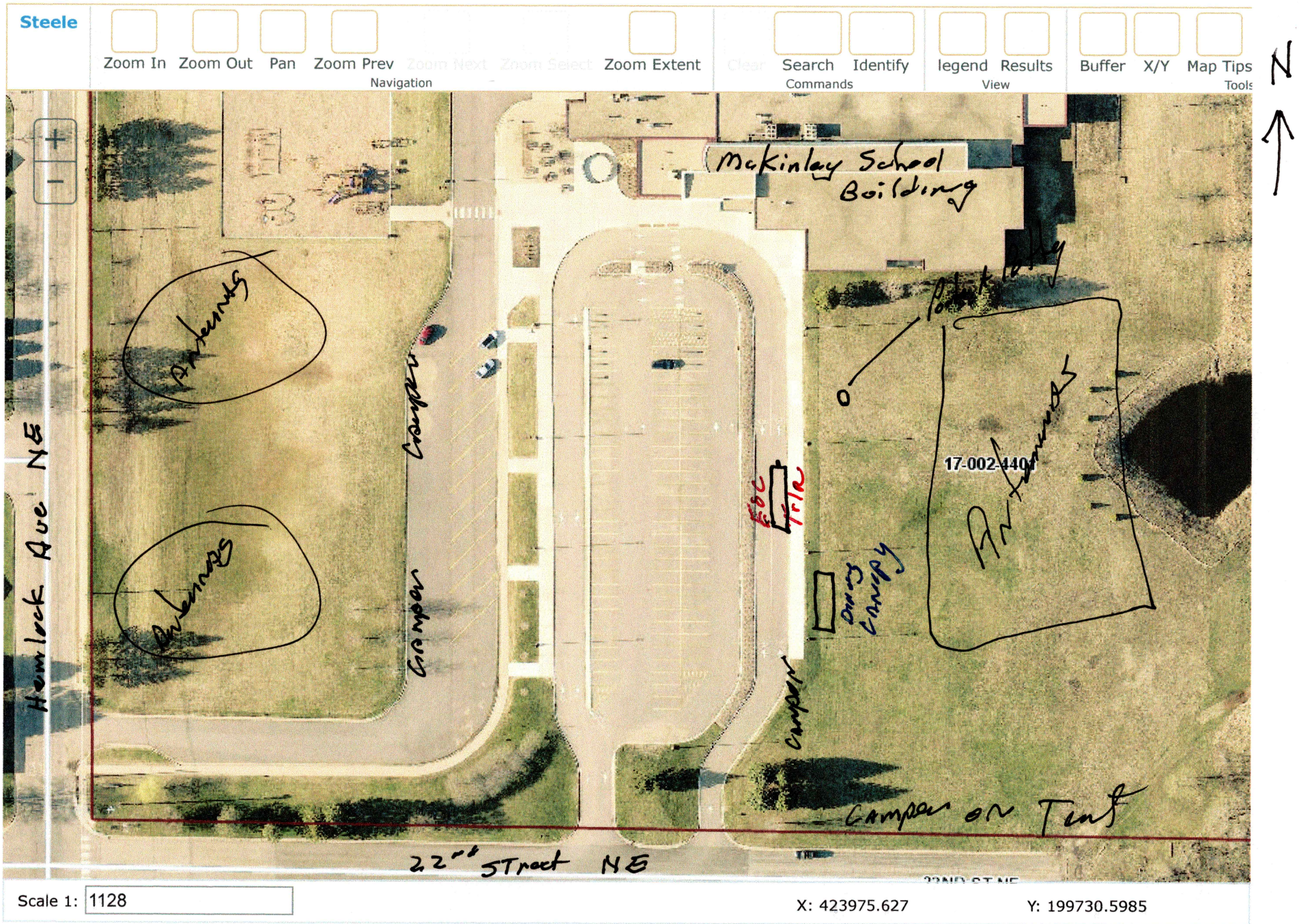
Purpose:
Request Council approval of Event Permit received from Mike Conrad for the Owatonna Steele County Amateur Radio (OSCAR) Club 2023 Field Day.

Background:
This is a national event held annually with public demonstrations of amateur radio, picnic and on-the–air contests. This is the 9th year OSCAR will hold this event at McKinley School at 1050 22nd Street NE. They have received school permission to use their property. No city items are requested but they wanted to notify the City of this overnight event. The event begins at 8:00 am on Saturday, June 24 and will end Sunday afternoon, June 25. They will set up and use two campers and a tent. They will set up on Friday night, June 23 from 6:00 pm.- 9:00 pm. and should be cleared from this area by 3:30 pm on Sunday afternoon.

Budget Impact:
None.

Staff Recommendation:
All departments recommend approval with no additional comments made.

Attachments:
1. Site Plan - Amateur Radio Field Day


Steele
Zoom In
Zoom Out
Pan
Zoom Prev
Zoom Next
Zoom Select
Zoom Extent
Navigation
Clear
Search
Identify
Commands
legend
Results
View
Buffer
X/Y
Map Tips
Tools
N
McKinley School Building
Antennas
Antennas
Hemlock Ave NE
Canopy
Canopy
17-002-4401
Antennas
EBC
TRR
Dairy Canopy
Camper
Camper on Turf
22nd Street NE
Scale 1: 1128
X: 423975.627
Y: 199730.5985

Approved: _____
Denied: _____

SUMMARY
EVENTS PERMIT APPLICATION

5/16/2023

Date of Application: 2/21/2023 Date to Council: ~~5/02/2023~~

EVENT INFORMATION: **FEE Amount: None**

12h Annual Harry Wenger Marching Band Festival

Event: Saturday, June 17, 2023
Set up 6:00 a.m. to 11:00 a.m., bands begin to arrive at 9:00 a.m. at practice streets
Parade begins at 11:00 a.m. and clean-up should be completed before 3:30 p.m.

Location (Address) of Event: Same as last year and previous years prior to COVID. Parade route shown on the first map attached. Streets serve as the staging /practice areas, parade play zones and judging zone. There is also a map showing the traffic Detour Route during the parade.

Estimated Attendance (Participants and spectators): 1,500+ (12 bands and event volunteers)

APPLICATION INFORMATION (Person/Group Responsible): Harry Wenger Marching Band Festival

Primary Contact /Applicant Name: Leslea Partridge 507-319-4571

Items needed: Use of public streets, public parking spaces, Central Park, Central Stage with microphone/electricity, bleachers set near judging area, cones and barricades along parade route, 14 additional picnic tables in park area, restroom will be located practice streets and in the two parking lots, and 70 "No Parking Signs".

Department Notes: Staff has met with event committee to confirm event details.

Park & Rec: Approved. A partnership with the City is being requested. (Cost of $800 waived) The City of Owatonna logo (with brand standards being used) should be on all promotional materials and/or the City listed as a partner. The City will provide someone to open and close the Central Park Stage. The park crew will also bring in two sets of bleachers for the event. ***Please contact either MJ Knudson or Jesse Wilker with the exact location of the bleachers.***

Police: Approved. Patrol Captain Drenth attended the planning session to verify event safety and traffic control measures.

Fire & Street: approved. with no comments made.

Council Notes:5/02/23 Meeting - Tabled, Council Member Svenby requested estimate of City's costs. Most costs incurred will be for additional labor in P&R, Police and Street Departments.

P&R: $2,248.72: 4 crew members x 8 hrs = $1,398.72; (Set-up, traffic control), use 6 bleachers/$125 each and use 10 additional trash barrels at $10 each

Police: $ 400.00 Required minimum staffing for day is 1 Sergeant, 2 Officers and 1 CSO. For festival will add 1 F/T CSO and 1 licensed Peace Officer. CSO OT rate/fringe is $47.14; officer OT rate /fringe $64.23 - $96.73. Addition of 2 officers for 3 hours (10:30 am - 1:30 pm). Police Officer/Sergeant is awarded by Seniority. Additional cost to add a CSO and an Officer ranges $343.11 to $431.61,. (used average of $400.00)

Streets: $2,016.00 6 guys for 7 hours OT = 42 man hours at average hourly OT Rate of $48.00/hour
$4,654.72

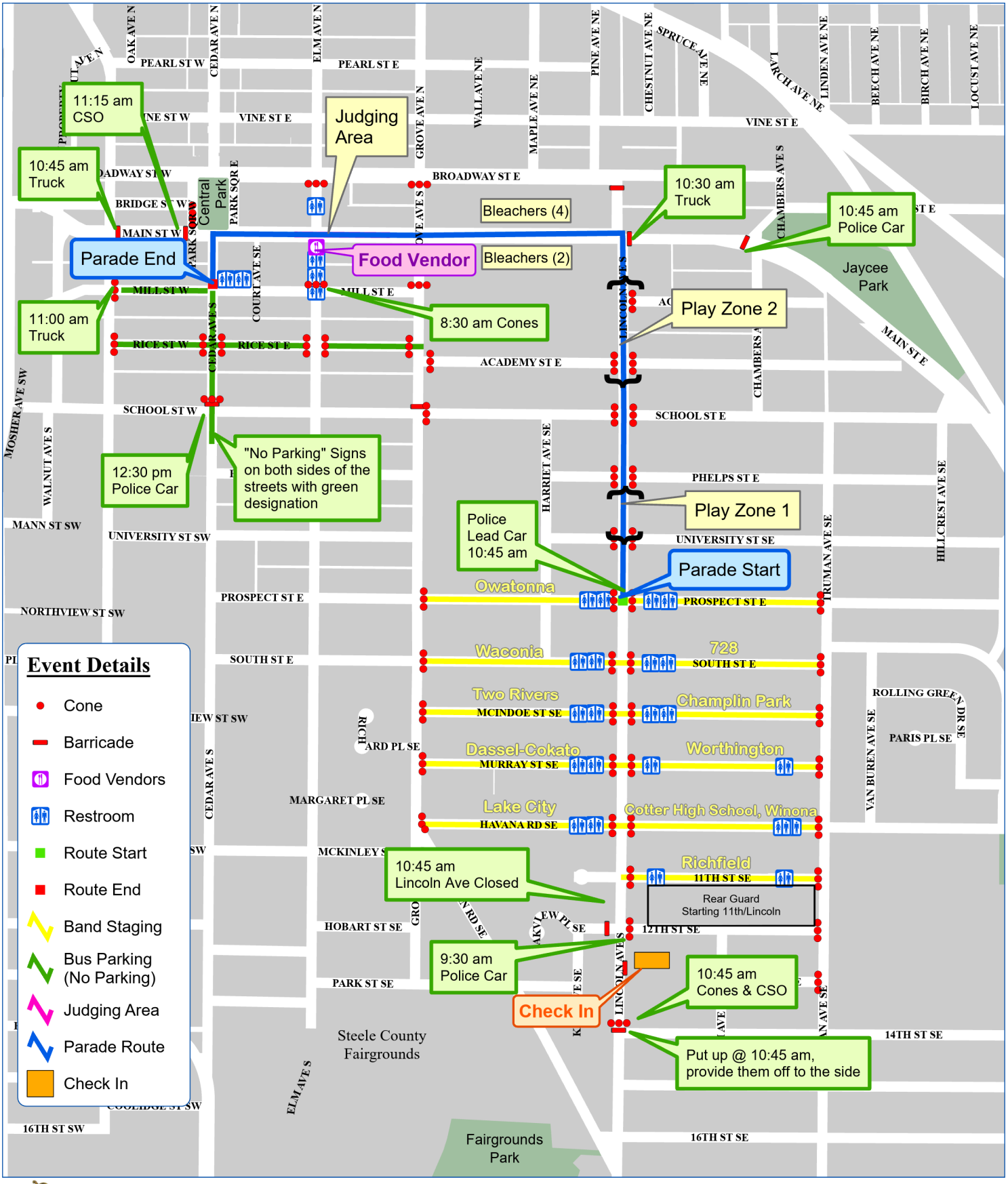
City Council Approval: _____ Date: _____

Kris M. Busse, City Administrator/City Clerk

Event Traffic Control

Harry Wenger Marching Band Festival

Parade Start 11:00 am



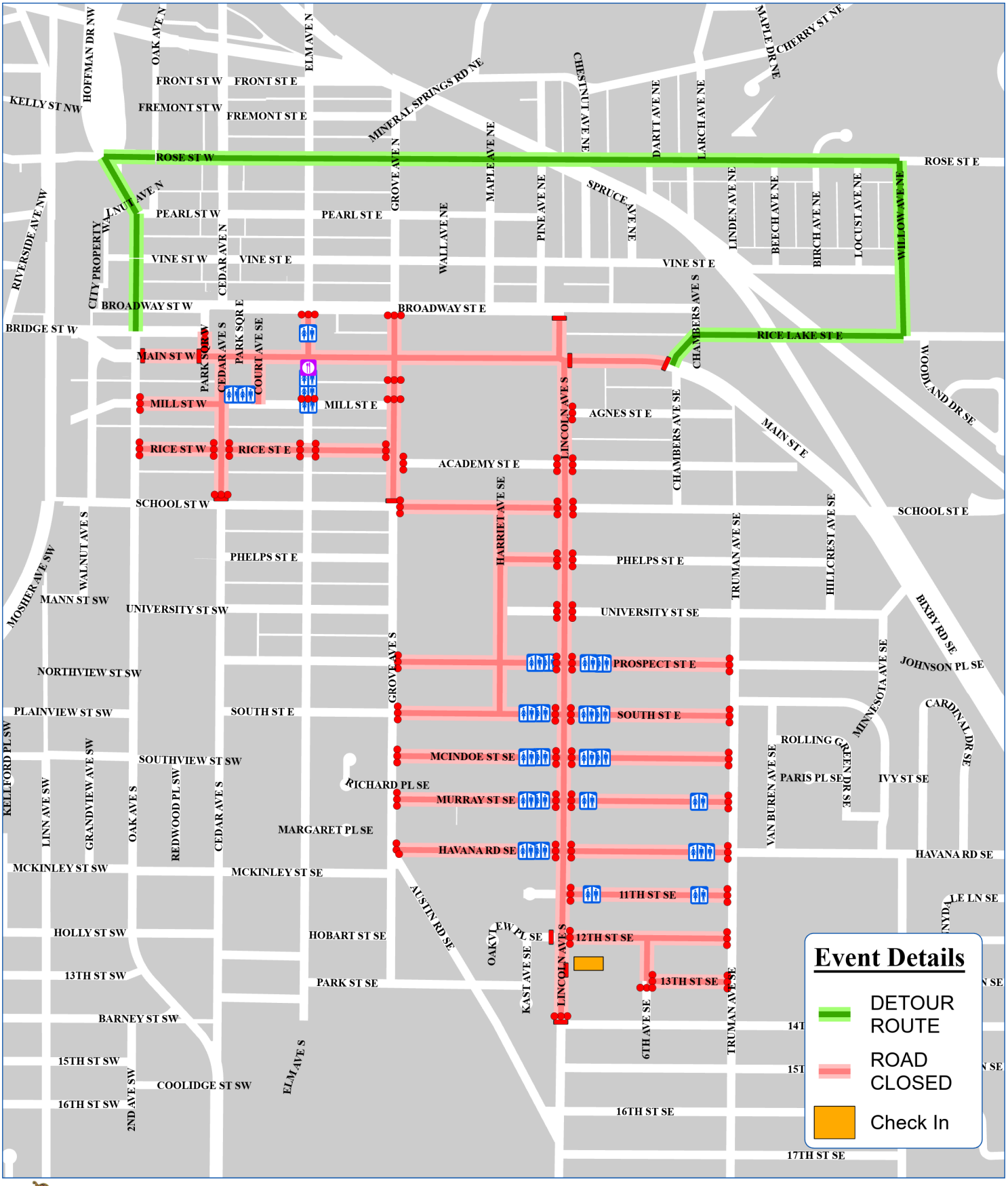
April 20, 2023

0 500 1,000 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

Detour Route
Harry Wenger Marching Band Festival

Competition Start 11:00 am



April 20, 2023

0 500 1,000 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

Miscellaneous

Fire Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Ed Hoffman, Fire Chief
SUBJECT: Joint Powers Agreement - School Inspections - State of MN

Purpose:
Approval to enter into a Joint Powers Agreement (JPA) with the State of MN to conduct school inspections for the State Fire Marshalls Office.

Background:
Under Minnesota Statutes § 299F.47, subdivision 1, the state is required to develop a plan to inspect once every three years every public school facility used for educational purposes.

The State and the City of Owatonna have previously entered into a JPA for the Owatonna Fire Department to perform these inspections within our jurisdiction.

The City of Owatonna has followed the same formula for computing the inspection fees as the Fire Marshalls office does under Minnesota Statutes § 299F.47, subdivision 1 & 2 with no charge for follow-up inspections or consultations.

The Fire Department has inspectors that currently meet the requirements necessary to perform these inspections in accordance with the JPA.

Budget Impact:
Over the course of the three-year cycle, this will generate approximately $13,000 in fees to cover the costs of performing the inspections.

Staff Recommendation:
Staff recommends continuation of this program and approval of this agreement.

Attachments:
1. School Inspection JPA Owatonna FY2024-FY2026

State of Minnesota
Joint Powers Agreement
School Inspection

SWIFT Contract Number: 227819

This Agreement is between the State of Minnesota, acting through its Commissioner of Public Safety on behalf of the State Fire Marshal ("State"), and the **City of Owatonna,** acting on behalf of its City of Owatonna Fire Department, **107 W. Main Street Owatonna, MN 55060** ("Governmental Unit"). The State and Governmental Unit may be referred to jointly as "Parties."

Recitals

WHEREAS, the State, under Minnesota Statutes § 471.59, subdivision 10, is empowered to engage assistance as deemed necessary; and

WHEREAS, the State, under Minnesota Statutes § 299F.47, subdivision 1, is required to develop a plan to inspect once every three years every public school facility used for educational purposes; and

WHEREAS, the Fire Chief of the Governmental Unit hereby agrees a representative of the Governmental Unit's fire department will conduct all public school and charter school inspections within the Governmental Unit's jurisdiction in accordance with Minnesota Statutes § 299F.47 and to assure uniform enforcement throughout the State of Minnesota; and

WHEREAS, the Governmental Unit represents it is duly qualified and willing to perform the services set forth herein;

NOW, THEREFORE, it is agreed:

Agreement

1 Term of Agreement

1.1 Effective Date. July 1, 2023, or the date the State obtains all required signatures under Minnesota Statutes § 16C.05, subdivision 2, whichever is later.

1.2 Expiration Date. June 30, 2026, or until all obligations have been satisfactorily fulfilled, whichever occurs first.

2 Agreement Between the Parties

2.1 All public school facilities used for educational purposes and charter schools within the Governmental Unit's jurisdiction will be inspected by the Governmental Unit no less than once during this Agreement.

2.2 All public school facilities and charter schools within the Governmental Unit's jurisdiction will be inspected and enforced in accordance with the requirements of the Minnesota State Fire Code ("MSFC") and MSFC Code interpretations of the State Fire Marshal. MSFC Code interpretations are available to the Governmental Unit on the State's web page, https://dps.mn.gov/divisions/sfm/fire-code/Pages/interpretations.aspx.

2.3 All Governmental Unit inspectors employed for the purpose of this Agreement are required to successfully complete the State Fire Marshal's Fire Code update training, including public school code requirements, and are also required to sustain current knowledge of all State Fire Code requirements for public schools.

2.4 The State Fire Marshal will provide the required and necessary training for the Governmental Unit's fire department personnel contracting to conduct public school and charter school inspections.

2.5 Copies of the school inspection reports completed by the Governmental Unit must be submitted to the State Fire Marshal and the governing school board(s) within thirty (30) calendar days following inspection. Submission of the reports by the Governmental Unit will be made in PDF format to the following State Fire Marshal electronic mailbox: fm.city.inspections@state.mn.us.

2.6 All variances to the fire code orders must be approved in writing by the State Fire Marshal.

3 Payment

The total obligation of the State to the Governmental Unit under this Agreement will not exceed **Zero Dollars ($0.00)**.

4 Authorized Representatives

The State's Authorized Representative is the person below, or his/her successor:

Name: Forrest Williams
Address: Department of Public Safety; State Fire Marshal
445 Minnesota Street, Suite 145
Saint Paul, MN 55101-5145
Telephone: **651-769-7784**
Email Address: **forrest.williams@state.mn.us**

The State's Authorized Representative shall have final authority for acceptance of the Governmental Unit's services and if such services are satisfactory.

The Governmental Unit's Authorized Representative is the person below or his/her successor:

Name: Ed Hoffman, Fire Chief
Address: 107 W. Main Street
Owatonna, MN 55060
Telephone: **507.444.2454**
Email Address: ed.hoffman@ci.owatonna.mn.us

5 Assignment, Amendments, Waiver, and Agreement Complete

5.1 Assignment. The Governmental Unit may neither assign nor transfer any rights or obligations under this Agreement without the prior written consent of the State and a fully executed Assignment Agreement, executed and approved by the same parties who executed and approved this Agreement, or their successors in office.

5.2 Amendments. Any amendment to this Agreement must be in writing and will not be effective until it has been executed and approved by the same parties who executed and approved the original Agreement, or their successors in office.

5.3 Waiver. If the State fails to enforce any provision of this Agreement, that failure does not waive the provision or its right to enforce it.

5.4 Agreement Complete. This Agreement contains all negotiations and agreements between the State and the Governmental Unit. No other understanding regarding this Agreement, whether written or oral, may be used to bind either party.

6 Liability

The State and Governmental Unit agree each party will be responsible for its own acts and behavior and the results thereof to the extent authorized by law and shall not be responsible or liable for the acts of any others and the results thereof. The State's liability shall be governed by provisions of the Minnesota Tort Claims Act, Minnesota Statutes § 3.736, and other applicable law. The Governmental Unit's liability shall be governed by provisions of the Municipal Tort Claims Act, Minnesota Statutes Chapter 466, and other applicable law.

7 State Audits

Under Minnesota Statutes § 16C.05, subdivision 5, the Governmental Unit's books, records, documents, and accounting procedures and practices relevant to this Agreement are subject to examination by the State and/or the State Auditor or Legislative Auditor, as appropriate, for a minimum of six (6) years from the end of this Agreement.

8 Government Data Practices

The State and Governmental Unit must comply with the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13, as it applies to all data provided by the State under this Agreement, and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by the Governmental Unit under this Agreement. The civil remedies of Minnesota Statutes § 13.08 apply to the release of the data referred to in this clause by either the Governmental Unit or the State.

If the Governmental Unit receives a request to release the data referred to in this Clause, the Governmental Unit must immediately notify the State. The State will give the Governmental Unit instructions concerning the release of the data to the requesting party before the data is released.

9 Venue

Venue for all legal proceedings out of this Agreement, or its breach, must be in the appropriate state or federal court with competent jurisdiction in Ramsey County, Minnesota.

10 Termination

The State or the Governmental Unit may terminate this Agreement at any time, with or without cause, upon 30 days' written notice to the other party.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed intending to be bound thereby.

APPROVED:
GOVERNMENTAL UNIT
Governmental Unit certifies that the appropriate person(s) have executed this Agreement on behalf of the Governmental Unit as required by applicable articles, bylaws, resolutions, or ordinances.

BY: _____

TITLE: _____

DATE: _____

BY: _____

TITLE: _____

DATE:_____

BY: _____

TITLE: _____

DATE: _____

DEPARTMENT OF PUBLIC SAFETY; STATE FIRE MARSHAL

BY: _____
(with delegated authority)

TITLE: _____

DATE: _____

COMMISSIONER OF ADMINISTRATION
As delegated to the Office of State Procurement

BY: _____

DATE:_____

ADMIN ID NUMBER: _____

Parks, Trails, Recreation & Facilities Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jenna Tuma, Parks, Trails, Recreation & Facilities Director
SUBJECT: Warsinski Chalet Operations Agreement - 2023-2024 Winter - Martin's Equipment

Purpose:
Request City Council approval of the Morehouse Park winter operations agreement with Martin's Equipment for the 2023-2024 season. The Independent Contractor Agreement includes the warming house and outdoor skating activities.

Background:
The winter outdoor ice-skating operation at Morehouse Park is open December through March as weather permits. The operation includes the Warsinki Chalet warming house, general outdoor activities and skating areas (ponds, dry-land rink and river).

The scope of Martin's Equipment agreement includes all services required in the sale and rental of ice skating, cross-country ski and the sale of food concessions. New this year, Martin's Equipment will provide all the operations staff with the concessions, equipment rental, grounds and rink supervision. In prior agreements, the city has provided rink attendants to supervise the outside activities. This will clearly define the staff management for work direction, supervision, and scheduling.

The city received a letter on November 23, 2022 from North Risk Partners regarding the League of Minnesota Cities position on the exposure of ice skating on the Straight River. Although the city is currently within coverage for this activity, the probability remains high that an exclusion could be applied to river skating. The city should keep this on our radar. The City's policy was renewed through January 29, 2024 with no changes. If a future policy excludes river skating, the City will need to cease the activity to remain in good standing with the policy.

Staff will work with the Fire Department and follow established best practices protocols throughout the Winter Operations for the safety of staff, patrons and equipment.

Budget Impact:
The independent contractor retains all revenues related to the equipment rental and concessions sales. The independent contractor supplies their own rental equipment,

concessions equipment, concessions supplies and staff to operate the equipment rental and concessions operation, and the supervision/monitoring of the Morehouse Park warming house and outdoor skating areas.

The City will pay Martin's Equipment $5000 to provide this service, which is included in the Recreation's operating budget.

Staff Recommendation:
Staff recommends approving the agreement.

Attachments:
1. 2023-2024 Martin's Equipment Agreement

WARSINSKI CHALET INDEPENDENT CONTRACTOR AGREEMENT

THIS AGREEMENT made and entered into this 16 day of May, 2023 by and between the City of Owatonna, a municipal corporation, hereinafter referred to as City, and Martin Equipment, Inc. hereinafter referred to as Contractor.

WHEREAS, City owns and operates the Warsinski Chalet and Morehouse Park outdoor ice skating areas, (the "Facilities"), located within the City and deems it appropriate to have the following services performed at said Facilities: sale of cross country ski and skate related merchandise, rental of cross country ski equipment and rental of ice skates, the sale of food concessions, and oversight and supervision of the Facilities.

WHEREAS, Contractor desires to provide such services and owns equipment necessary to provide such services; and

WHEREAS, Contractor agrees to perform these services for the City under the terms and conditions set forth in this agreement;

NOW THEREFORE, in consideration of the foregoing and in consideration of the promises hereinafter set forth, City and Contractor mutually agree as follows:

CONTRACTOR RESPONSIBILITIES:

1. **Work Performed.** The work to be performed (the "Work") by Contractor includes all services required in the sale and rental of ice skating and cross-country ski equipment and merchandise, and the sale of food concessions, and supervision and oversight of the Chalet and Morehouse outdoor ice-skating areas.

2. **Park and Recreation Department Contact.** Contractor shall report directly to the Recreation Manager of Parks and Recreation ("Recreation Manager") or appointed designate.

3. **Supervision.** Contractor shall provide all supervision at the Facilities for the months of December 2023, January, February, and March of 2024, and carry out and adhere to all policies and guidelines spelled out by the City.

4. **Contractor's Staff**. Contractor shall be responsible in selecting staff as needed to perform the duties and provide the services for the Work as provided in Section 1. The Contractor shall instruct its staff how to safely perform the duties and services required to do the Work. The Contractor shall inform staff of all policies and guidelines provided by the City. Contractor shall obtain background checks on all staff applicants including employees or subcontractors and provide the completed background checks to the Recreation Manager. The cost of the

background checks will be borne by Contractor.

5. **Supervision and Delegation of Work**. Contractor shall supervise the execution of all Work, either personally or by a manager, approved in writing by the Recreation Manager before undertaking any Work.

6. **Public Relations**. Contractor shall assist the Recreation Manager in marketing and promoting the Outdoor Skating Facility so as to increase usage.

7. **Support of Activities.** Contractor shall work with Park and Recreation Department staff on providing specialized programs for youth and adults during the contract period. All activities and programs shall be coordinated with the Park and Recreation Department staff.

8. **COVID-19 Compliance**. Contractor shall comply with and assist in the implementation of the City's COVID-19 Preparedness Plan including proper disinfection, sanitization, and monitoring compliance with the plan guidelines on site.

9. **Use of Facility**. Contractor is entitled to use the Warsinski Chalet Facility to carry out the terms of this agreement.

10. **Contractor's Expenses**. Contractor shall furnish at its own expense, all inventory, labor, materials, equipment, licenses, and other items necessary to carry out the terms of this contract. Contractor shall inform the Recreation Manager of any items or service which is City's obligation to provide.

11. **Food Handlers License**. Contractor shall post at the Food Concession Area a current Food Handler's License issued by the State of Minnesota.

CITY'S RESPONSIBILITIES:

1. **Storage Space**. The City will provide the Contractor a storage location for equipment and supplies in the Warsinski Chalet Facility five days prior to and after the months of December and March.

2. **Exclusive Rights to Sale and Rental**. Contractor shall have exclusive rights in the sale and rental of cross-country ski and skate related merchandise and Food Concessions at the Warsinski Chalet Facility during the term of this contract.

3. **City Retains Authority**. The City retains the authority to make any decision to close the Facilities, or limit the hours to use the Facilities due to weather or for any other reason, at its sole discretion.

4. **Compensation**: For performing all of the Work and providing all of the

supervision required in the Agreement, Contractor will be paid a fee of $5,000. Contractor shall be paid at the conclusion of the season with the City's scheduled check runs.

GENERAL CONDITIONS:

1. **Relationship**. The parties intend that the legal relationship between the City and the Contractor is a relationship between the City and an Independent Contractor. City is interested only in the results to be achieved. The conduct and control of the Work will lie solely with Contractor. Contractor shall at all times be free to exercise initiative, judgment and discretion as to how best to perform services identified herein. Contractor is not an agent or employee of the City for any purpose and the staff of Contractor (employees or subcontractors), are not entitled to any of the benefits that the City provides for its employees.

2. **Warsinski Chalet Facility Hours**. Contractor's hours of operation shall be the same as those hours of operation established by the Park and Recreation Department for the Warsinski Chalet facility.

3. **Revenue.** It is understood and agreed that all other fees established by the City of Owatonna Parks and Recreation Department belong to the City.

4. **Facility Control**. (a) The Work to be performed by Contractor is subject to the control of the Contractor. (b) The City otherwise retains control of Morehouse Park and Warsinski Chalet.

5. **Maintenance and Utilities**. City will provide maintenance and utilities for the Facility in accordance with its routine schedule and standards, including water and sewer, heat, air conditioning, electricity, trash disposal, hazardous waste disposal, and telephone service.

6. **Liability Insurance.** Contractor shall take out and maintain during the term of this agreement Commercial General Liability insurance coverage to protect the Contractor, its officers, employees, agents, members and anyone directly or indirectly engaged or employed by Contractor from any and all claims for damage to property or for personal injury, including death, made by anyone, arising under this Agreement with the following limits of coverage:
    - Commercial General Liability coverage with limits of not less than $1 Million per occurrence and $2 Million annual aggregate.

    Said policy to be issued by a company authorized to do business in the State of Minnesota and, if mutual, shall be non-assessable. Contractor shall provide the City with a Certificate of Insurance naming the City as an additional insured.

Contractor agrees to provide Workers Compensation insurance for all its employees in accordance with the statutory requirements of the State of Minnesota. Prior to providing services to the City pursuant to this Agreement, Contractor shall deliver to the City a certificate of insurance certifying that it has the above coverage in full force and effect.

7. **Indemnification.** The Contractor agrees to perform the Work and comply with all the conditions, regulations, and provisions set forth herein, and to defend, indemnify, and hold harmless the City, its officers, agents, or employees of and from all liability, claim, judgment, costs, damages and expenses of whatsoever kind which may in any way be suffered by the City or its officers, agents, or employees by reason of or in consequence of the operation of the Work herein provided for or account of any act or thing done or omitted to be done under the authority or supposed authority of Contractor under this Agreement. The Contractor's indemnification obligation shall also apply to the Contractor's subcontractors, or anyone directly or indirectly employed or hired by the Contractor, or anyone for whose acts the Contractor may be liable.

8. **Subrogation**. In accordance with the subrogation provisions of the standard property insurance contract, it is hereby understood and agreed by and between the undersigned parties that they do jointly and separately waive any or all right of recovery against the other insured loss occurring to the real property owned by City and personal property owned by Contractor all while located at the Warsinski Chalet Facility and Morehouse Park skating areas.

9. **Personal Property**. The Contractor agrees that all its own personal property upon the premises shall be kept at its own risk and the City shall not be liable for any damages thereto or for loss or theft thereof.

10. **Cancellation**. This agreement shall be subject to cancellation by the City in the event of the happening of any one or more of the following:

    a. In the event the Contractor is adjudicated bankrupt, is in relationship, has made an assignment for the benefit of his creditors, or because Contractor's financial condition is unable to continue successful operations.

    b. Failure of the Contractor to perform, keep, and observe any of the conditions of the contract, and the failure of the Contractor to correct the default or breach within the times specified by the Recreation Manager.

    c. Upon mutual consent of the city and contractor.

11. **Termination**. Upon termination of this agreement because of expiration of the term or upon termination for any other reason, the Contractor shall remove all personal property belonging to the Contractor and shall leave the premises in the condition in which they were received. In the event said personal property is not

removed within thirty (30) days from expiration of this agreement or its termination for any other reason, the Contractor shall be deemed to have had abandoned the same to the City.

12. **Notice**. Any notice pursuant to this Agreement must be in writing and must be personally delivered, sent by email, or sent by certified mail, addressed to the parties at the addresses below or at such other address as they specify in written notice. Notices are effective upon personal delivery or when sent by e-mail or certified mail.

If to City:
City of Owatonna Parks and Recreation
Attn: Recreation Manager
540 West Hills Circle
Owatonna, MN 55060

If to Contractor:
Martin Equipment, Inc.
Attn: Al Martin
2523 County Rd 45 South
Owatonna, MN 55060

13. **Governing Law.** This Agreement will be governed by and construed in accordance with the laws of the State of Minnesota, without reference to conflict of laws principles.

14. **Miscellaneous**

a. Force Majeure. Neither party will be deemed to be in default under this Agreement if it is prevented from performing its obligations hereunder for any reason beyond its control or is materially adversely affected in the performance of its obligations by acts of God, acts of civil or military authority, fires, floods or other natural disasters, strikes, governmental laws and regulations.

b. Emergency Closure. City may determine, at its sole discretion, that for reasons of health safety and in the best interests of the public it may close the facility as necessary. Contractor would not be charged for use of the facility during this closure time.

c. Discrimination. The Parties agree to be bound by applicable state and federal laws governing Equal Opportunity Employment and Non-discrimination.

d. Amendment. This Agreement may be amended only upon mutual written agreement of the parties.

e. Entire Agreement. This Agreement, together with its exhibits and attachments, constitutes the entire agreement between the parties with respect to the subject matter, and supersedes all prior agreements, understandings, promises, and representations made by either party to the other concerning the subject matter of this Agreement.

f. Waiver. The failure of any party to insist on the performance of any provision of this Agreement and to exercise any rights hereunder will not be construed as a waiver of future performance of any such provision or the future exercise of such right.

g. Severability. If a court of competent jurisdiction holds any provision of this Agreement invalid or unenforceable, the remaining provisions will nonetheless be enforceable. If such court determines that any provision of this Agreement is held to be overbroad as written, such provision will be deemed amended to narrow its application to the extent necessary to make the provision enforceable according to applicable law and will be enforced as amended.

h. Costs, Expenses and Attorney's Fees. If either party incurs costs or expenses, in enforcing any of its rights under this Agreement, whether by litigation, arbitration, or otherwise, each party in such dispute will reimburse the prevailing party for its reasonable costs and expenses according to law. Each party will bear the cost of its own attorney fees according to the American Rule.

i. No Third Party Beneficiaries. Nothing in this Agreement will create any obligations by City or Contractor or Licensee to any person or entity not a party to this Agreement, including Contractor's employees, volunteers or participants, or any other individuals employed by or under contract with City or Contractor.

15. **Term**. This contract shall expire on March 31, 2024.

[*Remainder of page intentionally left blank; signature page follows*]

IN WITNESS WHEREOF, the parties have hereunto set their hands the day and year first above written.

CITY OF OWATONNA

By _____
Thomas A. Kuntz
Its: Mayor

Date _____

By _____
Kris Busse
Its: City Administrator

Date _____

MARTIN EQUIPMENT, INC.

By Allan M. Martin
Allan M. Martin
Its: President

Date 5-8-2023

Public Works Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Sean Murphy, Public Works Director
SUBJECT: Stormwater Facility Maintenance Easement Agreement - 135 28th St NE

Purpose:
Approve the Stormwater Facility Maintenance Agreement with Wottreng Properties for their new facility located at 135 28th Street NE.

Background:
The City requires that on-site stormwater management must be maintained by the property owner to meet the requirements of the MS4 permit held by the City. The property owner agrees to the terms and conditions as outlined in the attached agreement.

Budget Impact:
No budget impact.

Staff Recommendation:
Staff recommends approval.

Attachments:
1. Stormwater Facility Maintenance Agreement - Wottreng Properties

Emailed 5/2/23 to Spencer + Bob

City of Owatonna Stormwater Facility Maintenance Easement

THIS AGREEMENT, made and entered into this 2nd day of May, 2023, by XXXXXX hereinafter called the "Property Owner" and the City of Owatonna, MN hereinafter called "City".

WHEREAS, the Property Owner is the owner of certain property described as Steele Cty Tax Parcel 175740901 **Exhibit A: (ATTACH LEGAL DESCRIPTION)** Block 9, Lot 1, North Bluff Estates

WHEREAS, the Property Owner is proceeding to build on and develop the property; and

WHEREAS, the site plan known as Nottrang Property, hereinafter called the "plan", which is expressly made a part hereof, as approved or to be approved by the City, provides for management of stormwater within the confines of the property; and

WHEREAS, the City and the Property Owner, its successors and assigns, agree that the health, safety, and welfare of the residents of the City of Owatonna, MN require that on-site stormwater management/BMP facilities be constructed and maintained on the Property; and

WHEREAS, the City requires that on-site stormwater management/ Structural Best Management Practices (BMP) facilities, as shown on the Plan and implemented to meet requirements of Minnesota Permit No. MNR040000 and Minnesota Permit No. MNR100001,

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The Property Owner shall provide an attachment to this agreement the required Maintenance Plan, as-built drawings, and certification that the BMP has been constructed properly as required by the City of Owatonna Stormwater Management Ordinance No. 52.00 at end of project.
2. The facilities shall be constructed and maintained by the Property Owner, its successors, and assigns in accordance with the plans and specifications identified in the submitted plan.
3. The facilities shall be constructed and maintained by the Property Owner, its successors, and assigns, in compliance with the most recent requirements of the City's Stormwater Management Ordinance 52.00, Minnesota Permit No. MNR040000 and Minnesota Permit No. MNR100001 under the National Pollutant Discharge Elimination System/State Disposal System Permit Program.
4. The Property Owner, its successors, and assigns, shall at all time, adequately maintain the facilities. Such maintenance obligations shall include the obligation to properly maintain all pipes, channels, or other conveyances built to convey stormwater, as well as, all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater.
5. Adequate maintenance is herein defined as keeping the facilities and all components in good working condition so that these facilities continue to perform their design functions.
6. The Property Owner, its successors, and assigns, shall inspect the stormwater management facility on a routine basis, at a minimum annually, to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities including embankments, berms, inlet and outlet structures, pond areas, access roads, etc.

(1)

7. The Property Owner, its successors, and assigns shall be responsible for improving, modifying, installing new/existing structural stormwater best management practices in the event the practice is found to no longer be effective in meeting treatment requirements of MN Permit No. MNR040000 and MN Permit No. MNR100001.
8. The Property Owner, its successors, and assigns, hereby grants to the City, its authorized agents and employees, a non-exclusive perpetual easement of ingress and egress over, across, under, and through the property for the purpose of inspecting the facilities. The Property Owner also grants the City the access to inspection and maintenance records conducted by the Property Owner.
9. The City shall provide the Property Owner, its successors, and assigns, a notice including copies of any inspection findings, a directive to commence with needed repairs, improvements, or modifications and a deadline to complete the repairs.
10. The Property Owner, its successors and assigns, shall reply to the Engineering Department within 15 business days, indicating their response to the notice.
11. In any event the Property Owner, its successors, and assigns, fails to maintain the facilities in good working condition acceptable to the City, the City and its authorized representatives may enter upon the property and take such steps as are necessary to correct deficiencies identified in the inspection report and to charge the costs of such repairs to the Property Owner, it successors, and assigns, as outlined in the City's Stormwater Management Ordinance 52.00.
12. It is expressly understood and agreed that the City is under no obligation to routinely maintain or repair said facilities, and in no event shall this agreement be construed to impose any such obligations on the City.
13. This agreement imposes no liability of any kind whatsoever on the City. The Property Owner, its successors, and assigns, agrees to hold the City harmless from any liability in the event the stormwater management facilities fail to operate properly.
14. This agreement shall be recorded by the County Recorder of Steele County, Minnesota, and shall constitute a covenant running with the Property and/or equitable servitude, and shall be binding on the Property Owner, his or her heirs, successors, and assigns, and any other successors in interests, in perpetuity.

Property Owner: Robert Wottreng

By: Robert Wottreng / Wottreng Property

Its: Owner

STATE OF MINNESOTA)
) ss.
COUNTY OF STEELE)

The foregoing instrument was acknowledged before me this 2nd day of May, 2023, by Robert Wottreng, the Owner of Wottreng Prop a limited liability company under the laws of the State of Minnesota on behalf of the company.

ANNAMARIE MINUTILLO
Notary Public
Minnesota
My Commission Expires
Jan 31, 2024

Notary Public

City: City of Owatonna

By: Thomas A. Kuntz, Mayor

By: Kris M. Busse, City Administrator

STATE OF MINNESOTA)
) ss.
COUNTY OF STEELE)

The foregoing instrument was acknowledged before me this ___ day of _____, 2022, by Thomas A. Kuntz, the Mayor of the City of Owatonna, and by Kris M. Busse, the Administrator of the City of Owatonna, a municipality under the laws of the State of Minnesota on behalf of the City.

Notary Public

Drafted By:
City of Owatonna
540 West Hills Circle
Owatonna, MN 55060

(3)

Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jeanette Clawson, Administrative Specialist
SUBJECT: Resolution 45-23 Authorize Contract for Purchases - Fame Awards

Purpose:
Council approve Resolution 45-23 authorizing purchases from Fame Awards.

Background:
The City purchased recognition products (name plates, program award and plaques, Brooktree bagtags and cart passes) from Fame Awards. This business is owned by Doug Voss, a current Council Member At-Large for the City of Owatonna.

State Statute prohibits a City Council member from having a personal financial interest in a contract with the City unless it meets an exception included in the statute. The council may, by unanimous vote, contract for goods and services with an interested officer in certain enumerated situations, including “a contract for which competitive bids are *not* required by law.” Competitive bids are not required for contracts less than $100,000.00.

When no competitive bid is required, these steps must be followed:
1. That the council adopt a resolution authorizing the contract which includes a statement that the contract price is as low as or lower than the price for which the commodity could be obtained elsewhere;
2. That before payment is made to the public official, the public official must file with the city clerk an affidavit stating that to the best of the officer’s knowledge, the contract’s price is as low as or lower than the price at which the commodity could be obtained from other sources;
3. That the council must approve the contract by unanimous vote; and
4. The public official must abstain from voting on the matter.

Budget Impact:
The amount of these purchases is $2,037.83.

Staff Recommendation:
Staff recommends approval of Resolution 45-23.

Attachments:

1. Res 45-23 Contract - Fame Award Purchases

RESOLUTION NO. 45-23

A RESOLUTION AUTHORIZING CONTRACT WITH FAME AWARDS
PURSUANT TO MINN. STAT. §§ 471.87-89

WHEREAS, the City of Owatonna desires to purchase certain recognition products including nameplates, plaques, bag tags, and signs; and

WHEREAS, Douglas V. Voss, owner of Fame Awards, is a City Council member of the City and will be financially interested in the contract; and

WHEREAS, the contract in the sum of $2,037.83 is not one that is required to be competitively bid. and

WHEREAS, Councilmember Voss has signed an Affidavit of Official Interest in Claim as required by law. and

WHEREAS, the contract price of $2,037.83 is as low as, or lower than, the price at which the goods can be obtained elsewhere at this time.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Owatonna, Minnesota as follows:

1. The City Clerk-Treasurer is directed to make the above-mentioned purchases on behalf of the City from Fame Awards for a price of $2,037.83.

2. The Mayor and City Clerk-Treasurer are directed to issue an order-check to pay the claim upon the filing of an affidavit of official interest by the interested official pursuant to Minn. Stat. § 471.89.

3. This resolution is adopted pursuant to Minn. Stat. §§ 471.87-89.

Passed and adopted this ____ day of _____, 2023, with the following vote:

Aye _____; No _____; Absent _____; Recused _____.

Approved and signed this _____ day of _____, 2023.

_____
ATTEST: Thomas A. Kuntz, Mayor

_____
Kris M. Busse, City Administrator

RECAP:

	2,037.83	Fame Awards - Name plates, Program awards & plaques, Brooktree bagtags & cart passes
	29,687.59	Central Farm Service - Fuel
	20,446.00	Ess Brothers & Sons Inc - Manhole lids
	78,662.95	JJD - 2022 Street & Utility Pay Est 6
	40,000.00	Owatonna Area Chamber - First 1/2 each $15,000 EDA Agmt & $25,000 Main St Agmt
	89,731.99	Steele Co Auditor - 1st Qtr 2023 LEC costs
	101,360.70	Steele Co Treasurer - 2023 Property Tax & Prosecuting Attorney
	126,731.54	Southeast Service Coop - March health insurance premiums
	264,015.96	OTHER EXPENDITURES
$	752,674.56	*SUBTOTAL*
	91,706.00	HRA HOUSING ASSISTANCE PAYMENTS
$	844,380.56	TOTAL EXPENDITURES PRESENTED FOR APPROVAL

NOTE: Checks over $20,000 are detailed out individually

A/P Check Register
Checks from to

Check Number	Check Date	Vendor Name	Net Check Amount	Check Status	Check Type
		Cash Account: 999-19100-000-000-000000			
372978	05/01/23	A&K LLC	700.00	R	ACH
372979	05/01/23	ADAMS REVOCABLE LIVING TRUST	544.00	R	ACH
372980	05/01/23	ALL AREA MANAGEMENT LLC	436.00	R	ACH
372981	05/01/23	APACHE APARTMENTS	602.00	R	ACH
372982	05/01/23	ARNFELT RENTS	59.00	R	ACH
372983	05/01/23	ATM PROPERTIES LLC	1,380.00	R	ACH
372984	05/01/23	AUSTIN HRA	2,546.00	O	Regular
372985	05/01/23	B-GROVE LLC	1,085.00	R	ACH
372986	05/01/23	BB BROTHERS HOLDINGS LLC	299.00	R	ACH
372987	05/01/23	BROWN CYNTHIA	509.00	R	ACH
372988	05/01/23	BRYCEN GREGOR	941.00	R	ACH
372989	05/01/23	CEDAR HILLS ESTATES	561.00	R	ACH
372990	05/01/23	CEDAR RIDGE APARTMENTS	732.00	R	ACH
372991	05/01/23	CEDAR ROSE ASSOCIATES LLC	254.00	R	ACH
372992	05/01/23	CEDAR RUN TOWN HOMES MDI #41	2,572.00	R	ACH
372993	05/01/23	CEDARDALE NORTH APARTMENTS	348.00	R	ACH
372994	05/01/23	CEDARDALE SOUTH APARTMENTS	262.00	R	ACH
372995	05/01/23	CEDARDALE WEST APARTMENTS	579.00	R	ACH
372996	05/01/23	CHAD EISCHENS	589.00	R	ACH
372997	05/01/23	CHRIS PROHASKI	993.00	R	ACH
372998	05/01/23	COMMON CENTS PROPERTIES LLC	340.00	R	ACH
372999	05/01/23	DAN NECHVILLE	644.00	R	ACH
373000	05/01/23	DANIEL SCHLEGEL	483.00	R	ACH
373001	05/01/23	DONALD RIPPLE	982.00	R	ACH
373002	05/01/23	EEK LLC	391.00	R	ACH
373003	05/01/23	ELLINGSON RICHARD	807.00	R	ACH
373004	05/01/23	ESSO PROPERTIES LLC	774.00	R	ACH
373005	05/01/23	GERALD BESSER & JANET BESSER	457.00	R	ACH
373006	05/01/23	IMAGE APARTMENT	2,470.00	R	ACH
373007	05/01/23	JASON HINNA	766.00	R	ACH
373008	05/01/23	JBLL EQUITIES LLC	1,306.00	R	ACH
373009	05/01/23	JOHN & DENISE SCHROEDER	505.00	R	ACH
373010	05/01/23	JOHNSON WINDOW & SIDING INC	3,129.00	R	ACH
373011	05/01/23	JPF PROPERTIES	1,100.00	R	ACH
373012	05/01/23	JULIE WERSAL	437.00	R	ACH
373013	05/01/23	KEG INVESTMENTS LLC	471.00	R	ACH
373014	05/01/23	KERR MCCAULEY INVESTMENT II	289.00	R	ACH
373015	05/01/23	KLEVOS GREG	837.00	R	ACH
373016	05/01/23	LAXMAN S SUNDAE	707.00	R	ACH
373017	05/01/23	LEE ANNA	2,488.00	R	ACH
373018	05/01/23	LINCOLN SQUARE APARTMENTS	6,863.00	R	ACH
373019	05/01/23	LOFTS ON 3RD	526.00	R	ACH
373020	05/01/23	LWO LIMITED PARTNERSHIP #116	2,283.00	R	ACH
373021	05/01/23	MANCINI NICHOLAS	741.00	R	ACH

A/P Check Register
Checks from to

Check Number	Check Date	Vendor Name	Net Check Amount	Check Status	Check Type
373022	05/01/23	MARQUARDT DENNIS	1,621.00	R	ACH
373023	05/01/23	MARTIN ALLAN	2,317.00	R	ACH
373024	05/01/23	MARTIN FAMILY LLC	546.00	R	ACH
373025	05/01/23	MCCAULEY PATRICK	835.00	R	ACH
373026	05/01/23	MIDWEST INVEST LLC	485.00	R	ACH
373027	05/01/23	MILLER APARTMENTS	758.00	R	ACH
373028	05/01/23	MINNEAPOLIS PHA	917.40	R	ACH
373029	05/01/23	NECHVILLE SUSAN	1,807.00	R	ACH
373030	05/01/23	NORTH VIEW APARTMENTS	867.00	R	ACH
373031	05/01/23	NORTHCOURT APARTMENTS	1,375.00	R	ACH
373032	05/01/23	NORTHGATE	2,257.00	R	ACH
373033	05/01/23	NORTHWEST MANOR	1,023.00	R	ACH
373034	05/01/23	OLSEN RENTALS LLC	988.00	O	Regular
373035	05/01/23	OWATONNA PUBLIC UTILITIES	101.00	R	ACH
373036	05/01/23	PARK PLAZA LLC	1,067.00	R	ACH
373037	05/01/23	PARKVIEW OWATONNA LLC	325.00	R	ACH
373038	05/01/23	POSITIVE SHARE LLC	417.00	R	ACH
373039	05/01/23	PROHASKI PROPERTIES	1,062.00	R	ACH
373040	05/01/23	QUALITY RENTALS OF OWATONNA LL	631.00	R	ACH
373041	05/01/23	RAYMOND WILLMOTT	226.00	R	ACH
373042	05/01/23	SCOTT COUNTY CDA	5,968.60	R	ACH
373043	05/01/23	SMITH REAL ESTATE LLC	891.00	R	ACH
373044	05/01/23	SOUTH CENTRAL HUMAN RELATIONS	3,745.00	R	ACH
373045	05/01/23	SUBLAND INVESTMNTS & LIFESTYLE	573.00	R	ACH
373046	05/01/23	SUMMIT MANOR	293.00	R	ACH
373047	05/01/23	TM RENTALS II LLC	483.00	R	ACH
373048	05/01/23	TM RENTALS LLC	421.00	R	ACH
373049	05/01/23	TREND REALTY LLC	580.00	R	ACH
373050	05/01/23	USDA RURAL DEVELOPMENT	436.00	O	Regular
373051	05/01/23	USDA RURAL DEVELOPMENT	480.00	O	Regular
373052	05/01/23	WILLOW RUN I MDI #58	3,537.00	R	ACH
373053	05/01/23	WILLOW RUN II MDI #85	3,541.00	R	ACH
373054	05/01/23	YOUNGDAHL DEVELOPMENT LLC	1,638.00	R	ACH
373055	05/01/23	ZK INVESTORS LLC	2,182.00	R	ACH
373056	05/01/23	DAFYDD G WILLIAMS	1,326.00	R	ACH
373057	05/01/23	ELM STREET PROPERTIES	199.00	R	ACH
373058	05/09/23	AFLAC	6,316.76	O	Regular
373059	05/09/23	ALEXANDER LUMBER COMPANY	74.82	O	Regular
373060	05/09/23	AMERICAN ENGINEERING TESTING	16,292.00	O	Regular
373061	05/09/23	AMERICAN LEAK DETECTION	2,500.00	O	Regular
373062	05/09/23	AMERICAN RED CROSS	210.00	O	Regular
373063	05/09/23	ANHORN'S GAS & TIRE	930.71	O	Regular
373064	05/09/23	ANNA K MARTIN	72.84	O	Regular
373065	05/09/23	ARAMARK UNIFORM SERVICES INC	364.70	O	Regular
373066	05/09/23	ARROW ACE HARDWARE	165.21	O	Regular

A/P Check Register
Checks from to

Check Number	Check Date	Vendor Name	Net Check Amount	Check Status	Check Type
373067	05/09/23	ASA*USA SOFTBALL OF MN	850.00	O	Regular
373068	05/09/23	ASCAP	430.00	O	Regular
373069	05/09/23	BAKER & TAYLOR BOOKS	1,255.73	O	Regular
373070	05/09/23	BARRON'S	299.88	O	Regular
373071	05/09/23	BLACKSTONE PUBLISHING	170.73	O	Regular
373072	05/09/23	BLEKRE APPRAISAL SERVICES LLC	3,800.00	O	Regular
373073	05/09/23	BRIAR BONIN	205.58	O	Regular
373074	05/09/23	BROTHERHOOD FOR DISRUPTIVE INN	6,416.10	O	Regular
373075	05/09/23	CARQUEST	1,952.35	O	Regular
373076	05/09/23	CENTRAL FARM SERVICE	29,687.59	O	Regular
373077	05/09/23	CINTAS	59.16	O	Regular
373078	05/09/23	CLUB PROPHET SYSTEMS	555.00	O	Regular
373079	05/09/23	COURT SPORTS & MORE	592.00	O	Regular
373080	05/09/23	CULLIGAN OF OWATONNA	63.45	O	Regular
373081	05/09/23	CUSTOM COMMUNICATIONS	2,503.90	O	Regular
373082	05/09/23	D & M CONSTRUCTION LLC	230.25	O	Regular
373083	05/09/23	DAVID SKIBA	75.00	O	Regular
373084	05/09/23	DYNAMISM INC	14,711.00	O	Regular
373085	05/09/23	EARL F ANDERSEN & ASSOC	1,284.50	O	Regular
373086	05/09/23	EDUCATIONAL DEV CORP	940.21	O	Regular
373087	05/09/23	EDWARD SPRINGER	1,620.00	O	Regular
373088	05/09/23	ELITE LAYERS	2,834.00	O	Regular
373089	05/09/23	ENVIRONMENTAL EQUIP & SERV INC	611.84	O	Regular
373090	05/09/23	ESS BROTHERS & SONS INC	20,446.00	O	Regular
373091	05/09/23	ET&T DISTRIBUTORS INC	4,939.10	O	Regular
373092	05/09/23	EYE MED VISION CARE	858.82	O	Regular
373093	05/09/23	FALKSTONE LLC	131.24	O	Regular
373094	05/09/23	FAME AWARDS	2,037.83	O	Regular
373095	05/09/23	FARMERS FEED AND PET SUPPLY	69.99	O	Regular
373096	05/09/23	FASTENAL COMPANY	44.99	O	Regular
373097	05/09/23	FIRE PROTECTION SERVICES	1,399.00	O	Regular
373098	05/09/23	FIRST SUPPLY OWATONNA	225.46	O	Regular
373099	05/09/23	FOUR SEASONS ELECTRIC	65.00	R	ACH
373100	05/09/23	HEALTHPARTNERS INC	9,203.66	O	Regular
373101	05/09/23	HILLYARD INC	773.55	O	Regular
373102	05/09/23	HORIZON COMMERCIAL POOL SUPPLY	16,374.97	O	Regular
373103	05/09/23	HOTSY EQUIPMENT CO INC	100.77	O	Regular
373104	05/09/23	HUGHEY AND PHILLIPS LLC	3,351.98	O	Regular
373105	05/09/23	IFACS	479.37	O	Regular
373106	05/09/23	INNOVATIVE OFFICE SOLUTIONS	13,011.15	O	Regular
373107	05/09/23	JASON MARSHALL STAYTON	830.00	O	Regular
373108	05/09/23	JAVENS MECHANICAL CONTR CO	1,027.50	O	Regular
373109	05/09/23	JJD COMPANIES LLC	78,662.95	O	Regular
373110	05/09/23	JOHN DEERE CREDIT	404.77	O	Regular
373111	05/09/23	JONES HAUGH & SMITH INC	4,899.90	O	Regular

A/P Check Register
Checks from to

Check Number	Check Date	Vendor Name	Net Check Amount	Check Status	Check Type
373112	05/09/23	LARRY THORNHILL	272.00	O	Regular
373113	05/09/23	LAWSON AUTOMOTIVE LLC	2,105.37	O	Regular
373114	05/09/23	LAWSON PRODUCTS	1,501.22	O	Regular
373115	05/09/23	LEAGUE OF MN CITIES INS TRUST	1,758.80	O	Regular
373116	05/09/23	LEGACY SIGNS INC	109.52	O	Regular
373117	05/09/23	M2 POWERSPORTS LLC	889.75	O	Regular
373118	05/09/23	MADISON NATL LIF INS CO INC	1,955.84	O	Regular
373119	05/09/23	MARCO TECHNOLOGIES LLC	8,569.91	O	Regular
373120	05/09/23	MAXFIELD RESEARCH AND CONSULT	8,750.00	O	Regular
373121	05/09/23	MCMASTER-CARR SUPPLY CO	117.67	O	Regular
373122	05/09/23	METRO SALES INC	519.42	O	Regular
373123	05/09/23	METRONET	1,010.68	O	Regular
373124	05/09/23	MIDWEST TAPE LLC	1,549.79	O	Regular
373125	05/09/23	MINNESOTA LIFE	5,778.45	O	Regular
373126	05/09/23	MN CHIEFS OF POLICE ASSN	525.00	O	Regular
373127	05/09/23	MN DRIVER & VEHICLE SERVICES	28.50	O	Regular
373128	05/09/23	MN NCPERS GROUP LIFE INSURANCE	464.00	O	Regular
373129	05/09/23	MN RECREATION & PARK ASSN	630.00	O	Regular
373130	05/09/23	MN VALLEY TESTING LABS INC	375.10	O	Regular
373131	05/09/23	MOTOROLA SOLUTIONS INC	194.40	R	ACH
373132	05/09/23	MTI DISTRIBUTING INC	2,005.70	O	Regular
373133	05/09/23	NAPA AUTO PARTS	836.13	O	Regular
373134	05/09/23	NARDINI FIRE EQUIPMENT CO INC	661.75	O	Regular
373135	05/09/23	NORTHSTAR CALIBRATION INC	97.00	O	Regular
373136	05/09/23	OLMSTED CO TREASURY FINANCE	150.00	O	Regular
373137	05/09/23	ORIGINAL WATERMEN INC	1,562.78	O	Regular
373138	05/09/23	OWATONNA AREA CHAMBER OF COMM	40,000.00	O	Regular
373139	05/09/23	OWATONNA EAGLES 1791	3,102.80	O	Regular
373140	05/09/23	OWATONNA HEATING & COOLING INC	135.00	O	Regular
373141	05/09/23	OWATONNA MOTOR COMPANY	577.30	O	Regular
373142	05/09/23	OWATONNA PUBLIC UTILITIES	3,351.92	R	ACH
373143	05/09/23	OWATONNA RENT N SAVE	491.40	O	Regular
373144	05/09/23	OWATONNA VETERINARY SERVICES	26.80	O	Regular
373145	05/09/23	PAAPE COMPANIES INC	300.00	O	Regular
373146	05/09/23	PACKTRACK	140.00	O	Regular
373147	05/09/23	PARAGON PRINTING	528.10	O	Regular
373148	05/09/23	PDI	45.30	O	Regular
373149	05/09/23	PHONE STATION INC	457.00	O	Regular
373150	05/09/23	PHYLLIS URCH	91.27	O	Regular
373151	05/09/23	PLUNKETT'S PEST CONTROL INC	427.34	O	Regular
373152	05/09/23	PRESENCE TELEHEALTH PLLC	1,600.00	O	Regular
373153	05/09/23	RDO EQUIPMENT CO	328.87	O	Regular
373154	05/09/23	REINDERS INC	6,600.81	O	Regular
373155	05/09/23	RENT N SAVE	840.00	O	Regular
373156	05/09/23	RIVERLAND COMMUNITY COLLEGE	2,795.00	O	Regular

A/P Check Register
Checks from to

Check Number	Check Date	Vendor Name	Net Check Amount	Check Status	Check Type
373157	05/09/23	SCHILLING SUPPLY CO	836.41	O	Regular
373158	05/09/23	SELCO	2,755.00	O	Regular
373159	05/09/23	SENIORPLACE INC	226.00	O	Regular
373160	05/09/23	SHI CORP	1,275.77	O	Regular
373161	05/09/23	SPLIT ROCK MANAGEMENT INC	3,860.00	O	Regular
373162	05/09/23	STEELE COUNTY AUDITOR	89,731.99	O	Regular
373163	05/09/23	STEELE COUNTY TREASURER	101,360.70	O	Regular
373164	05/09/23	STENDEL BRIAN & SUSAN	6,624.00	O	Regular
373165	05/09/23	STEPP MANUFACTURING CO INC	224.16	O	Regular
373166	05/09/23	STEWART DENISE	164.28	O	Regular
373167	05/09/23	STEWART SANITATION	2,804.32	O	Regular
373168	05/09/23	SYNCHRONY BANK	370.04	O	Regular
373169	05/09/23	T-MOBILE	567.64	O	Regular
373170	05/09/23	TAYLOR PIOTTER	20.00	O	Regular
373171	05/09/23	THE MONTEREY COMPANY INC	721.00	O	Regular
373172	05/09/23	THE TESSMAN COMPANY	990.03	O	Regular
373173	05/09/23	THE WEATHER APPAREL CO LLC	1,051.72	O	Regular
373174	05/09/23	TRI M GRAPHICS	1,309.09	O	Regular
373175	05/09/23	TRUCK CENTER COMPANIES LLC	1,191.00	O	Regular
373176	05/09/23	UTILITY CONSULTANTS INC	1,849.26	R	ACH
373177	05/09/23	VAULT HEALTH	665.52	O	Regular
373178	05/09/23	VERIZON WIRELESS	2,631.62	O	Regular
373179	05/09/23	WALBRAN & FURNESS CHARTERED	9,447.50	R	ACH
373180	05/09/23	WHKS & CO	2,714.00	O	Regular
373181	05/09/23	ZEP MANUFACTURING CO	269.94	R	ACH
373182	05/09/23	MATTHEW R HOKANSON	1,137.43	O	Regular
373183	03/20/23	FULLSTEAM	68.78	R	Wire Transfer
373184	03/20/23	GLOBAL PAYMENTS INTEGRATED	2,915.61	R	Wire Transfer
373185	03/20/23	MN DEPT OF LABOR AND INDUSTRY	3,428.83	R	Wire Transfer
373186	03/20/23	MN DEPT OF REVENUE	1,438.57	R	Wire Transfer
373187	03/20/23	PAYMENTECH	34.27	R	Wire Transfer
373188	03/20/23	SOUTHEAST SERVICE COOPERATIVE	126,731.54	R	Wire Transfer
373189	03/20/23	US BANK	19,908.67	R	Wire Transfer
373190	03/20/23	WEX BANK	1,329.62	R	Wire Transfer
373191	03/20/23	WEX HEALTH INC	349.25	R	Wire Transfer

A/P Check Register
Checks from to

123	Checks total:	585,741.40
82	ACH total:	102,434.02
0	EFTPS total:	
9	Wire transfer total:	156,205.14
0	Payment Manager total:	
214	GRAND TOTALS	844,380.56

Ordinances

Community Development Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Greg Kruschke, Community Development Manager
SUBJECT: Proposed Ordinance 23-10: Vacate all Rights of Way and Easements within Good Samaritan Addition

Purpose:
Approve first reading of the ordinance vacating the public rights of way and all public easements within the Good Samaritan Addition Plan.

Background:
See Attached Staff Report.

Budget Impact:
None.

Staff Recommendation:
Staff recommends approval as recommended by the Planning Commission. Second/final reading planned for July 5th City Council Meeting.

Attachments:
1. Ord 23-10 Vacate ROW & Easements - Good Samaritan Add
2. PC Staff Report -Good Samaritan Addition Vacations

Proposed Ordinance No. 23-10

ORDINANCE NO. ___

AN ORDINANCE PURSUANT TO SECTION 6.2 OF THE HOME RULE CHARTER OF THE CITY OF OWATONNA, AND SECTION 675 OF THE 1992 ORDINANCE CODE OF THE CITY OF OWATONNA, VACATING A STREET, ALLEY, OR PUBLIC RIGHT-OF-WAY, OR ANY PART THEREOF, HEREIN DESCRIBED, AND PROVIDING FOR ITS RECORDING.

WHEREAS, there has been filed with the City Council a petition to vacate the premises hereinafter described; and

WHEREAS, a public hearing was held on May 9, 2023, on the said petition and after public notice was given, pursuant to Section 6.2 of the Home Rule Charter; and

WHEREAS, the proposed vacation does not destroy or interfere with the rights of any person, corporation, or municipality; and

WHEREAS, the City finds that the premises hereinafter described are no longer required for municipal purposes.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF OWATONNA DO ORDAIN:

SECTION 1. That the following described portion is hereby vacated;

The utility easements dedicated by GOOD SAMARITAN ADDITION, according to the recorded plat thereof on file in the Steele County, Minnesota, Recorder's Office.

AND

The public streets dedicated by GOOD SAMARITAN ADDITION, according to the recorded plat thereof on file in the Steele County, Minnesota, Recorder's Office.

SECTION 2. The City Clerk shall cause this Ordinance to be filed for record in the offices of the City Clerk and the City Engineer of the City of Owatonna and its title added to Appendix IV of the 1992 Ordinance Code of the City of Owatonna.

SECTION 3. The City Clerk shall cause an original copy hereof to be filed for record and duly recorded in the office of the Steele County Recorder in and for Steele County, Minnesota.

SECTION 4. Effective Date. This Ordinance shall be in full force and effect from and after its passage and publication.

Passed and adopted this _____ day of _____, 2023, with the following roll call vote:

Aye:

No:

Absent:.

Approved and signed this _____ day of _____, 2023.

_____

Thomas A. Kuntz, Mayor

ATTEST:

_____

Kris M. Busse, City Administrator/City Clerk

May 4, 2023

To: Planning Commission
From: Community Development Department
RE: Request to vacate all rights of way and utility easements within Good Samaritan Addition

Application Review:

Applicant:	Chad Lange, Festal Farms & Prairie LaSalle Partners
Location of Property:	East of St Paul Rd and North of Lee Street
Legal Description:	See Attached Survey
Report Attachments:	1. Location Map 2. Vacation Sketch & Description

Background:

- A request by Prairie LaSalle Partners and Chad Lange, Festal Farms, a request to vacate all public rights of way and all utility easements within the plat of Good Samaritan Addition.
- The applicant's are requesting to vacate everything within this plat in order to replat and develop this area as proposed with the Mineral Springs Estates requests.
- To date there have been no utilities, streets, or any other infrastructure improvements constructed on this property.
- Due to the wetlands that have delineated, it creates difficulties with the streets as currently platted.

Staff Recommendation:

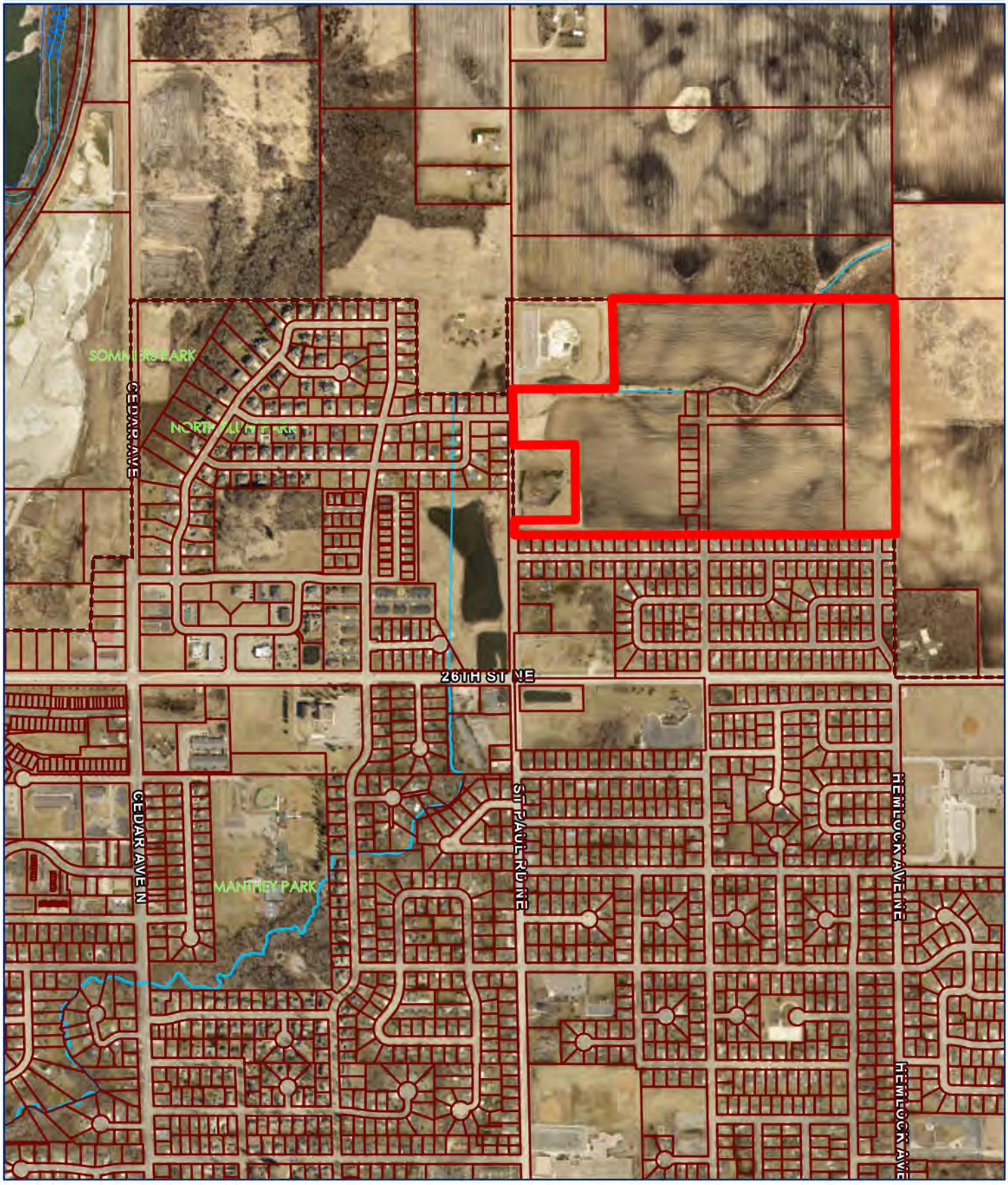
Staff recommends approval of this vacation of a portion of all public rights of way and all utility easements within the plat of Good Samaritan Addition as described above with the following conditions:

1) Vacation is contingent upon approval of the plat of Mineral Springs Estates.

Planning Commission:

Please see RZ-2 and the Preliminary Plat staff reports. All comments were related to the proposed development. No comments were related to the vacations.

Mineral Springs Estates
City of Owatonna



Site

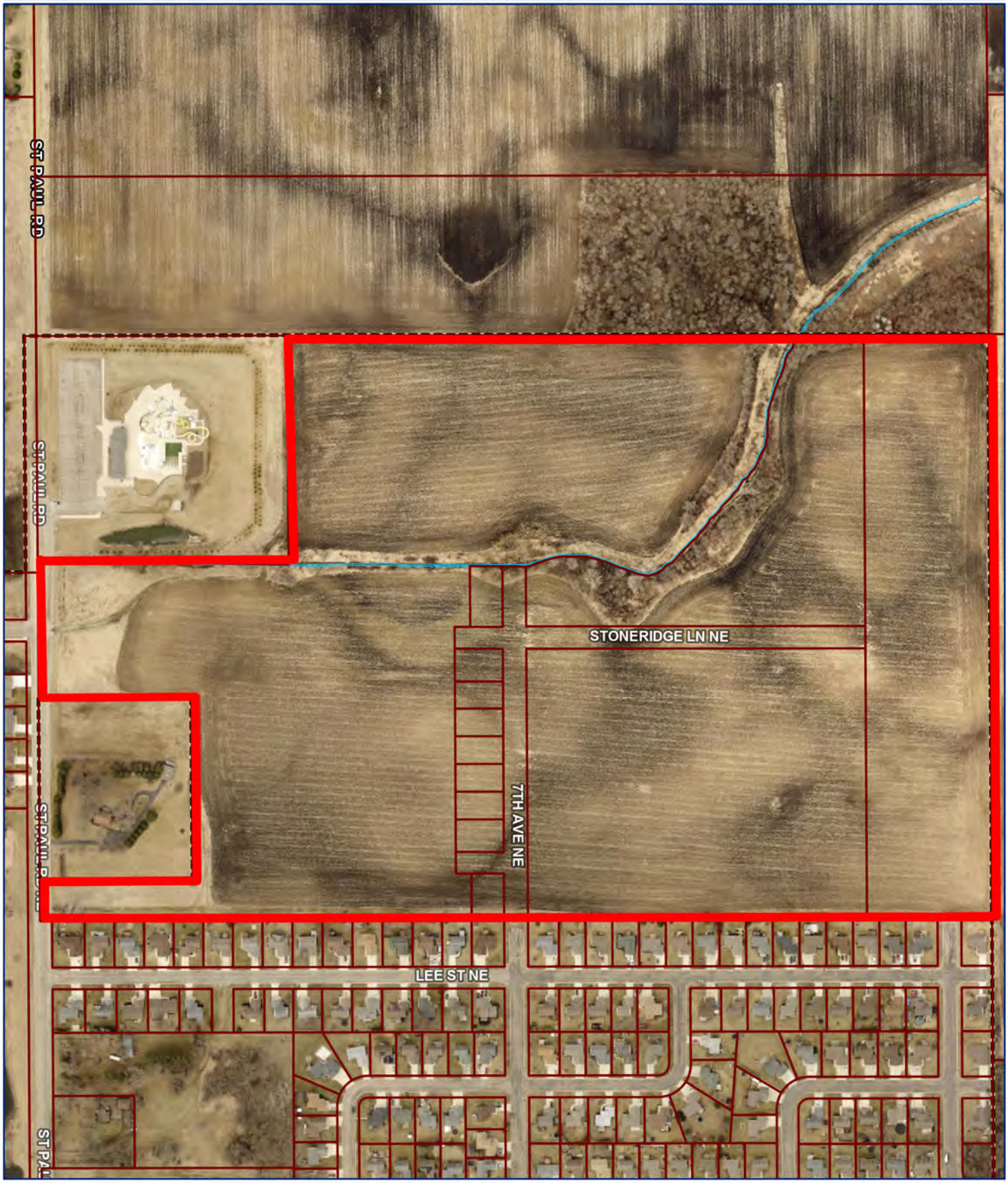
April 24, 2023

1:15,000

1 in = 1,250 ft

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

Mineral Springs Estates
City of Owatonna



Site

April 24, 2023

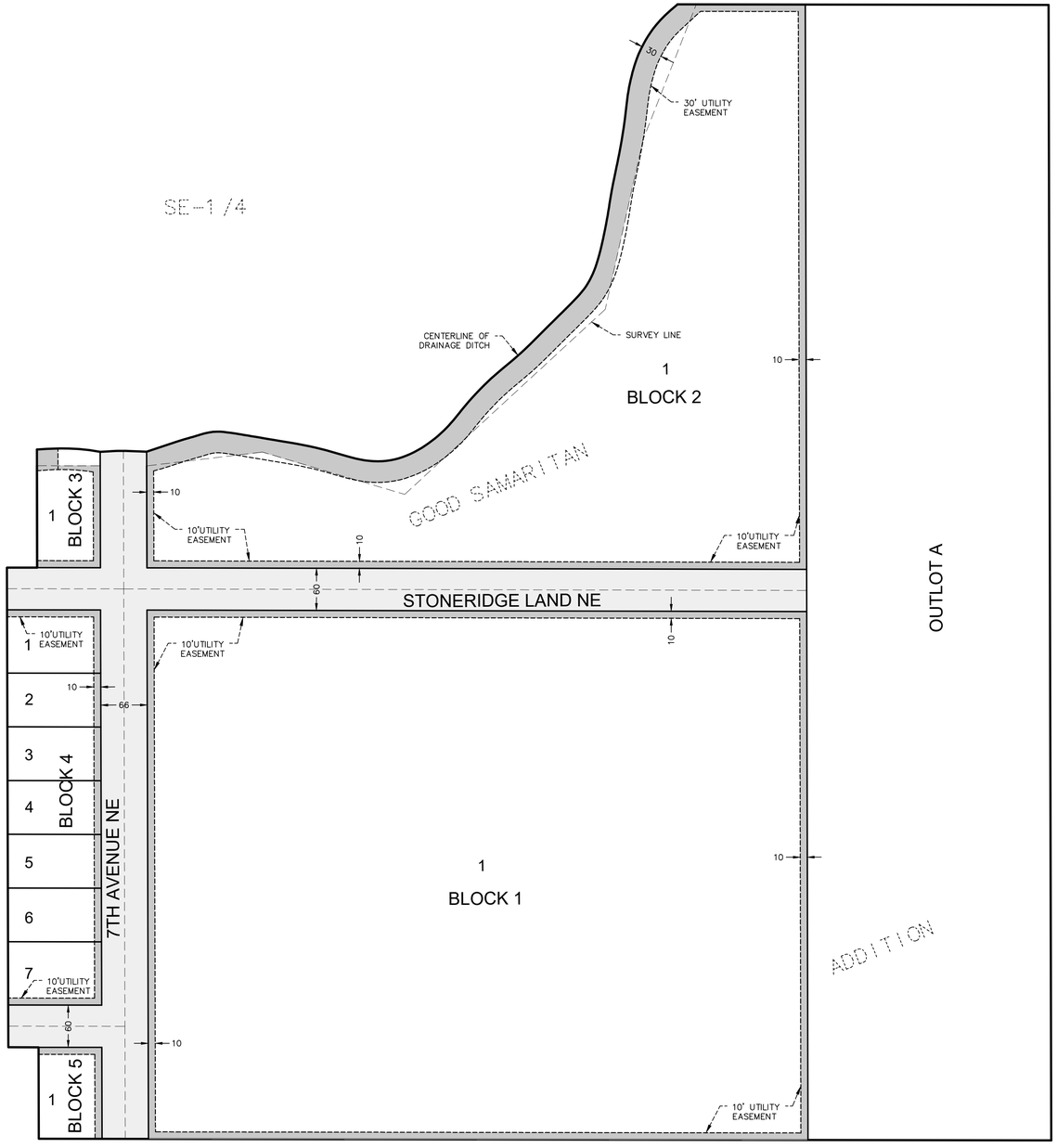
1:6,000

1 in = 500 ft

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

STREET AND UTILITY EASEMENT VACATION EXHIBIT

GOOD SAMARITAN ADDITION
SECTION 34, TOWNSHIP 108, RANGE 20,
STEELE COUNTY, MINNESOTA



= DENOTES STREET TO BE VACATED

= DENOTES UTILITY EASEMENT TO BE VACATED

SURVEYOR'S NOTES:

ACCORDING TO THE STEELE COUNTY ON-LINE PARCEL MAPPING APPLICATION, THE SUBJECT PROPERTY IS CURRENTLY LOCATED WITHIN THE PUD PLANNED UNIT DEVELOPMENT ZONING DISTRICT.

THIS SURVEY WAS COMPLETED WITHOUT THE BENEFIT OF A TITLE COMMITMENT OR OPINION. THERE MAY BE EASEMENTS OR OTHER LIMITING FACTORS WHICH AFFECT THE SUBJECT PROPERTY THAT ARE NOT SHOWN ON THIS SURVEY.

THE SKETCH IS FOR VISUAL REPRESENTATION ONLY. TO SEE EXACT RECORDED BEARINGS AND DISTANCES SEE GOOD SAMARITAN ADDITION PLAT ON FILE IN THE STEELE COUNTY, MINNESOTA, RECORDER'S OFFICE.

PROPOSED VACATION DESCRIPTIONS:

The utility easements dedicated by GOOD SAMARITAN ADDITION, according to the recorded plat thereof on file in the Steele County, Minnesota, Recorder's Office.

AND

The public streets dedicated by GOOD SAMARITAN ADDITION, according to the recorded plat thereof on file in the Steele County, Minnesota, Recorder's Office.

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DATE:	APRIL 20, 2023
SCALE:	AS SHOWN
DRAWN BY:	TJP
CHECKED BY:	CMC
FILE NUMBER:	2022-11572

DATE	AMENDMENTS	BY

PREPARED FOR: **HAS CAPITAL ADVISORS LLC**

I HEREBY CERTIFY THAT THIS SURVEY, PLAN, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

Tyler Pogreba

TYLER J. POGREBA DATE: 04/25/2023 LIC. NO. 60122

WIDSETH
ARCHITECTS ▪ ENGINEERS ▪ SCIENTISTS ▪ SURVEYORS

Community Development Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Greg Kruschke, Community Development Manager
SUBJECT: Proposed Ordinance 23-11: RZ-2 Mineral Springs Estates PUD

Purpose:
Hold first reading of Proposed Ordinance 23-11 to approve the Mineral Springs Estates PUD.

Background:
See attached staff report.

Budget Impact:
None.

Staff Recommendation:
Staff recommends approval of this first reading as recommended by the Planning Commission. The second/final reading is planned for July 5, 2023.

Attachments:
1. Ord 23-11 Mineral Springs Estates PUD
2. RZ-2 Mineral Springs Estates PUD

PROPOSED ORDINANCE 23-11

ORDINANCE NO.

AN ORDINANCE AMENDING ORDINANCE NO. 157,
OWATONNA ZONING ORDINANCE

WHEREAS, the owner of the hereinafter described lands has made application for a change in zone classification for said lands and public hearing has been held according to the provisions of Section 157.098, of Ordinance No. 157, and the Planning Commission of the City of Owatonna has recommended the change in zone classification as requested.

THE CITY COUNCIL OF THE CITY OF OWATONNA DO ORDAIN:

SECTION 1. Ordinance No. 157, Zoning Ordinance, is hereby amended so that the zoning map that is thereby incorporated by reference shall be changed as follows:

1. Pursuant to Application RZ-2 filed with the City of Owatonna, Minnesota, a zone change to a PUD, and after public hearing, held May 9, 2023, said application is hereby approved and the major PUD is hereby granted for the property legally described in Exhibit A with the following conditions:
   a) The Good Samaritan PUD adopted as Z-302 is hereby repealed and replaced with the PUD of Mineral Springs Estates.
   b) The PUD is contingent upon the approval and recording of the Mineral Springs Estates Plat.
   c) The Developer and the City shall enter into a Development Agreement laying out the roles and expectations of the development.
   d) A full photometrics plan shall be submitted and approved for all private areas.
   e) All signs shall be issued sign permits.
   f) All CIC plats and declarations shall be submitted and approved by the City.
   g) A turnaround area shall be provided on all temporary dead end streets.
   h) A trash enclosure plan shall be submitted to the City prior to the Second Reading.
   i) All permanent signs shall be reduced to 32 square feet and a maximum of 8’ in height.
   j) All signs shall be located outside of the public right of way and on private property.
   k) All grading, utility, and stormwater work shall be approved by the City Engineer prior to commencing any construction.

SECTION 2. Effective Date. This ordinance shall be in full force and effect from and after its passage and publication.

Passed and adopted this ___day of _____, 2023, with the following roll call vote:

Aye:
No:
Absent:

Approved and signed this _____day of _____, 2023.

ATTEST: _____ Thomas A. Kuntz, Mayor

_____
Kris M. Busse, City Administrator/City Clerk

Exhibit A

That part of the Southeast Quarter (SE1/4) of Section 34, Township 108, Range 20, Steele County, Minnesota, described as follows: Beginning at the northeast corner of said SE1/4; thence South 00 degrees 07 minutes 54 seconds East, bearing based on the Steel County Coordinate Database NAD83, 1614.62 feet to the northeast corner of WILLOWBROOK ADDITION NO. 3, according to the plat on file in the Steel County, Minnesota Recorder's Office; thence North 89 degrees 54 minutes 06 seconds West 2633.75 feet along the north line of said WILLOWBROOK ADDITION NO. 3 and along the north line of WILLOWBROOK ADDITION NO. 2 according to the plat on file in said Recorder's Office, to its intersection with the west line of said SE1/4; thence North 00 degrees 10 minutes 39 seconds West 101.50 feet along said west line of the SE1/4; thence North 89 degrees 49 minutes 21 seconds East 423.00 feet; thence North 00 degrees 10 minutes 39 seconds West 514.89 feet, parallel with said west line of the SE1/4; thence South 89 degrees 49 minutes 21 seconds West 423.00 feet to said west line of the SE1/4; thence North 00 degrees 10 minutes 39 seconds West 378.15 feet along said west line of the SE1/4 to the southwest corner of the tract described in Document No. 361141 on file in said Recorder's Office; thence easterly 695 feet, more or less, along the centerline of a drainage ditch also being the south line of said tract described in Document No. 361141 to the southeast corner of said tract described in Document No. 361141; thence North 00 degrees 10 minutes 39 seconds West 631.42 feet along the east line of said tract described in Document No. 361141 to its intersection with the north line of said SE1/4; thence South 89 degrees 54 minutes 13 seconds East 1940.04 feet along said north line of the SE1/4 to the point of beginning. Subject to easements, reservations, or restrictions of record, if any.

May 5, 2023

To: Planning Commission
From: Community Development Department
RE: Application RZ-2, by Prairie LaSalle Partners and Chad Lange, Festal Farms, a request for Planned Unit Development (PUD) of Mineral Springs Estates, a residential development with single family, two family and multi-family units to be constructed. The total development consists of 328 units over the 82 acres for a total density of 3.96 units per acre. The development also consists of more than 16 acres of open space.

Application Review:

Applicant/Owner:	Prairie LaSalle Partners / Chad Lange, Festal Farms
Location of Property:	The property is located east of 24th Avenue NW and south of an extension of 18th Street NW
Zoning Ordinance:	Section 157.052 states the requirements for a PUD
Report Attachments:	1. Location Maps 2. Preliminary Plans 3. Application Narrative

Proposed Development:

- Application RZ-2, by Prairie LaSalle Partners and Chad Lange, Festal Farms, a request for Planned Unit Development (PUD) of Mineral Springs Estates, a residential development with single family, two family and multi family units to be constructed.
- The total development consists of 328 units over the 82 acres for a total density of 3.96 units per acre.
- The development will consist of a mix of housing types. These unit types include traditional single family houses, single family attached units, townhouses as well as 6 unit multi family flats.
- The townhouse and flat areas also include detached garages.
- The intent of the development is to create a walkable neighborhood. With the exception of the SF homes, all garages and parking will be behind the unit.
- The development also consists of more than 16 acres of open space.
- The applicant has submitted their Environmental Assessment Worksheet (EAW) and are starting that process as well.
- The Developer and Team held a neighborhood meeting on Thursday, May 4th.

PUD Waivers being Requested:

- Private Streets require a PUD
- Multiple principal buildings on a lot require a PUD
- SF Detached
    - 25’ front setback

- 15’ corner side yard setback
- Minimum side yard setback of 6’ and a total of 15’ between the structures
- Rear Setbacks on Outlot K of 25’

- SF Attached Dwellings
  - Front Yard Setback of 20’
  - Corner Side Yard Setback of 12.5’
  - Minimum of 10’ between building envelopes
- Townhouses
  - Front yard setback of 20’
  - Corner side yard setback of 12.5’
  - Side yard setback of 10’ between structures
- Multi Family Flats
  - 20’ front yard setback
  - Corner Side yard setback of 12.5’
  - Side Yard setback of 10’
- Detached Garages
  - 10’ side yard setbacks
  - 5’ between garage structures
  - 10’ from the principal structures

Phasing

- The applicant is proposing to phase this development. They are proposing 4 phases, however Phase 1 is split into 1A & 1B.
- The developer plans to install Phase 1A immediately. 1B will be mass graded along with 1A however the infrastructure installation will lag behind in order to allow for units to commence construction on 1A this fall.
- Phases 2 & 3 are interchangeable and may change in schedule. Which one occurs first will depend on the market and the demand for the units.
- Phase 4 will be the final phase constructed within this development.

Density / Lot Area

- All lot density and lot area requirements are met.
- All single family lots will meet the R-2 zoning requirements with a minimum of a 65’ wide lot and contains a minimum of 7800 square feet
- The SF Attached units will have 80’ of lot width per pair of units with a minimum lot area of 5000 square feet. More specifically, the units will have a width of 35’ a piece with 10’ wall to wall between structures.
- The townhouse lots will have a minimum lot area of 8400 square feet.
- The multi family units will have 1400 square feet of lot area per unit. This is just within the CIC unit lines though, overall there will be significantly more space that exceeds the 1700 sq ft per unit required.
- Multi family units require 500 square feet of open space per unit. This is far exceeded in this proposal in aggregate.

Parking & Access

- Overall parking for the development is being provided at a minimum of 2 stalls per unit.

- The SF houses will exceed two stalls between the garages and the driveways.
- With the exception of the single family detached units, all parking will be on the rear of the structures. They will be accessed from either a private alley, street, or driveway.
- The townhouses and the SF Attached units will have attached garages on the rear. The MF Flats will have detached garages.
- A strip of 63 parking stalls will be provided in the center of the development.
- Access to the development will come from a network of public streets. This will involve extension of 7th Ave, Hemlock Ave, and Stoneridge Ln.
- Depending on the phasing, temporary turnarounds may need to be constructed to allow vehicles to safely maneuver to exit the development.
- This is planned to be a walkable neighborhood. All streets will have pedestrian access on both sides.
- There are a number of 10' wide trails proposed throughout the development. Trails are along the north side of Stoneridge Ln as well as circling throughout the wetland complexes. The trail on Stoneridge will tie into the trail along St Paul Road.
- These Pedestrian facilities will be constructed in conjunction with the phase they are in.

Grading / Utilities / Stormwater

- All utilities are available to the site.
- Sewer for Phase 1 will be extended up from 7th Avenue. This will be able to serve all of 1A and some, if not all of 1B.
- The City has identified a 24" trunk sewer main that will run down Stoneridge Lane roughly. This will need to be installed in order to service future phases as well as the land to the east.
- Water will follow the same route. However, OPU is requesting a 12" main be extended in Hemlock and Stoneridge.
- Hydrants are proposed meeting all spacing requirements.
- Stormwater for Phase 1A will be handled by a street storm water system that will head to a pond north of what will be Stoneridge Lane.
- Ponds will be used throughout the remainder of the development as well. It is important to note that there are numerous ponds and these are needed to maintain the wetlands in the area.

Architecture

- Proposed structures are shown on Page 3 of the concept plan documents.
- These residential structures are all shown using conventional siding, windows, and gabled, shingled roofs.
- All structures contain a front porch entrance element with them.
- Colors tend to be earth tones but complement each other throughout the development.
- No details are provided for the detached garages, however they will be required to tie in to the principal structures within the development.

Landscaping / Lighting

- Landscaping for the project exceeds all code requirements.
- The developer will be installing street trees throughout the development.

- The City will require that there are at least 3 approved species used for these trees to prevent any future disease or issues with any species.
- Since all of the parking lots are in the rear of the buildings no screening is required from the streets for these area.
- No trash enclosure areas have been shown as of this time. This will need to be discussed as part of the second reading of the PUD. General locations and design should be provided for the higher density areas.
- Street lighting will be installed per OPU's direction. The developer will be responsible for this costs as part of the development agreement.
- A lighting plan for this private areas will need to be provided showing the fixture type and what they plan to install.
- The large area in the middle will be open green space with sidewalks to access the parking.

Parkland / Open Space

- The applicant is showing more than 16 acres of open space in this development.
- Whether these spaces will be publicly or privately owned is still being discussed. This will need to be figured out with the development agreement and adhered to with future phases.
- It does not affect Phase 1A so we continue to move this forward.
- There are a number of wetlands on the property. The major areas are being retained and designed around. Ponds are being constructed in locations to improve and maintain the wetland quality.

Signage

- Code would allow one freestanding sign for the project not to exceed eight feet in height or 32 square feet in size. This sign would need to be a minimum of 10' from all property lines.
- The applicant is requesting a monument sign at each of the 6 entrances to the development located within the public right of way. Each sign proposed is 8' x 8'for a total of 64 square feet.
- Staff is recommending that the size of the signs be reduced to 32 square feet to meet ordinance. Staff is further recommending that all signs be located outside of public right of way.
- Please note that construction and marketing signs are different and are not what is being discussed with these signs. These are for permanent signs.

Platting

- The developer is in the process of platting the property parallel with the PUD request.
- A Development Agreement will be required to be entered into regarding the timing and expectations of all public improvements.
- The developer will be creating an association to maintain all of the private areas.
- The developer will be performing a condo plat for the multi unit buildings. This will allow the units to be sold individually.

Findings:

- In order to approve the proposed rezoning the following findings shall be met:
  - The amendment is consistent with the City's future land use plan.
  - The amendment is in the public interest and not solely for the benefit of a single property owner.
  - The existing uses of property and the zoning classification of property within the general area of the property in question are compatible with the proposed zoning classification.
  - There are not reasonable uses of the property in question permitted under the existing zoning of the property.

Staff Review:

Based on the information submitted staff is recommending approval of the Westlake Meadows PUD with the following conditions:

1) The Good Samaritan PUD adopted as Z-302 is hereby repealed and replaced with the PUD of Mineral Springs Estates.
2) The PUD is contingent upon the approval and recording of the Mineral Springs Estates Plat.
3) The Developer and the City shall enter into a Development Agreement laying out the roles and expectations of the development.
4) A full photometrics plan shall be submitted and approved for all private areas.
5) All signs shall be issued sign permits.
6) All CIC plats and declarations shall be submitted and approved by the City.
7) A turn around area shall be provided on all temporary dead end streets.
8) A trash enclosure plan shall be submitted to the City prior to the Second Reading.
9) All permanent signs shall be reduced to 32 square feet and a maximum of 8' in height.
10) All signs shall be located outside of the public right of way and on private property.
11) All grading, utility, and stormwater work shall be approved by the City Engineer prior to commencing any construction.

Planning Commission:

Application RZ-2, which is a request by Prairie LaSalle Partners / Chad Lange, Festal Farms for a Planned Unit Development (PUD) of Mineral Springs Estates, a residential development with single family, two family and multi family units to be constructed, was presented by Community Development Manager Greg Kruschke. The total development consists of 328 units over the 82 acres for a total density of 3.96 units per acre. The development also consists of more than 16 acres of open space. (Refer to report on file.) Kruschke explained the different types of units within the development. There is single family detached around the outside transitioning to some heavier, more dense units in the center of the development and then transitioning back to single family detached units again. The intent of this development is to create a walkable neighborhood. They have sidewalks on both sides of all streets and a number of 10 foot wide trails. They are

maintaining areas around the wetlands. The development has submitted an Environmental Assessment Worksheet that will be published by the Environmental Quality Board next Monday. The Planning Commission will be holding a hearing on that later. There will be a 30 day comment period and eventually the City Council will need to determine either a finding of no significant impact or a determination for an environmental impact statement. The plan is that they will all marry at the July 5 City Council meeting. The developer held a neighborhood meeting on Thursday, May 4, and his understanding was that 20-25 people attended. He said that there are a number of waivers that are being requested that vary from standard zoning requirements. They have a private street, which requires a PUD. They also have multiple principal buildings on one lot. They will come forward with a Common Interest Community plat so that they can individually sell these units separately. They'll have an association that maintains all of the common space. They're requesting that some units have a closer front yard setback of 20 feet because the parking will be in the back on the private drive. With that, they also want to balance the street, so they are requesting that the single family detached homes across the street have a 25 foot front yard setback. They are requesting a 15 foot setback on the corner lots. They're asking for a minimum side yard setback of 6 feet that will meet a total of 15 feet between structures. They're asking for a rear setback variance of 25 feet for Outlot K. With the detached garages, they will have 5 feet between garages. Phasing for the proposed development is a four-phased development. Phase 1A allows them to start construction of units this fall. As they're grading this, they will mass grade Phase 1A and Phase 1B, but Phase 1B will probably be next spring. Phase 2 on the west and Phase 3 on the east and Phase 4 on the north end. They hope to finish this in 8 to 10 years but that will depend on the market. Some of the concerns will be addressed in a development agreement. They meet all of the density requirements. Overall parking is a minimum of two stalls per unit. The City has identified a sanitary sewer main on Stoneridge Lane NE. Stormwater will outlet into a pond for Phase 1A. He shared a number of photos of what the units will look like. Gable roofs are a theme as well as a front porch entrance area. Colors tend to be earth tones and the garages will be required to tie into the principal structures. He said that the City is requiring at least three species of trees throughout. The trash enclosure will need to be discussed. They do need a lighting plan for the private areas. They will also be providing sidewalks. There are more than 16 acres of open space. It's undecided if this will be privately owned. They are proposing a monument style sign at each of the six entrances. Staff is recommending that those signs be knocked down to 32 square feet which is our standard, and also that each of these signs is located outside of the public right of way. That takes away any ownership issues and keeps them away from the snowplows.

Preliminary Plat of Mineral Springs Estates, which is an 82.72± acre tract of land to be zoned PUD, Planned Unit Development, requested by Prairie LaSalle Partners, owned by Chad Lange, Festal Farms and located east of St. Paul Road and north of Lee Street NE, was presented by Community Development Manager Greg Kruschke. (Refer to report on file.) They did a traffic study and there weren't any issues and no recommendations for anything different.

Public hearing for all three requests opened at 6:18 pm. Gary Sigler, 2819 St. Paul Road NE, asked how they came up with the name Mineral Springs Estates when it's not anywhere close to Mineral Springs. Craig Britton with Widseth, representing the developer, was present and said even though the rights of way will vary, the street width will remain the same at 37 feet. The nice thing about the layout that is being proposed with parking in the rear of the multi-family units is

that it eliminates curb cuts on the street. He said as for the name, the developers have been in this area for a long time and that name kind of grabbed them. He said it is something that will provide a need for the community with the mix of housing units. He thanked the Commission for their time. Jennifer and Chris Candulo, 670 Lee Street NE, said they were at the neighborhood meeting and had a few questions and a few concerns. Jennifer said the first question is about the safety around the water park. Widseth said they'd be bringing their construction equipment off St. Paul Road. There is a lot of traffic that goes to the water park and she wanted to know what was in place to ensure safety during construction and after the development is finished. Chris said that Phase 1A has 7th Avenue NE as the only point of access for a period of time, even into Phase 1B. It looks like there are several homes, so there will be a lot of traffic, maybe 60-100 cars, moving up through the neighborhood up 7th Avenue NE with no other point of access into this section. He said you have Hemlock Avenue, that's not built out yet until some point in Phase 1B, maybe. There is a choke point on 7th Avenue NE and 26th Street NE. He said that there are many neighborhoods in town that have many access points. Here there is one access point for a brand new neighborhood. There need to be more access points so we are not funneling through a neighborhood. He said when they were doing Lee Street NE, they had put speedbumps from 26th Street NE because people thought it was a speedway. He said they need some protection as there are a lot of kids. Jennifer said that one of the concerns is that Phase 1B is one of the denser areas, and you will have one access point for a while. Chris said that there was talk of the ponds reconditioning the water and that was dependent on the ponds being maintained. He wanted to know who's going to be maintaining the ponds. There weren't too many answers at the neighborhood meeting. If they're only good for 10 years, what happens after that? Jennifer said that another concern is the impact of traffic on 26th Street NE and St. Paul Road. It's currently a four-way stop, and prior to the roundabout being done at Cedar Avenue North and 26th Street, there was always a huge traffic back-up. Now you're adding the apartment buildings. She wondered if they would have more back-ups at that intersection. She wondered what safety and traffic control would be put in place because now it's just a crosswalk. The builders have talked about matching the current neighborhoods. She said that the lots don't match up with the current design, as the 11 proposed lots don't match up with the 10 lots to the south fronting on Lee Street, stating they are staggered. Jennifer said another question was within the easement, there are some fairly mature trees and they were concerned about whether they'd be able to continue to be there or would they be torn out? She said they had a couple of different answers on that. Chris said that there is quite a bit of waterflow when it rains. You can actually see a river of water coming through between lot lines. He said he understands that the desire is to push the water north rather than push it to the south and he wanted to know that was the actual plan. Tom McInerny, 675 Willow Brook Drive NE, which is somewhat to the south of Lee Street NE. He wanted to reiterate the terrific choke point for a large number of potential people moving into the area. The access points are restricted to only one access point. He said he appreciates the comment that it is a speedway. Further down the line there is an elementary school. The idea of putting a high density into that area at the same time as the apartment building going on by the roundabout—you're creating all kinds of traffic situations that he doesn't know if they're ready to handle yet. You're talking about traffic lights and roundabouts. He said there is an awful lot of stuff going into a small space all at once and he's concerned about that. He said that the wetlands that exist are minimal and it would be interesting to see how the flow plan is going to work. He said to the south of Lee Street where they are, they get an awful lot of water sliding down the rather poorly situated storm drains. It's a funny situation. Why the big move to put high density

into a place that's maybe not so high density appropriate? Maria Hove, 675 Lee Street NE, said that traffic is a huge concern. She said it's really upsetting to hear a City person say that we don't need big, wide streets. She said that her street isn't a big street. If you lived on Lee Street, you would know. People park on both sides of the street, and sometimes you can't drive side by side. Their street is narrow. It has not held up. She and her husband put a request in to put the street in. It's falling apart at the end of street mostly because there are water issues in the neighborhood. She said if they get a bad rainstorm, they have to wonder, is this going to be the storm that I get a wet basement? They have a lot of water issues. The drainage pond at the end of the road doesn't get taken care of. It rises and rises and rises when there is a bad storm, and maybe someone complains to the City and finally someone comes out and does something about it. We can't do that with this development; somebody needs to know who's dealing with these ponds and who's taking care of them. It's not fair to the rest of them. The water has a natural flow in that area. Knowing what happens in her backyard and Tom McInerny's backyard, you guys were supposed to handle that. We're the high spot and it's supposed to drain a certain way, but it doesn't. There has been sitting water for four days. The City's opinion is, after so many days, if the water recedes, they're not going to deal with it. These developments will increase the water in their backyards. She said that Hemlock will not happen until those people on that one lot will sell their house. They won't sell to put that road through. She said 7th Avenue is it. She wants to see safety and people in the neighborhood are really concerned about water issues. Donna Bong, 710 Willow Brook Drive NE, said this is her fourth year here in Owatonna. She lives one house off of 7th Avenue NE. She said that at school time, there is a lot of traffic on 7th Avenue. She said they were promised by the builder that construction traffic will not go up and down 7th Avenue and she hopes that's true. She said she was told by the builder that this would not happen, that his truck would be the only truck going through 7th Avenue. She said she came from the Chicago area where, when you were done with construction for the day, the last hour or so was spent cleaning the street. She said she's concerned about the mud on the street. Crossing 26th Street from 7th is deadly – it's not an easy cross. You have traffic coming from the north and south. There are people turning onto 7th Avenue. She said that she spent four minutes waiting to turn onto 26th Street this morning. She said that that crossing is deadly. Tom McInerny said that the speed limit is listed at 45. Donna said that if they don't believe her, go at 7:45 or 8:00 and try to cross the street. That really needs to be addressed from a safety issue. She said that the builders also promised they'd be using Stoneridge as their way in and out of the area. If they have to come down 7th Avenue that will be a huge issue. It's going to be eight to ten years, and they have to put up with that for eight to ten years? There's got to be a better way. Amy Bong, 710 Willow Brook Drive NE, said she works from home and she sees a lot. 90% of this town has a recreational vehicle. Their street is not wide. Why is it when she has called the police non-emergency number numerous times, nobody comes by, because she was told that they're supposed to rotate days which side they can park. Not one time did a police officer stop or ask them to move. There are little kids up and down that street—it's going to take someone being killed. She's seen the little kids up and down the street—cars have to go way around because you have a trailer, or a boat. She said if you're going to do this, make people rent something so that they can put RVs somewhere other than the street. She said there are already traffic issues on 26th Street. She has a kid who just learned how to drive and it's scary for him. She's worried that he's going to get hit or he's going to hit something. She said she's worried about safety issues. She said she comes from Chicago and she knows all about safety. There are a lot of issues in town that need to be addressed. She doesn't see enough police officers, there's always something

going on, there's a volunteer fire department. There is staff, but God forbid there's a major emergency. She witnessed an accident on 26th Street last winter—a car full of kids got thrown into Good Shepherd parking lot. It takes 10-15 minutes for the police officer to get down the road because this town doesn't believe in salt because they're worried about the water. What are you going to do to make the streets better? You Band-Aid the streets. This is a big huge impact on that side of town. She asked if any of the Commissioners live on that side of town, because she sees it all day long. Something needs to be done with the RVs parking up and down the street because it's frustrating. She asked what they're going to do about Wi-Fi. She said she is a freight broker—she provides everybody everything here—food, clothing, and everything else. If she can't get Wi-Fi, she can guarantee dozens don't get what they need. She said that now we get a cable company that's based in Evansville, Indiana. Have you been there? You can see flying saucers because there's nothing there. She said the biggest concern is safety and RVs and boats on the street. She never sees a cop going up and down the street, even when she's called. There are no street lights in this town. If you don't have street lights, how are you going to see the boats parked on the side of road? This is a recreational state—you have space issues now. What are you going to do when you're adding all these people here and there is nowhere for them to go? She said she never saw the builder once last week, and her office window faces the street. She said she's the crotchety neighbor that's going to call on you because she doesn't think it's appropriate or right that you have your big vehicles blocking everything and the kids can't go up and down the street. If you're going to do that, you need to provide those cones or those kids or have a flagger sit up and down at every corner so someone doesn't get hit. Kids are getting hit at school and God forbid it happens again. You're going to have all these people—you don't have enough staff. Marie Hove, 675 Lee Street NE, said that 7th Avenue is the only street. All the high density housing will have a private drive and will take care of cleaning the back part. The City is responsible for cleaning up 7th Avenue in the winter. She said that this winter she had a storm and she didn't have her road cleaned until 1 pm in the afternoon. She said last winter there were two storms that her street didn't get plowed out until 11 or 12:30 pm. She said that these people are paying an awful lot of money to live in this neighborhood, and they won't even be able to go to work. They don't live by the hospital, the fire station, or the cop shop. She said she doesn't know if we have enough plows or enough people. She's from Northern Maine. It's not unusual to get a foot of snow overnight, but the streets are plowed and sanded, and in the morning you didn't even know they had a foot of snow. Don't wait until 10 minutes to five to start plowing the roads. The roads are a big deal. When you put in a development like this, it will add traffic and that's a big deal. She said she doesn't know if they get that. Public hearing closed at 6:49 pm.

Kruschke said that the Planning Commission is a volunteer commission appointed by the mayor and City Council to serve and discuss land use issues, to take public comment, and give a formal recommendation to the City Council who makes the final decision. All of these comments will go to City Council packets as they go forward to City Council. He said that their comments are heard and will be passed on and they will see them verbatim. He said they had a concern on 7th Avenue when they started meeting with the developer, that's where the construction coming off St. Paul Road came from. They will keep that traffic off 7th Avenue and off Lee Street. They will build a construction entrance at the future Stoneridge Lane. There will be a lot of truck traffic coming in there. As we know those items continue to go with the truck traffic as they move forward. As we look big picture, Steele County is the road jurisdiction of 26th Street or otherwise

known as County State Aid Highway 34. Steele County did a corridor study in 2015 on how future access would look on 26th Street moving forward. Hemlock Avenue was identified as the through street going north and south as the connection point. When Hemlock is constructed, the County plans to close 7th Avenue and that will no longer connect. 7th Avenue was built as a convenience moving into that area because Hemlock Avenue wasn't able to be constructed at that time. The plan and the reason for some of those delays is the four-way stop at St. Paul Road. The idea is to push the traffic to St. Paul Road and Hemlock Avenue in the future. 7th Avenue would be a secondary local street in the future. Theoretically the traffic would come out Lee Street to St Paul Road and down to 26th Street. That isn't always what happens in action, but that is a way to reduce those wait times. The applicant was required to provide a traffic study. Working with traffic engineers, we had them study a number of intersections around the area, from Hemlock Avenue and 26th Street, St. Paul Road and 26th Street, Lee Street and St. Paul Road, as well as the future connection on Stoneridge Lane and St. Paul Road. They are not recommending any intersection buildout improvements. We also had them examine the first phase. I believe they defined it as a five year lookout on a 2028 intersection analysis of 7th Avenue and 26th Street. Within the traffic study, they have not seen any issues or have any formal recommendations of improvements that were not included in the Steele County Corridor Study. Thus you don't see any recommendations with regards to traffic in our staff reports or from the City Engineer. We do recognize the street width item, however, the City tries not to regulate people parking on the street and allow people to have as many rights as possible as they go through there. The City does have future maintenance concerns with the wider streets. The majority of our City streets are actually 37 feet wide. Our higher classification streets are wider to allow for turn lanes and things like that. A 37 foot wide street allows for two lanes of travel as well as parking on both sides of the street. If there are winter enforcement issues, that's an enforcement issue as well as speed limits. Pond maintenance is required and monitored by the Minnesota Pollution Control Agency. There are annual checks that are required that the City has a Water Quality Specialist that performs a mandated checklist. If the water is going up and down in those ponds, the ponds are designed to take the water and fill up and take 48 hours to drain back down. There are standards to the design of how these ponds are made. As far as the overland drainage—this is designed to drain to the backyard and then drains off to the sides. As some of these homes are built, some people re-grade these areas and we end up with damming issues that have to be resolved. As we go through, we know Widseth isn't very happy with the City with the amount of requirements as far as stormwater calculations, detailed grading plans, house elevations, emergency overflows, and a very detailed package of how the stormwater will work through this development. That is a very regulated process and very designed process by the Civil Engineer society There are some very common standards. The City does recognize that Owatonna has had a number of drainage issues, however that is why we have strengthened our standards. The review on this stormwater side will be thorough and accurate. Does that mean that there will be cattails or long grass around those ponds. Absolutely. Some of that is a quality issue to take the sediment out and help filter into those ponds, as well as keeping people out of the ponds. That's not always how they look, but that's not feasible with these stormwater ponds. As far as pedestrian safety – they do have the trail on St. Paul Road. Construction traffic is going to have to stop as they're coming in and out of there. Stoneridge Lane will be a regular street and a four-way intersection from now going forward. There will be some stop signs on Stoneridge at St. Paul Road. We did not want the construction traffic going down Lee Street and up to 7th Avenue from the safety side of things. We know there are a lot of kids out there, and if we can

keep the heavy equipment away from the kids and pedestrians, it makes things a lot easier. He said as far as the lot lines matching on the south side of the development, we don't get into how they match across. At the end of the day, the houses aren't going to match as far as building envelopes. There are areas around town that stagger. We keep them how they fit in so the lots measure out so they can fit a structure. As far as tree preservation in the wetland area. That area will be clear cut in the stormwater area, but the wetlands will be avoided and there will be buffers around that area. We see the advantage to keeping as many trees as possible, and the developer has an interest in that, but we do have to see where the ponds work out. As far a development stormwater, generally speaking, when we develop areas and are able to get it out of original agricultural drainage where water flows in its natural direction, we are able to see a little improvement. That's where the emergency overflows come in and we make sure they are not blocked or impeded. That has been significantly tightened down in the last 10 years. As far as density, there is some in the middle. Overall, this development is just shy of 4 units per acre. When you get into high density areas, it's a little bit subject to the eye of the beholder, but the City has no concerns. This Lee Street area has some smaller lots than standard single family areas. The Lee Street neighborhood is actually zoned R-2, which is a low density residential district. It's a step down from an R-1 Single Family Residential District as far as lot size. They can go down to 66 foot wide lots that are only 7,800 square feet in area. Comparatively speaking, the R-1 lots are required to be 75 feet wide and 9,000 square feet in area. Generally speaking around town, there are a lot of 80 – 90 foot wide lots, but with the costs of utilities, there are certainly some benefit to doing some smaller lots. As far as snow plowing, we recognize that everyone has a desire to be one of the first plowed out. The City Council adopts a Snow and Ice Policy every fall and goes through a public process. That is where they set their priorities and allocate their resources as far as number of plows, types of plows, number of drivers, and overtime. Those are more budgetary decisions than this group deals with. OPU has a street lighting policy. OPU will install those lights at the developer's expense. There is a full section in the development agreement on street lighting.

Craig Britton, Widseth stated that all of the stormwater is regulated by City and MPCA. The goal for the overall grading plan is to keep the water away from the existing residential. The overall flow is to the northwest the pond will serve all of Phase 1A and most of Phase 1B. There is some on the south side. That direction of flow is straight to the west. As far as any trees – our first objective is to get the water away. They will try to preserve as many trees as they can. He said there was concern about the maintenance of the pond. There is a lot of runoff from the farm field. With the increased grass coverage and impervious surface less silt will be carried to the ponds. They're taking it and capturing it into the pond and gives them a chance to settle out. That should help the sediment. As far as the streets holding up, we have heavy clays in Owatonna which holds moisture. We're proposed a sub-drainage tile system behind the curb. We find that this helps in the long term condition of the street. With the traffic, we do have to meet requirements with the fire department. They have to have one outlet per 50 units. As Phase 1B begins to develop, they will have two outlets. Wilson asked when Phase 1B begins, Stoneridge Lane will be open. Craig said not until Phase 2 goes. Eickhoff wondered if the City could address the traffic. Kruschke said that if for some reason Stoneridge needed go earlier or doesn't go in, it could be negotiated. That is why they are being platted as outlots at this time. There's the importance of Stoneridge from the City side of things. From the developer side of things, Stoneridge serves no purpose. They don't have a lot of need for it. Phase 2 is the balance we

found for getting this constructed. We asked for a five-year look within the traffic study and it shows no issues. We have some streets that are designed to carry everything. Eickhoff said he used to live in that area and that is a busy intersection. Kruschke said that Hemlock is outside of this developer's control. This commission could make a recommendation that CC needs to look at that. It would have to be acquired and annexed. Up until this point, there was no need to connect Hemlock. Steele County does have spacing guidelines across 26th Street. Eickhoff said with Phase 1A, all of these lots won't be built this year. Craig said correct. Eickhoff said that gives the City time to see how that's developing.

A motion was made by Wilson and seconded by Meier to recommend City Council approval of this vacation of a portion of all public rights of way and all utility easements within the plat of Good Samaritan Addition as described above with the following conditions:

1) Vacation is contingent upon approval of the plat of Mineral Springs Estates.

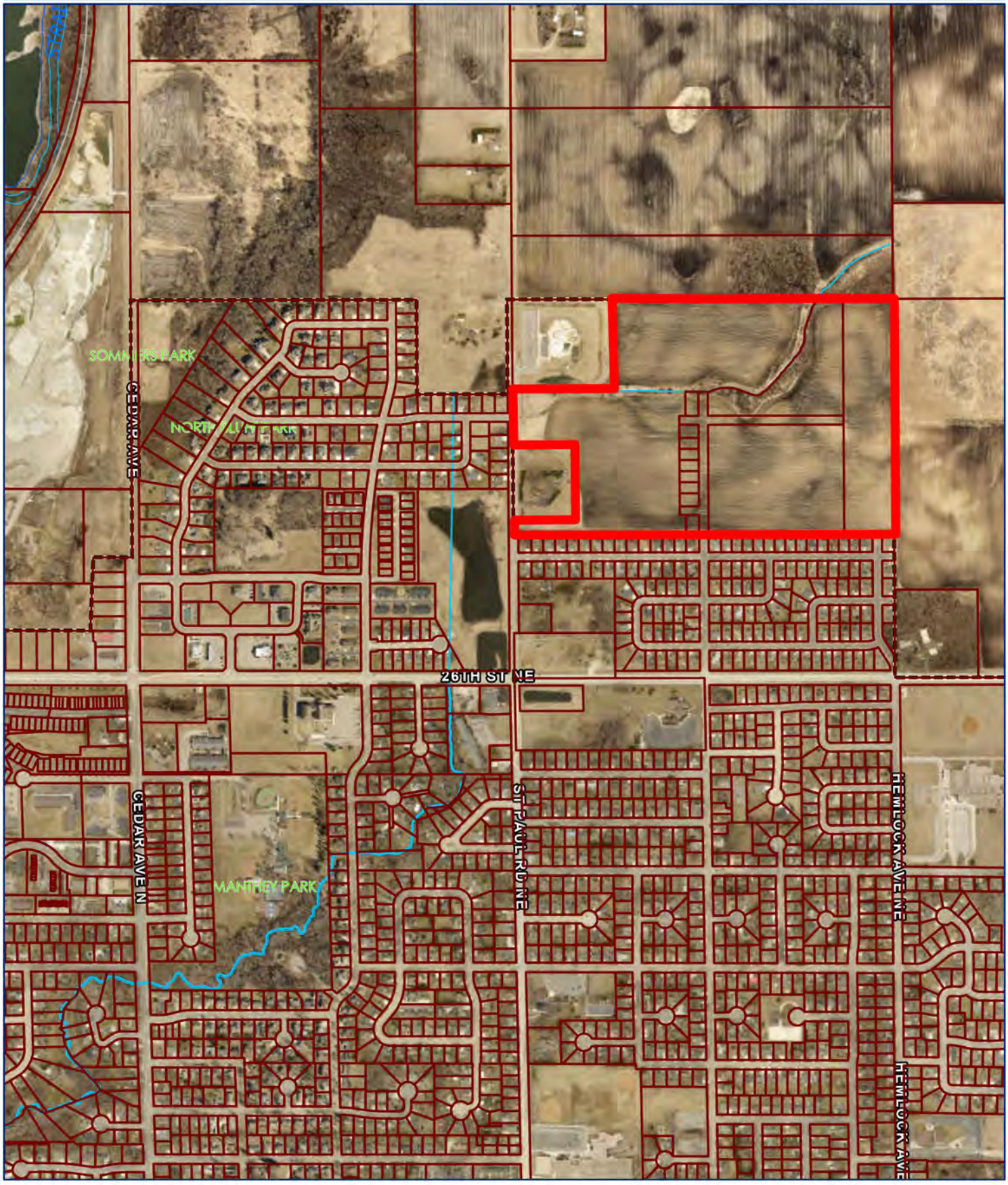
All Commissioners voting Aye, the motion carried.

A motion was made by Peake and seconded by Meier to recommend City Council approval of this PUD of Mineral Springs Estates with the following conditions:

1) The Good Samaritan PUD adopted as Z-302 is hereby repealed and replaced with the PUD of Mineral Springs Estates.
2) The PUD is contingent upon the approval and recording of the Mineral Springs Estates Plat.
3) The Developer and the City shall enter into a Development Agreement laying out the roles and expectations of the development.
4) A full photometrics plan shall be submitted and approved by the City.
5) All signs shall be issued sign permits.
6) All CIC plats and declarations shall be submitted and approved by the City.
7) A turn around area shall be provided on all temporary dead end streets.
8) A trash enclosure plan shall be submitted to the City prior to the Second Reading.
9) All permanent signs shall be reduced to 32 square feet and a maximum of 8 feet in height.
10) All signs shall be located outside of the public right of way and on private property.
11) All grading, utility, and stormwater work shall be approved by the City Engineer prior to commencing any construction.

All Commissioners voting Aye, the motion carried.

Mineral Springs Estates
City of Owatonna



Site

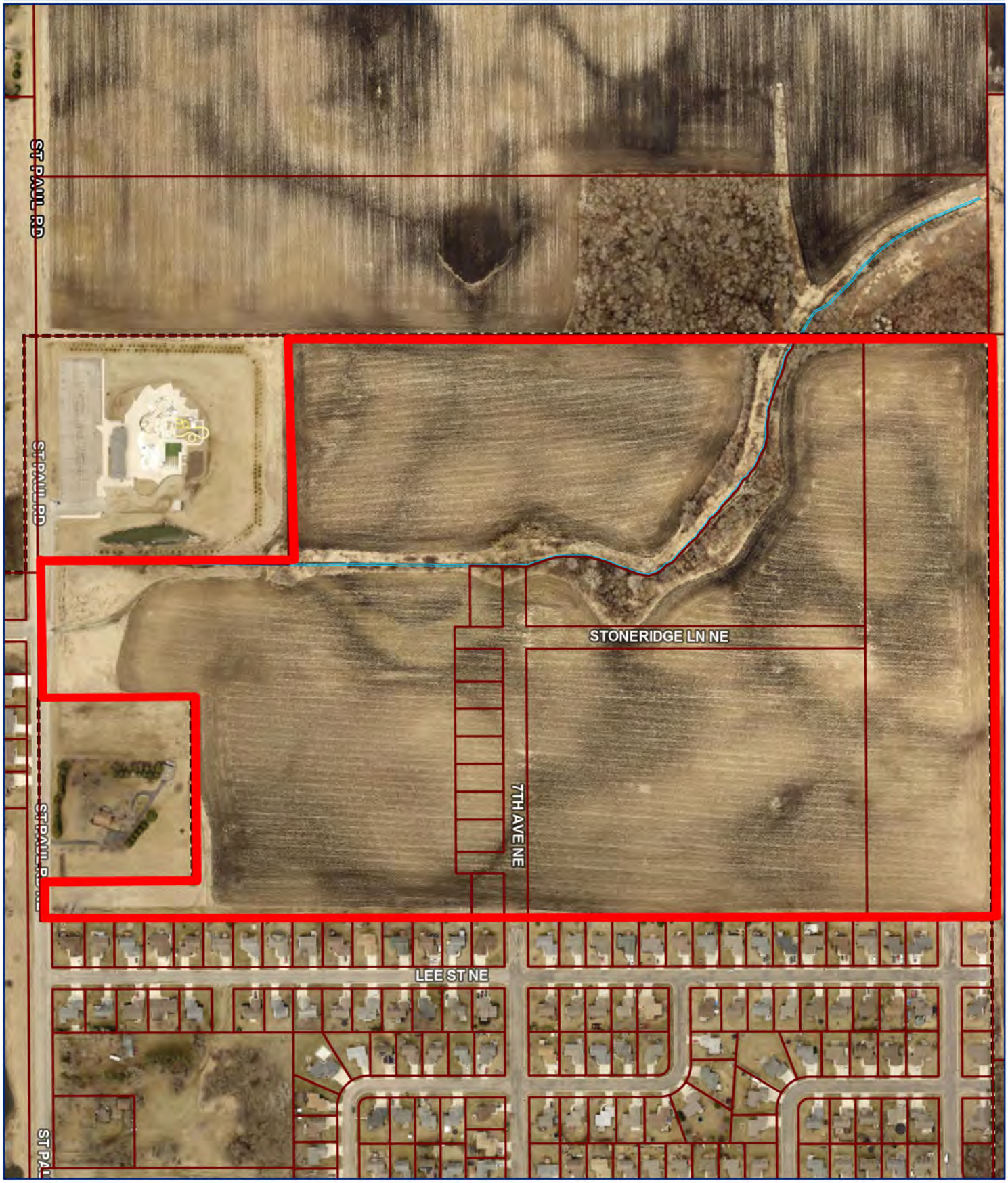
April 24, 2023

1:15,000

1 in = 1,250 ft

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

Mineral Springs Estates
City of Owatonna



Site

April 24, 2023

1:6,000

1 in = 500 ft

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

PROPOSED FEATURES LEGEND

	DENOTES PROPOSED SINGLE-FAMILY DETACHED (R2)
	DENOTES PROPOSED SINGLE-FAMILY ATTACHED (R3)
	DENOTES PROPOSED TOWNHOUSES (R3)
	DENOTES PROPOSED 6 UNIT MULTI-FAMILY (R6)
	DENOTES PROPOSED OPEN SPACE
	DENOTES EXISTING WETLANDS
	DENOTES PROPOSED STORMWATER PONDS

CONCEPT_PLANT_SCHEDULE

SHADE TREE
APPROVED VARIETIES IN GROUPINGS OF 1 , 3 , AND 5 OR AS APPROVED BY CITY:
-
KENTUCKY COFFEE TREE
-
THORNLESS, SEEDLESS HONEYLOCUST
-
AMERICAN LINDEN
-
WHITE OAK
-

ORNAMENTAL TREE
-

EVERGREEN TREE
-

PUD Zoning Summary

Single-family Detached Lot Size:
Width: 65 ft minimum
Depth: 120' (+\-)
Lot Area: 7,800 sq ft minimum

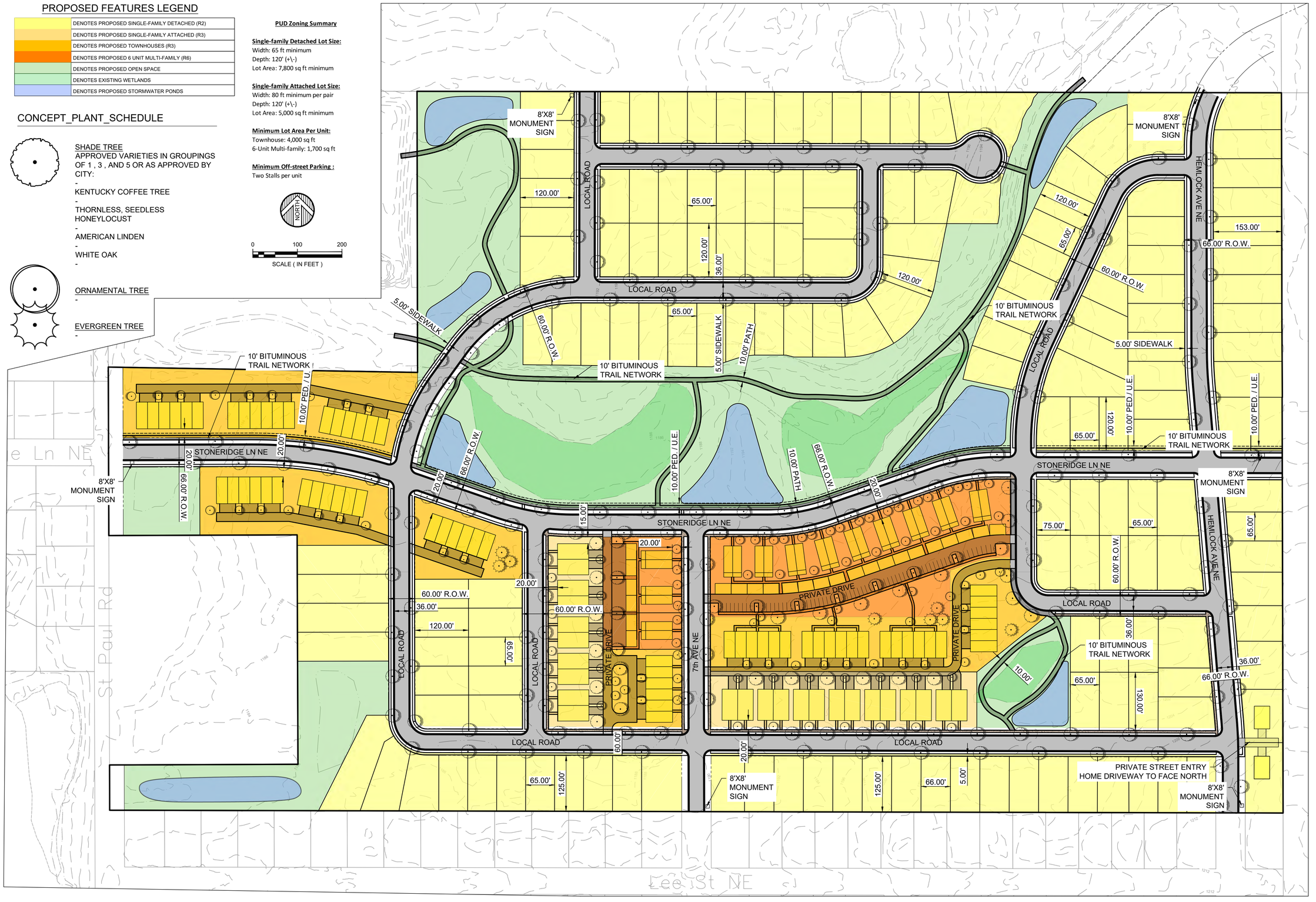
Single-family Attached Lot Size:
Width: 80 ft minimum per pair
Depth: 120' (+\-)
Lot Area: 5,000 sq ft minimum

Minimum Lot Area Per Unit:
Townhouse: 4,000 sq ft
6-Unit Multi-family: 1,700 sq ft

Minimum Off-street Parking :
Two Stalls per unit

NORTH

0 100 200
SCALE (IN FEET)



NOT FOR CONSTRUCTION

WIDSETH
ARCHITECTS ▪ ENGINEERS ▪ SCIENTISTS ▪ SURVEYORS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR 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.
CRAIG A. BARTON DATE: 4/21/2023 LIC. NO. 44228

REVISIONS DESCRIPTION	BY

DATE:
REV#:

DATE: MAY, 2023
SCALE: AS SHOWN
DRAWN BY: RSH
CHECKED BY: CNB
JOB NUMBER: 2022-11572

MINERAL SPRINGS ESTATES
MINERAL SPRINGS ESTATES, LLC
OWATONNA, MINNESOTA
PUD SITE PLAN - OVERALL

SHEET NO. 1
SHEET 1 OF PUD

J:\HAS Capital Advisors LLC-44915\2022-11572\CADD\Civil\C-SP-2022-11572-PUD.dwg Plotted by:Ryan Hermes 5/5/2023 2:15:32 PM © 2023 WIDSETH SMITH NOLTING & ASSOCIATES, INC.

PROPOSED FEATURES LEGEND

	DENOTES PROPOSED SINGLE-FAMILY DETACHED (R2)
	DENOTES PROPOSED SINGLE-FAMILY ATTACHED (R3)
	DENOTES PROPOSED TOWNHOUSES (R3)
	DENOTES PROPOSED 6 UNIT MULTI-FAMILY (R6)
	DENOTES PROPOSED OPEN SPACE
	DENOTES EXISTING WETLANDS
	DENOTES PROPOSED STORMWATER PONDS

SHADE TREE
APPROVED VARIETIES IN GROUPINGS OF 1 , 3 , AND 5 OR AS APPROVED BY CITY:
-
KENTUCKY COFFEE TREE
-
THORNLESS, SEEDLESS HONEYLOCUST
-
AMERICAN LINDEN
-
WHITE OAK
-

ORNAMENTAL TREE
-

EVERGREEN TREE
-

PUD Zoning Summary

Single-family Detached Lot Size:
Width: 65 ft minimum
Depth: 120' (+\-)
Lot Area: 7,800 sq ft minimum

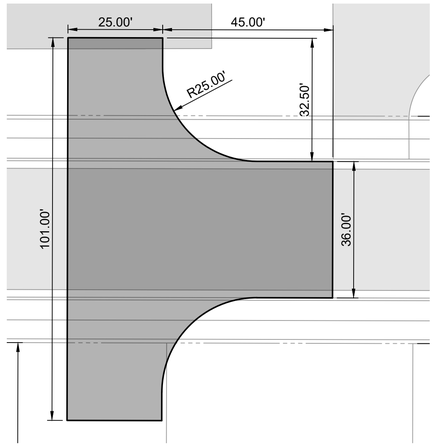
Single-family Attached Lot Size:
Width: 80 ft minimum per pair
Depth: 120' (+\-)
Lot Area: 5,000 sq ft minimum

Minimum Lot Area Per Unit:
Townhouse: 4,000 sq ft
6-Unit Multi-family: 1,700 sq ft

Minimum Off-street Parking :
Two Stalls per unit

NORTH

0 60 120
SCALE (IN FEET)



TEMPORARY TURNAROUND DETAIL

1. TEMPORARY TURNAROUND DESIGN SHALL BE AT EACH PHASE END.

NOT FOR CONSTRUCTION

WIDSETH
ARCHITECTS ▪ ENGINEERS ▪ SCIENTISTS ▪ SURVEYORS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR 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.
CRAIG BARTON DATE: 4/21/2023 LIC. NO. 44228

BY	REVISIONS DESCRIPTION	REV#	DATE

DATE: MAY, 2023
SCALE: AS SHOWN
DRAWN BY: RSH
CHECKED BY: CNB
JOB NUMBER: 2022-11572

MINERAL SPRINGS ESTATES
MINERAL SPRINGS ESTATES, LLC
OWATONNA, MINNESOTA

PUD SITE PLAN - ENLARGED

SHEET NO. **2**
SHEET 2 OF PUD

J:\HAS Capital Advisors LLC-44915\2022-11572\CADD\Civil\C-SP-2022-11572-PUD.dwg Plotted by:Ryan Hermes 5/5/2023 2:15:54 PM © 2023 WIDSETH SMITH NOLTING & ASSOCIATES, INC.

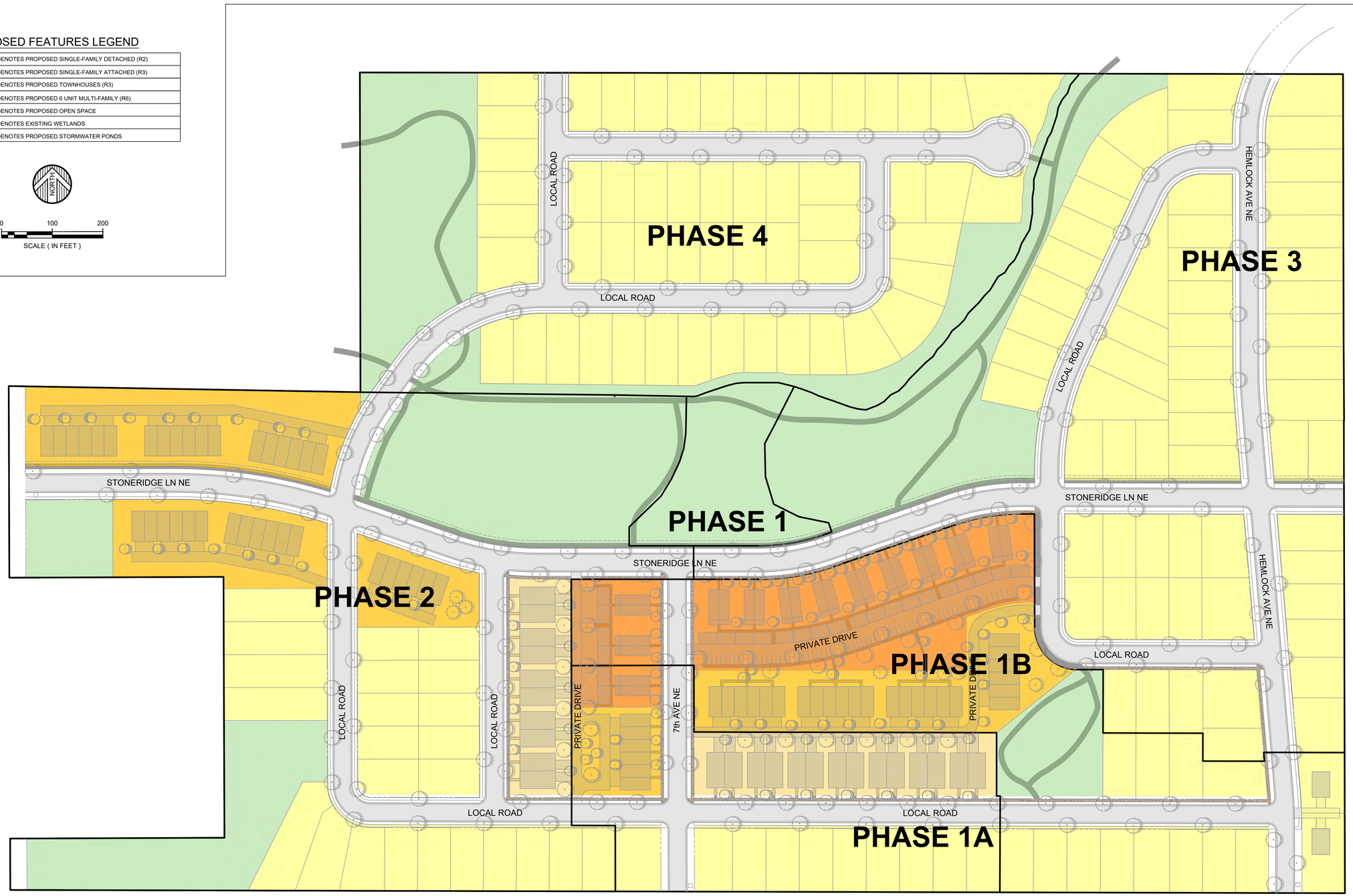
PROPOSED FEATURES LEGEND

	DENOTES PROPOSED SINGLE-FAMILY DETACHED (R2)
	DENOTES PROPOSED SINGLE-FAMILY ATTACHED (R3)
	DENOTES PROPOSED TOWNHOUSES (R3)
	DENOTES PROPOSED 6 UNIT MULTI-FAMILY (R6)
	DENOTES PROPOSED OPEN SPACE
	DENOTES EXISTING WETLANDS
	DENOTES PROPOSED STORMWATER PONDS

NORTH

0 100 200

SCALE (IN FEET)



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CRAIG A. BARTON DATE: 4/21/2023 LIC. NO. 44228

DATE	REV#	REVISIONS DESCRIPTION	BY

DATE: MAY, 2023
SCALE: AS SHOWN
DRAWN BY: RSH
CHECKED BY: CNB
JOB NUMBER: 2022-11572

MINERAL SPRINGS ESTATES
MINERAL SPRINGS ESTATES, LLC
OWATONNA, MINNESOTA
PUD PHASING PLAN

SHEET NO. **3**

SHEET 3 OF PUD

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*Housing styles are conceptual only and not for construction.

Single Family Detached - Concept 1

Single Family Detached - Concept 2

Single Family Detached - Concept 3

Single Family Detached - Concept 4

6-plex Condos (Flats)

Single Family Detached - Concept 5

Single Family Detached - Concept 6

Single Family Detached - Concept 7

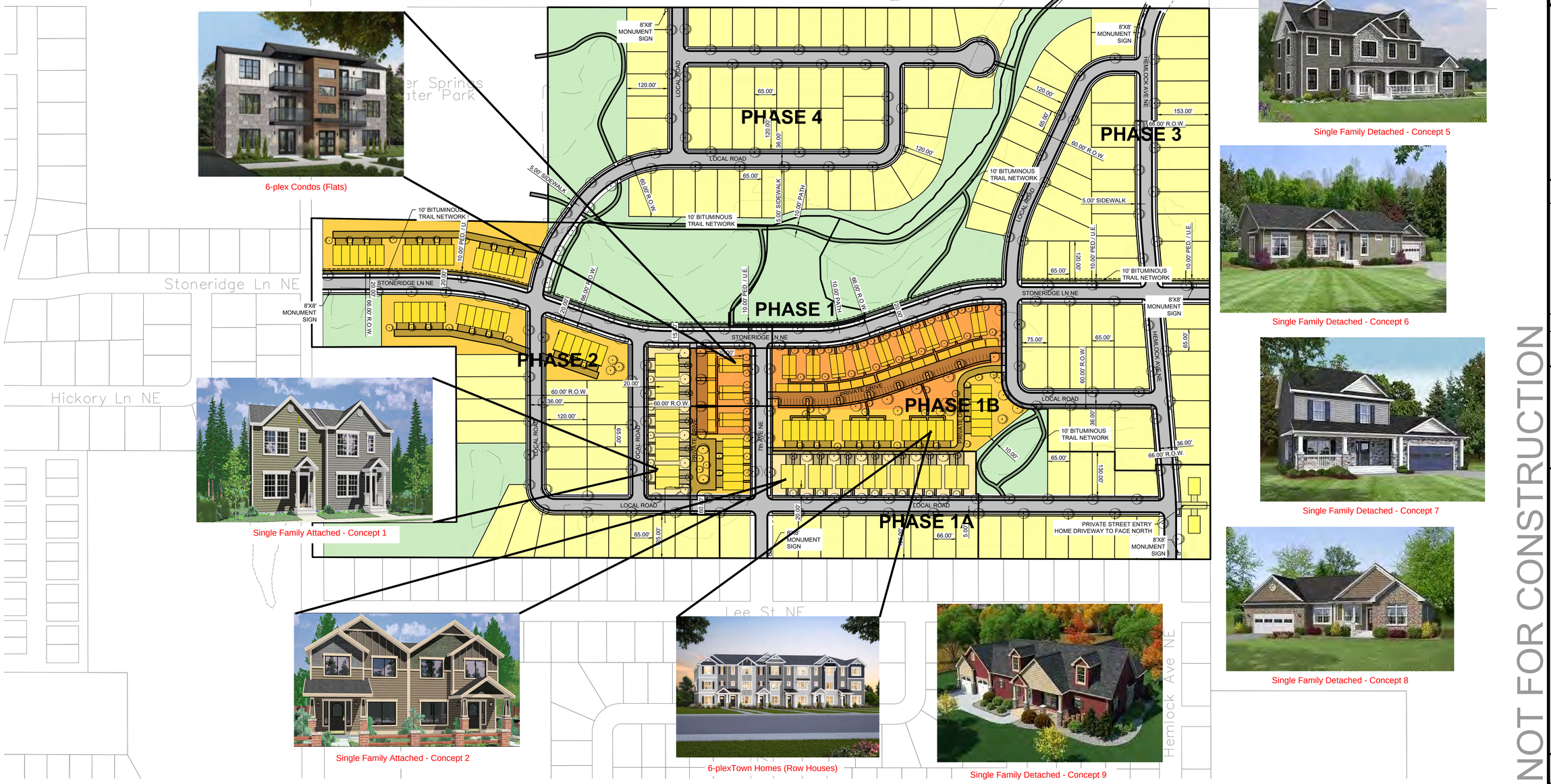
Single Family Attached - Concept 1

Single Family Detached - Concept 8

Single Family Attached - Concept 2

6-plexTown Homes (Row Houses)

Single Family Detached - Concept 9



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CRAIG NOLTING — DATE: 4/21/2023 — LIC. NO. 44228

BY	REVISIONS DESCRIPTION	DATE	REV#

DATE: MAY, 2023
SCALE: AS SHOWN
DRAWN BY: RSH
CHECKED BY: CNB
JOB NUMBER: 2022-11572

MINERAL SPRINGS ESTATES
MINERAL SPRINGS ESTATES, LLC
OWATONNA, MINNESOTA

PUD HOUSING EXHIBIT

SHEET NO. **4**

SHEET 4 OF PUD

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WiDSETH

Rochester
3777 40th Avenue NW
Suite 200
Rochester MN 55901

507.292.8743
Rochester@Widseth.com
Widseth.com

4/20/2023

To: Greg Kruschke, Community Development Manager, and the City of Owatonna

RE: Mineral Springs Residential Development PUD Narrative – Mineral Springs Estates

Dear Mr. Kruschke and members of the City Council,

We are proposing a multi-phase residential subdivision, with a total of roughly four phases on approximately 83 acres. The land use includes a mix of approximately 163 single family detached homes (41%), 24 single-family attached homes (4%), 69 Townhouses (9%), 72 6-unit multi-family buildings (5%), for a total of approximately 328 units, or 3.96 units per acres. Amenities include approximately 16.6 acres of Open Space (20%) for passive and active recreation with proposed sidewalks, trails, picnic tables, grills, gazabo's, playground equipment and natural areas including wetlands. Some of the wetlands will be removed as part of the natural progression of development, and some will remain and become natural areas to be enjoyed for active recreation activities like walking, biking, running, etc. There are approximately 17.4 acres of proposed roads (21%) within the development. There will be attached and detached garage parking as well as surface parking at a ratio of 2:1, where there will be approximately two off-street parking spaces per every unit. Additionally, all residential buildings will be closer to the front property line than what is currently permitted and create an improved pedestrian-oriented atmosphere by allowing for automobile parking in the rear of all multifamily structures. This will significantly reduce vehicular/pedestrian conflicts.

Phasing will be in approximately four phases. Phase 1 will begin with road and utility infrastructure and the extension of 7th Ave NE and Hemlock Ave NE. It will also include the construction of 24 single-family detached homes, 14 single-family attached homes, 30 townhome units and 72 multi-family units, for a total of 140 units. Phase 2 will consist of 24 single-family detached homes, 14 single-family attached homes, and 39 townhomes, for a total of 73 units. Phase 3 and 4 will be strictly single-family detached homes with 62 units in Phase 3 and 53 units in Phase 4.

Typical front yard setbacks will be 20 feet for townhomes, duplexes, and condominiums while the single-family detached will be 25 feet. Side street side yards are proposed to be a minimum of 12.5 feet for townhomes, duplexes, and condominiums lots and 15 ft for single family detached lots. Side-yard setbacks for interior lot lines for single family detached lots will be a minimum of 6 ft, sum of 15 ft. The single-family detached lots will be a minimum of 65 feet wide and 85 feet deep with a lot area of 7,800 SF. The single-family attached lot widths will be a minimum of 70 feet per housing pair, a depth of 70 feet, and a minimum lot area of 2,450 SF. The minimum lot area for the 6-unit townhomes will be 1,400 SF and the 6-unit multi-family condominiums will have a minimum lot area of 1,400 SF. There will be a minimum of 500 SF of usable open space per multi-family unit. Multifamily buildings are proposed to have a minimum building spacing of 12 feet.

List of Waivers:

Single Family Detached (Minimum Requirements):

Lot Width: 65 ft., Lot Depth: 85 ft.

Lot Area: 7,800 sf

Front-Yard Setback: 25 ft.

Side-Yard Side Street: 15 ft, Interior Side-Yard: 6 ft, Sum of 15 ft

Single-family Attached (Minimum Requirements):

Lot Width: 70 ft. per pair, Lot Depth: 70 ft.

Lot Area: 2,450 sf

Front-Yard Setback: 20 ft

Side-Yard Side Street: 12.5 ft

Min. 10 ft between building envelopes

6-plex Condominiums (Flats) (Minimum Requirements):

Lot Width: 20 ft

Lot Area: 1,400 sf

Front Yard Setback: 20 ft.

Accessory Structure: 10 ft. Side Yard Setback, 5 ft between structures, 10 ft from principal structure

Side-Yard Side Street: 12.5 ft

Building Separation: 10 ft

6-plex Townhome (Row Houses) (Minimum Requirements):

Lot Area: 1,400 sf

Front Yard Setback: 20 ft.

Accessory Structure Side Yard: 10 ft

Side-Yard Side Street: 12.5 ft

Building Separation: 10 ft

Monument Signs:

Locations as shown on PUD Exhibit (Public Street Entrances into Mineral Springs Estates Subdivision)

Maximum Message Area 8’ width x 8’ height

Lighting: Internally lit or spot lighting

Resolutions

Public Works Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Sean Murphy, Public Works Director
SUBJECT: Resolution 38-23: Accept Bids & Award Contract Project #23010 CIPPS

Purpose:
Requesting City Council approval of Resolution 38-23: 2023 CIPPS Project Bid Acceptance and Contract Awarding.

Background:
Bids were received on May 10, 2023 for the 2023 CIPPS Project. Bids were received from two (2) companies:

23010 Bid Tab	
Insituform Technologies USA, LLC	$233,864.94
Visu-Sewer	$295,383.00
Engineer Estimate	$255,416.10

The lowest responsible bidder was Insituform Technologies USA, LLC of Chesterfield, MO. The bid was $21,551.16 or 8.5% under the Engineer's Estimate.

Budget Impact:
The contracted project cost will be $233,864.94. Construction costs will be paid from the operating budget.

Staff Recommendation:
Staff recommends approval of accepting the bids and awarding the contract to Insituform Technologies USA, LLC of Chesterfield, MO.

Attachments:
1. 23010 Bid Tab
2. Resolution 38-23 Approve Bids-Award Contract - 2023 CIPPS Project

2023 CIPPS (#8446966)
Owner: Owatonna MN, City of
Solicitor: Owatonna MN, City of
05/10/2023 10:00 AM CDT

					Engineer Estimate		Insituform Technologies USA, LLC		Visu-Sewer	
Line Item	Item Code	Item Description	UofM	Quantity	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension
1	2021.501	MOBILIZATION	LUMP SUM	1	$21,000.00	$21,000.00	$11,203.22	$11,203.22	$6,500.00	$6,500.00
2	2503.603	PRE-CLEAN & TELEVISE SEWER PIPE	LIN FT	6543	$3.60	$23,554.80	$3.33	$21,788.19	$4.00	$26,172.00
3	2503.603	LINING SEWER PIPE 8"	LIN FT	5552	$31.50	$174,888.00	$28.00	$155,456.00	$40.00	$222,080.00
4	2503.603	LINING SEWER PIPE 10"	LIN FT	991	$36.30	$35,973.30	$45.83	$45,417.53	$41.00	$40,631.00
						$255,416.10		**$233,864.94**		**$295,383.00**

RESOLUTION NO. 38-23

A RESOLUTION ACCEPTING BID AND AWARDING CONTRACT

WHEREAS, pursuant to an Advertisement for Bids for the 2023 Cured in Place Pipe System (CIPPS) Project #23010 bids were received from two (2) companies. The following bids were received:

Insituform Technologies USA, LLC of Chesterfield, MO	$233,864.94
Visu-Sewer of Pewaukee, WI	$295,383.00
Engineer's Estimate:	$255,416.10

WHEREAS, the lowest responsible bidder was Insituform Technologies USA, LLC.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Owatonna, Minnesota, as follows:

1. The Mayor and Clerk are hereby authorized and directed to enter into a contract with Insituform Technologies USA, LLC in the name of the City of Owatonna for the 2023 Cured in Place Pipe System (CIPPS) Project #23010 according to the plans and specifications therefore approved by the City Council and on file in the office of the City Clerk.

2. The City Clerk is hereby authorized and directed to return forthwith to all bidders the deposits made with their bids, except that the deposits of the successful bidder and the next lowest bidder shall be retained until a contract has been signed.

Passed and adopted this ____ day of _____, 2023, with the following vote:

Aye __; No ____; Absent _____.

Approved and signed this ___ day of _____, 2023.

_____
Thomas A. Kuntz, Mayor

ATTEST:

_____
Kris M. Busse, City Administrator/City Clerk

Public Works Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Sean Murphy, Public Works Director
SUBJECT: Resolution 39-23: Accept Bids & Award Contract Project #23009 Street Maintenance

Purpose:
Requesting City Council approval of Resolution 39-23: 2023 Street Maintenance Project Bid Acceptance and Contract Awarding.

Background:
Bids were received on May 10, 2023 for the 2023 Street Maintenance Project. Bids were received from two (2) companies:

23009 Bid Tabulation	
Pearson Bros, Inc. of Hanover, MN	$208,714.80
Allied Blacktop Company of Maple Grove, MN	$289,312.00
Engineer's Estimate:	$235,892.00

The lowest responsible bidder was Pearson Bros, Inc. of Hanover, MN. The bid was $27,177.20 or 11.5% under the Engineer's Estimate.

Budget Impact:
The contracted project cost will be $208,714.80. Construction costs will be paid from the operating budget.

Staff Recommendation:
Staff recommends approval of accepting the bids and awarding the contract to Pearson Bros, Inc of Hanover, MN.

Attachments:

1. 23009 Bid Tab
2. Res 39-23 Approve Bids - Award Contract

2023 Street Maintenance (#8459265)
Owner: Owatonna MN, City of
Solicitor: Owatonna MN, City of
05/10/2023 10:00 AM CDT

				Engineer Estimate		Pearson Bros, Inc.		Allied Blacktop Company	
Item Code	Item Description	UofM	Quantity	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension
2331.619	ROUT & SEAL BITUMINOUS PAVEMENT CRACKS	RDST	252.4	$180.00	$45,432.00	$170.00	$42,908.00	$290.00	$73,196.00
2356.504	BITUMINOUS SEAL COAT	SQ YD	101840	$0.75	$76,380.00	$0.97	$98,784.80	$1.45	$147,668.00
2356.506	BITUMINOUS MATERIAL FOR SEAL COAT	GAL	28520	$4.00	$114,080.00	$2.35	$67,022.00	$2.40	$68,448.00
					$235,892.00		**$208,714.80**		**$289,312.00**

RESOLUTION NO. 39-23

A RESOLUTION ACCEPTING BID AND AWARDING CONTRACT

WHEREAS, pursuant to an Advertisement for Bids for the 2023 Street Maintenance Project #23010 bids were received from two (2) companies. The following bids were received:

Pearson Bros, Inc. of Hanover, MN	$208,714.80
Allied Blacktop Company of Maple Grove, MN	$289,312.00
Engineer's Estimate:	$235,892.00

WHEREAS, the lowest responsible bidder was Pearson Bros, Inc of Hanover MN.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Owatonna, Minnesota, as follows:

1. The Mayor and Clerk are hereby authorized and directed to enter into a contract with Pearson Bros Inc in the name of the City of Owatonna for the 2023 Street Maintenance Project #23010 according to the plans and specifications therefore approved by the City Council and on file in the office of the City Clerk.

2. The City Clerk is hereby authorized and directed to return forthwith to all bidders the deposits made with their bids, except that the deposits of the successful bidder and the next lowest bidder shall be retained until a contract has been signed.

Passed and adopted this ____ day of _____, 2023, with the following vote:

Aye __; No ____; Absent _____.

Approved and signed this ___ day of ___, 2023.

_____
Thomas A. Kuntz, Mayor

ATTEST:

_____
Kris M. Busse, City Administrator/City Clerk

Public Works Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Sean Murphy, Public Works Director
SUBJECT: Resolution 40-23: Approve Feasibility Report - Main Street Reconstruction & Rehabilitation

Purpose:
Requesting City Council approval Resolution 40-23: Approving the Main Street Reconstruction & Rehabilitation Feasibility Report.

Background:
Main Street (CSAH 48) from Oak Avenue to Chambers Avenue is in need of rehabilitation and possibly reconstruction. Steele County is leading the effort on this project as it is a County State Aid Highway. Significant pavement deterioration and less than optimal intersection controls have been on the radar of the City and County and are proposing to move forward with evaluation and obtaining recommendations for improvements.

A feasibility report has been prepared and is presented in the attachments.

Budget Impact:
This is a joint project with Steele County. Total preliminary estimated costs are $9,795,000. The estimated city portion is $3,575,000. City costs will be paid for using a combination of state aid funds, city funds, Owatonna Public Utilities reimbursements, and special assessments. Preliminary assessments total $138,025.00.

Staff Recommendation:
Staff recommends approval.

Attachments:
1. Res 40-23 Feasibility Report - Main Street Project - #23004
2. Feasibility Report - CSAH 48 (Main St)

RESOLUTION NO. 40-23
A RESOLUTION RECEIVING FEASIBILITY REPORT

WHEREAS, pursuant to Resolution 34-23 of the council adopted, May 2, 2023, a feasibility report has been presented by Sean Murphy, City Engineer with reference to proposed improvement for the Main Street Reconstruction and Rehabilitation Project and this report was received by the council on May 16, 2023. The following areas are affected:

- Main Street from Oak Avenue to Chambers Avenue

WHEREAS, the report provides information regarding whether the proposed improvement is necessary, cost-effective, and feasible; whether it should best be made as proposed or in connection with some other improvement; the estimated cost of the improvement as recommended; and a description of the methodology used to calculate individual assessments for affected parcels.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF OWATONNA, MINNESOTA:

1. The council will consider the improvement of such street in accordance with the report and the assessment of abutting property for all or a portion of the cost of the improvement pursuant to Minnesota Statutes, Chapter 429 at an estimated total cost of the improvement of $9,795,000.

Passed and adopted this _____ day of _____ , 2023, with the following vote:

Aye ____; No ____; Absent ____.

Approved and signed this _____ day of _____ , 2023.

_____
Thomas A. Kuntz, Mayor

ATTEST

_____
Kris M. Busse, City Administrator/City Clerk

Feasibility Report

CSAH 48 – Main Street (Oak Avenue to Chambers Avenue)

Owatonna, Minnesota

STEEL 164362 | April 10, 2023

SEH

Building a Better World for All of Us®

Engineers | Architects | Planners | Scientists

Building a Better World for All of Us®

April 10, 2023

RE: CSAH 48 – Main Street (Oak Avenue to Chambers Avenue)
Feasibility Report
Owatonna, Minnesota
SEH No. STEEL 164362 4.00

Mr. Paul Sponholz, PE
Steele County Highway Department
PO Box 890, 3000 Hoffman Drive NW
Owatonna, MN 55060-0890

Dear Mr. Sponholz:

Short Elliott Hendrickson Inc. (SEH®) is enclosing our feasibility report for potential modifications and improvements to the CSAH 48 (Main Street) corridor from Oak Avenue to Chambers Avenue.

The report outlines options for road and utility reconstruction, traffic operational improvements, sidewalk improvements, and provides a cost estimate for the project based on SEH's engineering judgement.

We will be available at your convenience to present, review, and discuss the contents of this report, and appreciate the opportunity to serve the City and County.

Sincerely,

Project Manager/ Sr. Traffic Engineer
(Lic. IA, MN, SD)

Feasibility Report

CSAH 48 – Main Street (Oak Avenue to Chambers Avenue)

Owatonna, Minnesota

SEH No. STEEL 164362

April 10, 2023

I hereby 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.

Connor R. Burke, PE (MN)

Date: April 10, 2023 License No.: 58829

Reviewed By: Jenna Obernolte Date: April 10, 2023

Short Elliott Hendrickson Inc.
717 Third Avenue SE, Suite 101
Rochester, MN 55904-7373
507.288.6464

Distribution

No. of Copies	Sent to
	Paul Sponholz Assistant County Engineer Steele County Highway Department PO Box 890, 3000 Hoffman Drive NW Owatonna, MN 55060-0890
	Greg Ilkka County Engineer Steele County Highway Department PO Box 890, 3000 Hoffman Drive NW Owatonna, MN 55060-0890
	Sean Murphy Assistant City Engineer City of Owatonna 540 West Hills Circle Owatonna, MN 55060

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Feasibility Report

CSAH 48 – Main Street (Oak Avenue to Chambers Avenue)

Prepared for Steele County Highway Department and City of Owatonna, MN

1 Introduction

Steele County, together with the City of Owatonna, has requested SEH, Inc to consider options for a rehabilitation of CSAH 48 (Main Street) in Owatonna, Minnesota. The focus will be on the corridor from Oak Avenue to Chambers Avenue. This report outlines the current condition of the street, sidewalks, underground utilities, and traffic. It also offers options to address deficiencies found, provides a cost estimate with funding options, and offers a proposed schedule for completion of work. The project was selected for a feasibility study by the County Engineer based on the existing conditions, vehicular crash history, and pedestrian safety. Improvements to CSAH 48 would address several deficiencies, including deteriorated pavement, traffic flow issues, safety for vehicular, bicycle, and pedestrians, environmental impacts, aging sanitary and watermain, and inefficient/undersized storm sewers. The current infrastructure condition was evaluated via inspection wherever possible. The street condition has been evaluated and recorded in photographs.

Sanitary lines were reviewed by City staff, and sanitary and storm structures were opened and/or observed in applicable areas with the assistance of City of Owatonna and public works staff.

Multiple options for improvement are offered where multiple approaches are feasible and are detailed for consideration by County and City staff. Each option accounts for alterations that impact the cost and functionality of the street provide choices in how to best address deficiencies.

2 Existing Conditions

2.1 Investigation

To obtain accurate and objective knowledge regarding the existing condition of the infrastructure, it is necessary to examine previously completed studies, review available record plans, and complete field investigations.

Determining the condition of watermain involves evaluating the size, material, age of the main, along with accounting for any known watermain breaks and a determination of fire flow capacity, when necessary.

To determine the condition of the sanitary sewer, available record plans and previous studies were reviewed, including conversations with City staff.

A geotechnical evaluation is completed to determine existing pavement and aggregate base thicknesses, subgrade soil or bedrock types, and depth to groundwater. This information is used to determine feasibility of construction methods, and recommendations to prepare the subgrade

to support utilities and pavement sections. The geotechnical evaluation report can be viewed in Appendix A.

2.2 Pavement and Sidewalk

Along the corridor CSAH 48 is an urban, undivided roadway with sidewalks on both sides of the road. CSAH 48 is concrete with bituminous overlay and expansion from Oak Avenue to Elm Avenue, and concrete paved from Elm Avenue to Chambers Avenue. The pavement condition varies along the corridor.

2.2.1 Oak Avenue to Elm Avenue

As-builts were obtained from 1984, and 2005. Oak to Elm is an undivided roadway consisting of two traffic lanes in each direction and a parking lane in both directions. The typical section of the right-of-way starting and heading east from Oak Avenue is 65 feet and expands to 74 feet until it extends past Cedar Avenue where it narrows to 69 feet, and then narrowing to 64 feet at Court Avenue. This section is maintained to Elm Avenue.

At the intersection of Oak Avenue and Main Street, the eastbound direction consists of two departing through lanes. The westbound direction consists of a dedicated left turn, one through, and a dedicated right turn lane. At the intersection of Elm Ave and Main St, the eastbound direction consists of a dedicated right turn, one through lane, and a dedicated left turn lane. The westbound direction consists of two departing through lanes, and one parking lane.

According to the as-built construction drawings provided, in 1929, 7 1/2 inches of concrete pavement was placed. In 1970, a 1 3/4-inch bituminous overlay was placed. In 1984, an additional 3/4-inch bituminous overlay was placed, and curb & gutter was replaced. In 2005, the existing pavement section was constructed by mill and overlay. According to the as-builts, the existing section consists of 2 3/4 inches of bituminous over 7 1/2 inches of concrete. According to the information obtained during the geotechnical evaluation, the existing pavement section is shown in Table 2-1 below.

Table 2-1 – Pavement Thickness – Oak Avenue to Elm Avenue

	Oak Avenue to Elm Avenue (Drive Lane)	Oak Avenue to Elm Avenue (Parking Lane)
Bituminous (inches)	2 ½ to 3 ¾	2 ½ to 2 ¾
Concrete (inches)	7 to 11	6 to 7 ½
Aggregate Base (inches)	0 to 9	0 to 6
Total (inches)	9 ¾ to 20 ¼	10 ¼ to 14 ½

The existing bituminous pavement overlay is nearing the end of its design life, and the existing concrete beneath has long surpassed its design life. There is severe cracking throughout the roadway to both the drive lanes and parking lanes, including cracking deteriorated radially from some of the manhole structures. The cracking is likely due to settlement of subsurface soils.

Areas with significant curb and gutter settlement have been observed in front of Central Park causing water to pool and unable to properly drain to storm water catch basins. Catch basins in this area have succumbed to severe edge cracking and edge pop outs. The curbs along this stretch have been deteriorated in most areas, as can be seen in the photos below.

Figure 2-1 – Map of Oak Avenue to Elm Avenue

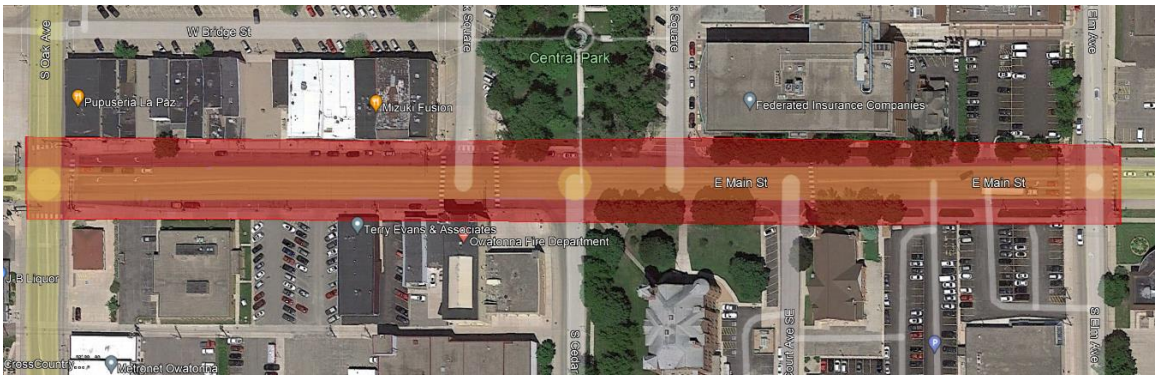


Figure 2-2 – East of Oak Ave and Main St Intersection – Shows cracking, resulting in potholes.

Figure 2-3 – Intersection of Elm Ave and Main St – Shows cracking and previous patching.

Figure 2-4 – Intersection of Cedar Ave and Main St – Cracking

Figure 2-5 – Between Oak and Elm – Storm Water pondage do to inadequate sloping.

Figure 2-6 – In front of Central Park – Catch basin with detioration.

2.2.2 Elm Avenue to Chambers Avenue

As-builts from 1998 were obtained and reviewed. Elm Avenue to Chambers Avenue is an undivided roadway consisting of one traffic lane and a parking lane in both directions. The typical section of the right-of-way heading east and starting from Elm Avenue is 66 feet. The street then narrows to 49 feet until it reaches Lincoln Avenue where the section expands to approximately 55 feet, then narrows to 38 feet East of Lincoln Avenue, and finally expanding to 47 feet at the intersection of Chambers Avenue.

At the intersection of Elm Ave and Main Street, the eastbound direction consists of one departing traffic lane and one parking lane. The westbound approach consists of a dedicated left turn, one through, and a dedicated right turn lane.

According to the as-built construction drawings provided to us, prior to 1998, the roadway consisted of 2 inches of bituminous over 7 1/2 inches of concrete. In 1998, the existing pavement section was constructed and consists of 8 inches of non-reinforced concrete over 6 inches of aggregate base, and 6 inches of granular borrow. According to the information obtained during the geotechnical evaluation, the existing pavement section is shown in Table 2-2 below.

Table 2-2 – Pavement Thickness – Elm Avenue to Chambers Avenue

	Oak Avenue to Elm Avenue (Drive Lane)
Concrete (inches)	7 to 8
Aggregate Base (inches)	15 to 29*
Total (inches)	*

*Unable to be verified during field exploration due to refusal in 3 of the 4 hand auger borings.

Overall, the roadway is in moderate condition with much of the cracking extending longitudinally from the joints in the drive lanes. Approximately 20 percent of the panels have some type of cracking throughout the panel or at the joints.

Figure 2-7 – Map Elm Avenue to Chambers Avenue

Figure 2-8 – West of Grove Ave and Main St – Longitudinal Cracking

Figure 2-9 – Mid-Block between Lincoln Ave and Chambers Ave – Longitudinal Cracking

2.2.3 Sidewalk and Driveways

The sidewalk on both sides of the roadway spanning the length of the corridor have cracking and surface deterioration in select areas. A review of the pedestrian walk zones and street crossings for ADA compliance was performed, and the majority fall out of current compliance.

Sidewalks from Oak to Elm were constructed prior to 1984. There are areas where the sidewalk does not mean the maximum 2% slope compliance. About 20 percent of the sidewalks and driveways are cracked, textured, or deteriorated along this stretch.

In 1998, records show sidewalks were constructed on both sides from Elm to Chambers. However, based on recent site visits, areas of sidewalks could be from the 1930's to 1940's. Approximately 50 percent of the sidewalks and driveways have cracking at the joints, laterally across the panels, surface deterioration, and areas of textured pavement. These issues can be attributed freeze/thaw cycles, salt placement, past serviceable life, etc.

Figure 2-10 – South Sidewalk East of Oak Ave – Deteriorated, Cracked and 2.9% slope.

Figure 2-11 – Mid-Block between Lincoln Ave and Chambers Ave – Detiorated and cracked sidewalk on north side.

2.3 Environmental Review

A preliminary environmental desktop review for the project corridor was completed. The desktop review was limited to the following research tasks listed below:

- Environmental Database Review of Minnesota Pollution Control Agency(MPCA) What's in my Neighborhood (WIMN) listings,
- Minnesota Department of Agriculture (MDA) WIMN listings,
- MPCA Spill listings,
- Review of located wells available on the Minnesota Department of Health (MDH) Minnesota Well Index (MWI) website.

Based on the findings of the desktop review, a majority of the listings identified in the report, attached to this study, exist within the western portion of the project corridor. These listings include closed Leaks, closed Tank Sites, active and inactive RCRA generators, and wells. A closed listing registered under the Superfund, Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), and Voluntary Investigation and Cleanup (VIC) programs were also identified in the western portion of the project corridor.

Additionally, an abandoned steam pipe was previously identified running along the project corridor and records of the pipe's location were not available. Municipal steam pipes were

commonly insulated with an asbestos containing pipe wrap or the pipe itself is often transite (an asbestos containing material). If encountered during construction the pipe should be tested for asbestos and if it does contain asbestos, an asbestos abatement company will need to be contracted for proper handling/disposal.

SEH recommends at minimum that an Environmental Review be completed that includes a Phase I Environmental Site Assessment (ESA) type research or a full Phase I ESA be completed for the reconstruction portion of the corridor. This information would then be used as the basis in which to place Phase II ESA borings. Phase II ESA information would then be used to write special provisions for the project and assist with a cost estimate for properly dealing with contamination during construction.

An Environmental Desktop Review is attached in **Appendix F** for review.

2.4 Utilities

City of Owatonna and Minnesota Department of Transportation (MnDOT) construction plans from 1984, 1998, 2005, and existing GIS information was used to determine the year of installation and pipe materials for the existing utilities. Andrew Sorenson, City of Owatonna, and public works employees also provided historical and existing conditions of the sanitary and storm sewers within the project limits. In his judgment, both sanitary and storm sewers (main & structures) from Oak Ave to Elm Ave have approximately ten years of serviceable life remaining, however a few manholes appear to be failing based on recent site visits. Both sewers spanning East of Elm Ave are in much better condition and are anticipated to have at least 20 years of service life remaining.

2.4.1 Watermain

No record of information for the existing watermain from Oak Ave to Elm Ave was obtained or reviewed during this study, as we were informed no such documents are currently in possession of Owatonna Public Utilities. We assume the watermain along this stretch dates to the late 1800's or early 1900's and consists of cast-iron piping with lead joints.

The existing watermain from Elm Ave to Chambers Ave was installed in 1998 and begins with a 12-inch polyvinyl chloride (PVC) pipe and narrows to an 8-inch PVC at Grove Avenue.

There were no recorded watermain breaks brought to our attention.

2.4.2 Sanitary Sewer

The existing sanitary sewer from Oak Ave to Elm Ave is recorded as being installed in the year 1900 timeframe and consists of an 8-inch vitrified clay pipe (VCP). Oak to Cedar was lined in 2018 and Cedar to Elm was lined in 2020.

The existing sanitary sewer from Elm Ave to Sta. 0+504.40 consists of 10-inch PVC that is assumed to have been installed prior to 1998. From Sta. 0+504.40 to Chambers Ave, the sanitary sewer was installed in 1998 and consists of 8-inch PVC.

An inspection by Assistant County Engineer, Paul Sponholz was performed at the three worst/manhole pavement issues on Main Street. It was noted that all were deep sanitary sewer structures with concrete barrels, and all were in rather good condition. The rings and bricks in

the top foot appeared to have minor separation, but nothing major noted. Adjustments could be made to drop the top of the structure to match the roadway profile.

At the open house for this feasibility study in August of 2022, a citizen who is a resident between Lincoln Ave and Chambers Ave informed the County and City of vibrations impacting their house every instance a vehicle drives over the sanitary manhole directly outside her house. County staff made a site visit to this manhole and noted the manhole structure appeared to have pushed up through the concrete, most likely due to freeze/thaw cycles. This potentially could lead to vibrations moving laterally impacting her home, but further investigation may be warranted.

2.4.3 Storm Sewer

The existing storm sewer from Oak Ave to W Park Square was installed in 1984 and consists of a 12-inch reinforced concrete pipe (RCP), from W Park Square to E Park Square the pipe is an 18-inch RCP, and from E Park Square to Elm the pipe is a 12-inch RCP. From Elm Ave to approximately Sta. 0+504.40, the storm sewer consists of a 12-inch RCP and was installed prior to 1998. The storm sewer extending from Grove to Chambers was installed in 1998 and consists of a 12-inch, 18-inch, and 24-inch RCP. This stretch also includes an 8-inch perforated drainpipe.

The manhole at W Park Square was observed to be failing and filling in with brick and debris. It is noted that two manholes near Cedar Avenue have both been paved over. At the southeast corner of Elm, concrete debris in the pipe has been observed at the bottom of the catch basin. During a televised inspection, it was documented that from Lincoln to Chambers the camera extended laterally underwater from approximately 40 to 70 feet due to a dip in the pipe.

Figure 2-12 – In front of Central Park – Storm Water manhole with brick and debris.

3 Corridor Study

As part of this feasibility study a corridor study was conducted to review existing and future traffic operations and pedestrian crossing improvements. The corridor study reviewed motorized and non-motorized traffic volumes, safety and future traffic patterns along the corridor. Recommendations outlined in this report helped inform the alternatives analysis portion of this feasibility study.

The results of this corridor study identified several improvements along the CSAH 48 corridor:

1. Conversion of the corridor from Oak Avenue to Lincoln Avenue to a three-lane roadway.
2. Removal of the existing signal system at W Park Square and the addition of a center median on the west leg of W Park Square.
3. Addition of a center median on the east leg on E Park Square and pedestrian crossing enhancements in the form of a rectangular rapid flashing beacon system. Crossing to align with the current location of the existing crossing just east of proposed closure of Court Avenue.
4. Closure of Court Avenue SE access point onto CSAH 48 (Main Street)
5. Replacement of signal system at Elm Avenue
6. Single lane roundabout control at the intersection of Grove Avenue.
7. Future consideration of a single lane roundabout control at Lincoln Avenue S. Interim improvements include minor widening to accommodate left turn lanes for both eastbound and westbound.
8. Realignment of Chambers Avenue intersection to better align the northbound and southbound Chambers Avenue approaches.

A detailed corridor study is included in Appendix B of this report.

4 Improvements to Consider

This feasibility report provides the following improvement alternatives to consider:

Table 4-1 – Proposed Improvement Alternatives

Proposed Improvement Alternative	Location	Improvement Type
1A	Oak Avenue to Grove Avenue	Full Reconstruction - Concrete
1B	Oak Avenue to Grove Avenue	Full Reconstruction - Bituminous
1C	Oak Avenue to Elm Avenue	Mill & Overlay/Pavement Rehab
2	Grove Avenue to Chambers Ave	Concrete Pavement Rehab
3A	Owatonna Education Center	Drop-Off Lane
3B	Owatonna Education Center	Pull-Off Lane
4A	Lincoln Ave S	Roundabout
4B	Lincoln Ave S	Turn Lane

4.1 Alternative 1A and 1B: Full Reconstruction Oak Avenue to Grove Avenue

Complete removal of the existing roadway and sidewalk pavement sections and replacing with either bituminous or concrete pavement and aggregate base. This would include replacement of concrete curb and gutter, driveway approaches, sidewalk, and subdrain. Full reconstruction would also include removal and replacement of watermain, sanitary sewer, and storm sewer. The vaults north of the existing roadway from Oak Avenue to West Park Square would also be removed or stabilized if removal isn't feasible.

Roadway replacement is expected to provide a 35+ year lifespan for concrete and 20-25 years for bituminous.

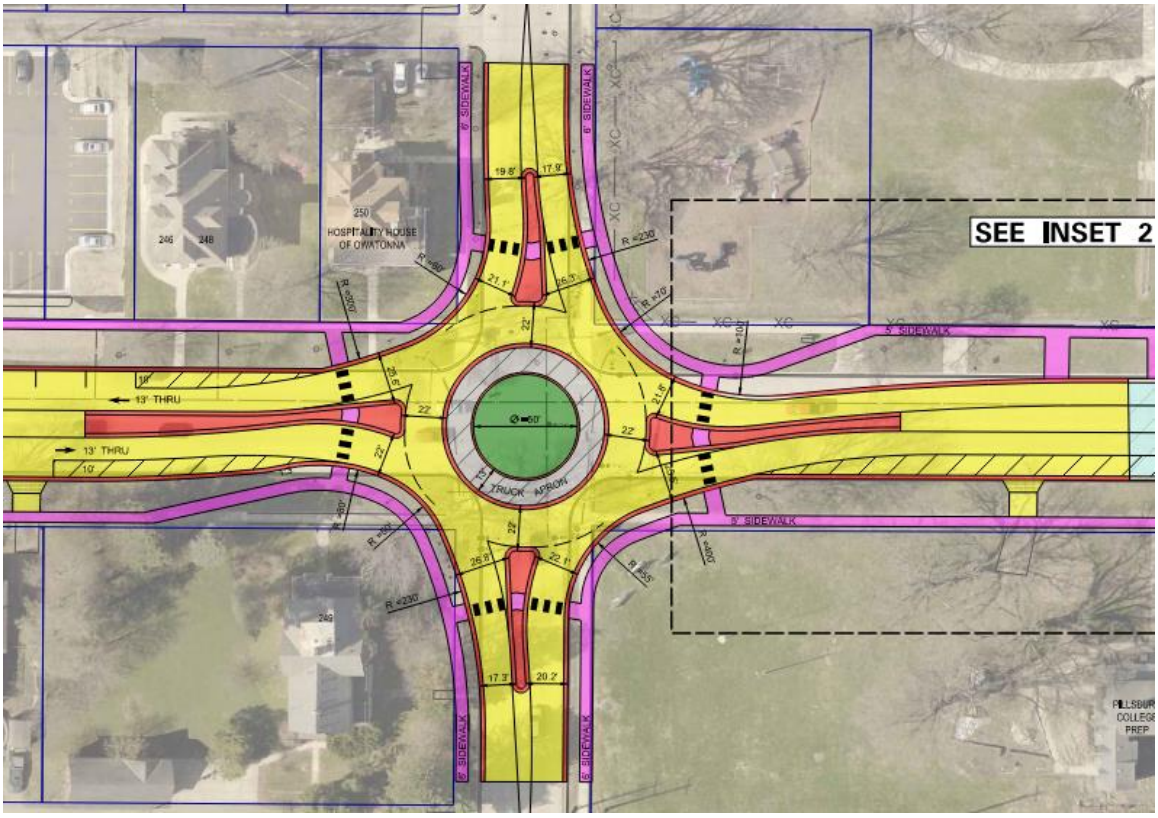
The roadway would be reconstructed to a width from face of curb to face of curb of 58 feet east of the intersection of Oak Avenue, and narrow to 55 feet at W. Park Square, and continue to narrow to 47 feet to Elm Avenue. From Elm Avenue, the width will be 55 feet and extend to Grove Avenue where it narrows to 49 feet until Lincoln Avenue where it continues to narrow to 39 feet, extending to Chambers Avenue.

Full reconstruction from Oak Avenue to Grove Avenue should be considered while Grove Avenue to Chambers Avenue would not be recommended at this time. The utilities and pavement from Oak Avenue to Elm Avenue have surpassed their design life, while the utilities from Oak Avenue to Chambers Avenue have no known indications of needing to be replaced, and existing documents show that the existing utilities still have serviceable life remaining.

Included in the full reconstruction, a roundabout at Grove Avenue would be implemented into design, as seen in Figure 4-1. This roundabout would improve traffic flow and reduce the amount of traffic incidents. The replacement of the Oak Avenue signal system is also included in this reconstruction project due to age of the system approaching 40 years and in need of replacement.

Full reconstruction would restore and improve the roadway and utilities to an acceptable condition. It will reduce maintenance and improve service to the community.

Figure 4-1 – Proposed Roundabout at S Grove Avenue



4.2 Alternative 1C: Mill & Overlay/Pavement Rehabilitation

Perform a mill and overlay of the top 2 inches of existing bituminous pavement. The life expectancy is 12 to 15 years.

Considering Oak to Elm, due to the failing manholes, outdated and inefficient utilities, the likelihood of not observing a full life expectancy of the mill and overlay prior to observing utility failure is high, and a risk that would need to be accepted by the owner. Mill & Overlay is not recommended at this time due to the current underground utility condition, however, if full reconstruction is not feasible within the next five years, it may be considered if risk of utility failures is acceptable.

Mill & Overlay from Elm to Chambers is not applicable.

4.3 Alternative 2: Concrete Pavement Rehabilitation

Replacing cracked, distressed, deteriorated, or damaged panels in the traffic and parking lanes. This would include methods such as joint repair, partial depth repair, and full depth repair. Considering the stretch east of Grove Avenue, we assumed 20 percent of pavement and 50 percent of all sidewalks would need to be repaired or replaced in some capacity.

CPR should be considered from Grove Avenue to Chambers Avenue as a full reconstruct for pavement and utilities is not necessary at this time. CPR is not applicable from Oak Avenue to Grove Avenue.

4.4 Additional Spot Corridor Improvement Alternatives

As part of the corridor wide evaluation, several different intersection and roadway locations were evaluated for a range of alternative options. These additional improvements should be considered after being properly vetted through the final design process. Additional considerations included the following:

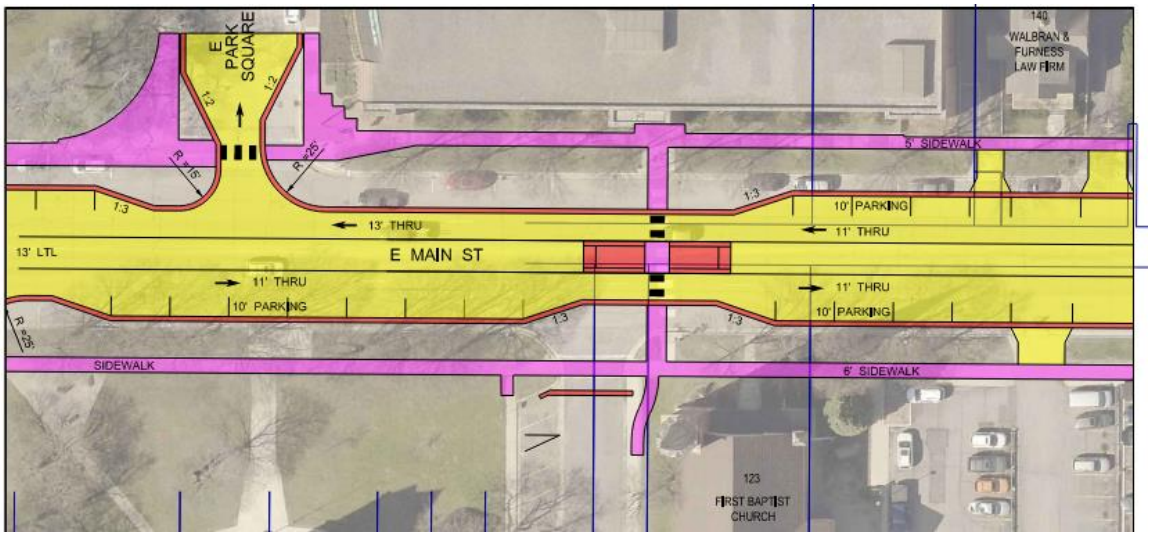
- Crossing improvements near E Park Square and Federated Insurance
- Owatonna Education Center operational and performance improvements associated with drop off and pick up operations. (Alternative 3A & 3B)
- Long term Lincoln Avenue intersection improvements (Alternative 4A and 4B)

4.4.1 Crosswalk at Federated Insurance

This option would move the proposed crosswalk east from the intersection of E Park Square to be in line with the access door of Federated Insurance. This would minimize the walking distance for Federated Insurance employees to walk from the parking lot located on the south side of the road however, constructing an intersection at a mid-block may have safety implications for pedestrians as this creates less anticipation for vehicle drivers. This option can be seen in Figure 4-2.

As part of a previous PMT meeting, it was also discussed to extend the center median island between E Park Square and the current Federated crossing to provide two crossing locations with a raised island. This alternative should be vetted further in final design as it does have additional on-street parking impacts between E Park Square and the current Federated insurance crossing location.

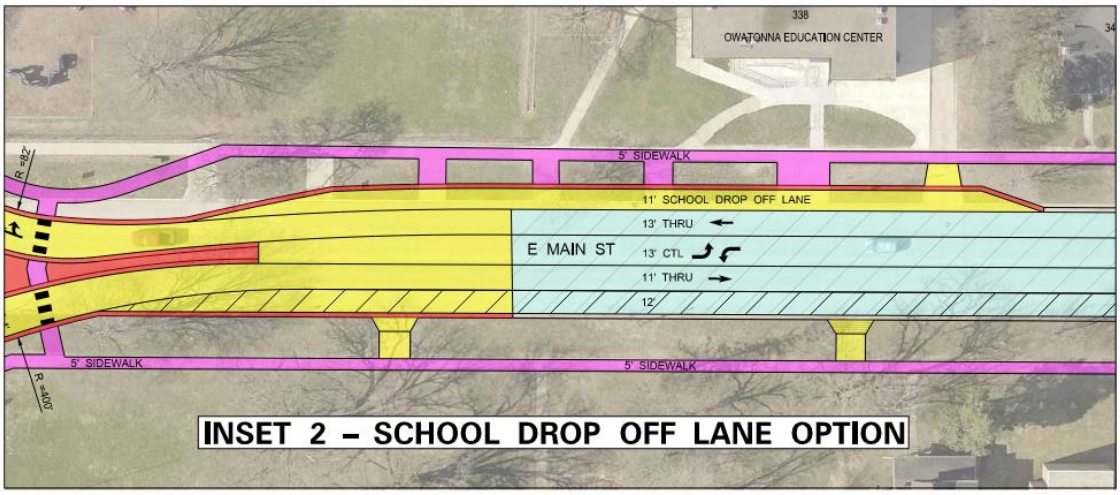
Figure 4-2 – Proposed Crosswalk at Federarted Insurance



4.4.2 Alternative 3A – Owatonna Education Center School Drop Off Lane

Provide additional lane to facilitate traffic flow and safety of students outside of the Owatonna Education Center. This option is not preferred due to safety issues with merging traffic so close to the intersection. Figure 4-3 shows the proposed drop off lane configuration.

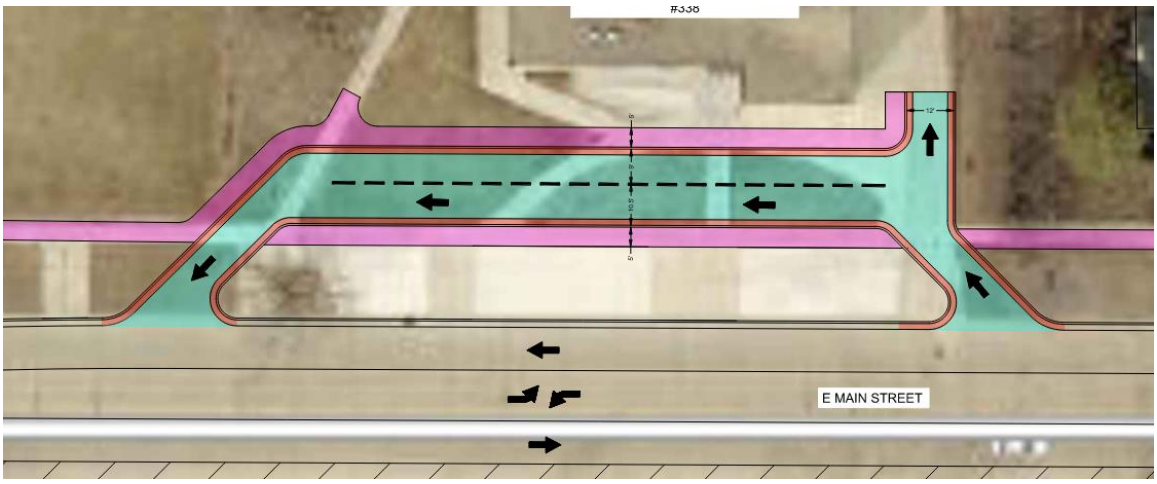
Figure 4-3 – Proposed Drop Off Lane in front of school



4.4.3 Alternative 3B – Owatonna Education Center Pull Off Lane

With consideration of the school drop off lane being close to the roundabout, this option provides a lane to divide traffic and allow cars to get around each other. With this option, the alley located east of the school would need to be re-routed for this design. This is the preferred option, however, needs to be completed in cooperation with the school district and their future planning. Figure 4-4 shows the proposed pull off lane.

Figure 4-4 – Proposed Pull Off Lane in front of school

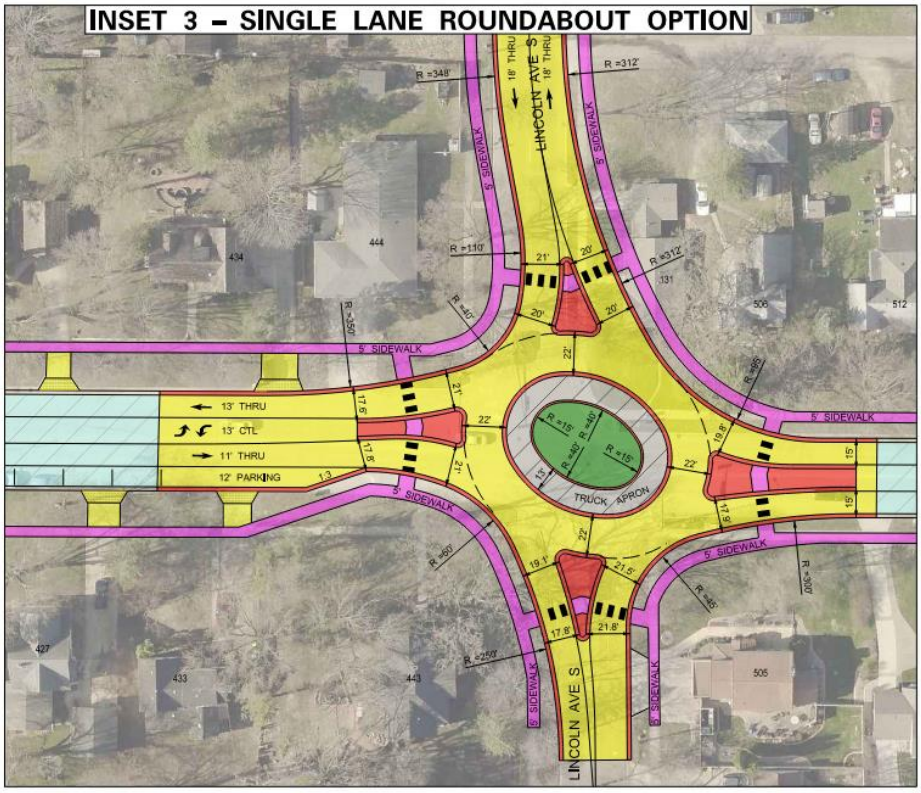


4.4.4 Alternative 4A – Roundabout at Lincoln Avenue S

As indicated by the completed corridor study, long term recommended traffic control improvement includes converting the intersection of Lincoln Avenue to roundabout control. This intersection configuration would involve demolishing the existing City owned house on the northeast corner of the intersection. It is recommended that additional traffic analysis is completed to determine when roundabout control would be warranted once traffic patterns in the area change due to the new location of Owatonna High School.

Figure 4-5 shows the proposed roundabout alternative at Lincoln Avenue.

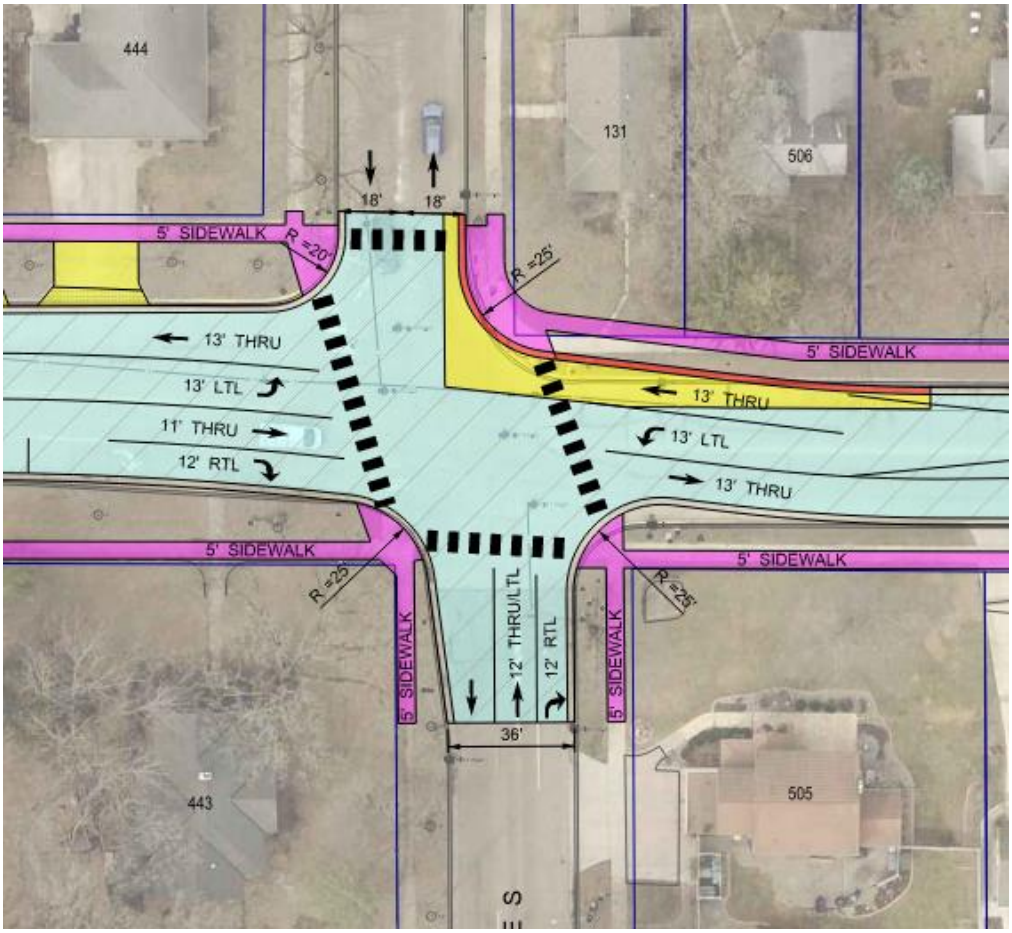
Figure 4-5 – Proposed Roundabout at Lincoln Avenue



4.4.5 Alternative 4B – Turn lanes at Lincoln Avenue S

Based on information provided as part of the corridor study, it is recommended that this intersection remain an all-way stop controlled intersection. Given the existing site distance constraints as well as the skew both east and west and north and south through this intersection, all-way stop control is the preferred control type. Operational analysis indicates that all-way stop control should provide acceptable levels of operation through the year 2035 before approach delays begin to exceed failing thresholds. To help improve alignment as well as provide additional capacity, widening the intersection would provide additional opportunity to develop dedicated left turn lanes for the eastbound and westbound approaches. Figure 4-6 shows the recommended improvement as widening the intersection and adding turn lanes.

Figure 4-6 – Proposed Turn lane at Lincoln Avenue



4.5 Sidewalks and Driveways

Recommended to meet the ADA specifications. Select areas of the sidewalk and driveways within the right-of-way show cracking and deterioration and should be replaced as needed for constructability with the design of the proposed project.

4.6 Watermain

Replacement of the watermain west of Elm Avenue should be considered as the watermain is old, has an unknown age and material, and is most likely out of compliance with fire protection standards in places. Due to the age, the watermain is likely made of cast iron and has lead jointing. This can lead to leaching of lead into the water system. If roadway reconstruction is selected, replacement of the watermain should be included in project scope, and for logistical reasons should also extend to Grove Avenue. The new main will also address future reliability concerns as the assumed existing cast iron main continues to age.

The watermain from Elm to Chambers was installed in 1998 and begins with a 12-inch polyvinyl chloride (PVC) pipe and narrows to an 8-inch PVC at Grove Avenue. The service life for PVC pipe is approximately 70 years. Therefore, not necessary to be replaced unless it is determined by Owatonna Public Utilities that the current capacity size needs to be increased.

4.7 Sanitary Sewer

The condition of the sanitary sewer from Oak Avenue to Elm Avenue is such that further deterioration can be expected in the lines and manholes. If left in place, it is almost certain that the line and/or manholes would require replacement in advance of any new mill and overlays anticipated life-cycle, most likely within 10 years. It is recommended to replace the sanitary sewer mains and structures in conjunction with full reconstruction.

The sanitary from Elm to Chambers was installed in 1998 and begins with a 10-inch polyvinyl chloride (PVC) pipe and narrows to an 8-inch PVC at the mid-block of Elm and Grove. The service life for PVC pipe is approximately 70 years. Therefore, not necessary to be replaced unless it is determined by City of Owatonna that the current capacity size needs to be increased.

4.8 Storm Sewer

The existing storm sewer system from Oak Avenue to Elm Avenue is undersized and is recommended to be replaced in conjunction with full reconstruction. The existing system should be evaluated and redesigned with current storm design standards using the latest rainfall data, and replaced with reinforced concrete pipes, precast catch basins, and manhole structures.

The existing storm sewer east of Elm Avenue consists of various sizes of RCP installed in 1998. RCP is anticipated to last at least 75 years. Therefore, not necessary to be replaced unless it is determined by City of Owatonna that the current capacity size needs to be increased.

4.9 Owatonna Public Utilities – Gas, Electric & Steam

As previously stated, an abandoned steam pipe was previously identified running along the project corridor and records of the pipe's location were not available. Municipal steam pipes were commonly insulated with an asbestos containing pipe wrap or the pipe itself is often transite (an asbestos containing material). If encountered during construction the pipe should be tested for asbestos and if it does contain asbestos, an asbestos abatement company will need to be contracted for proper handling/disposal.

OPU has also previously provided electronic CADD files of gas and electric power distribution lines located along the corridor. Based on this information, coordination will be needed with OPU for the gas and electric service lines located along the corridor to provide relocation and

adjustments as necessary for the full depth reclamation section from Oak Avenue to Grove Avenue.

4.10 Right of Way

Right of Way is determined to be needed for the following options and alternatives.

1. Roundabout control at the intersection of Grove Avenue - The four parcels abutting the Main Street and Grove Avenue intersection have impacts.
2. Realignment of Chambers Avenue – Impacts to Jaycee Park are needed to complete the realignment.
3. School Pull-off Option (Alt. 3B) - Would be needed if the pull-off option at the Owatonna Education Center is considered.

4.11 Incorporating City Streetscaping Elements

The City and County would need to be in agreement should the streetscape elements from Oak Avenue to Elm Avenue be incorporated into the redesign. The streetscaping elements have been included in the estimated budget but should be defined further during the design phase.

5 Public Engagement

Two public open houses were held to vet design alternatives and present the recommended design to the general public and project stakeholders. The first open house was held on February 17, 2022 and the second project open house was held on August 25th, 2022.

Meeting summaries from both open houses are shown in Appendix C.

6 Implementation

6.1 Estimated Project Costs

Table 6-1 – Total Estimated Project Costs

Proposed Improvement	Cost ($)*	Assessment ($/foot)
1A: Full Reconstruction Oak Ave to Grove Ave – Concrete Includes Grove Ave Roundabout	$7,645,000	$249,931 ($52/ft)
1B: Full Reconstruction Oak Ave to Grove Ave – Bituminous Includes Grove Ave Roundabout	$6,985,000	$249,931 ($52/ft)
1C: Mill and Overlay/Pavement Rehabilitation from Oak Ave to Elm Ave	$1,090,000	0
2: Concrete Pavement Rehab Grove Ave to Chambers Ave	$2,050,000	0
3A:Owatonna Education Center School Drop Off Lane	$65,000	0
3B: Owatonna Education Center School Pull Off Lane	$230,000**	0
4A: Lincoln Avenue S Roundabout	$1,030,000	0
4B: Lincoln Avenue Turn Lane improvements	$35,000	0

**Includes 30% contingency and ELA*

***Would be a cooperative effort between the City, County, and School District*

Table 6-2 – Estimated Project Cost Fund Splits

Proposed Improvement	Street	Storm Sewer	Watermain	Sanitary Sewer
1A	**$6,150,000**	**$440,000**	**$650,000**	**$405,000**
1B	**$5,545,000**	**$425,000**	**$625,000**	**$390,000**
1C	**$1,090,000**	---	---	---
2	**$2,050,000**	---	---	---
3A	**$65,000**	---	---	---
3B	**$230,000****	---	---	---
4A	**$1,030,000**	---	---	---
4B	**$35,000**	---	---	---

***Would be a cooperative effort between the City, County, and School District for splitting the estimated $230,000.*

6.2 Proposed Financing

Financing would come from State Aid, County, and City funds.

Table 6-3 – Proposed Financing

Financing	Street	Storm Sewer	Watermain	Sanitary Sewer
State Aid	**Yes**	**Yes**	**---**	**---**
County	**Yes**	**Yes**	**---**	**---**
City	**Yes**	**Yes**	**---**	**Yes**
OPU			**Yes**	

6.3 Special Assessments

Special Assessments for this proposed project were calculated in case the City Council would like to utilize this avenue of financing, which may be decided later in the project. The special assessments are proposed following the City of Owatonna Assessment Policy dated September 1, 1981, revised April 2, 2012 & January 8, 2013. These funds would be applied to the reconstruction of the street and assessed at a rate of $52.00/LF for the assessable frontage of each parcel along the reconstruction project of the project. The preliminary assessment role can be found in Appendix E.

7 Recommendations

7.1 Improvement Alternative 1 – Oak Avenue to Elm Avenue

Based on present conditions alone, we would recommend full reconstruction take place from Oak Avenue to Grove Avenue, and concrete pavement be placed (Alternate 1A). Considering the current state of the roadway, failing manholes, undersized storm sewer, outdated utilities, non-ADA compliant pedestrian walk zones and sidewalk panels in areas, full reconstruction would be the recommended option. Concrete pavement would be preferred as it has a longer design life, less maintenance, and performs better with heavy vehicle loads and traffic. Traffic control improvements should also be implemented as identified in the attached ICE Study to ensure efficient future operations into the future. A detailed project layout is shown in Appendix D.

Included with these recommendations is the change of traffic control from signalized to roundabout control at the intersection of Grove Avenue as well as replacement of the existing signal system and corresponding ADA improvements at the intersection of Oak Avenue.

7.2 Improvement Alternative 2 – Grove Avenue to Chambers Avenue

We recommend performing Concrete Pavement Rehab from Grove Avenue to Chambers Avenue (Alternate 2) at this time. Additionally, future consideration should be given to the restriping of the roadway to include a 3-lane section from Grove Avenue to Lincoln Avenue and a two-lane roadway with parking on one side from Lincoln Avenue to Chambers Avenue.

7.3 Improvement Alternative 3 – Owatonna Education Center

We recommend Alternative 3B – Owatonna Education Center – Pull-Off Lane. With consideration of the school drop off lane being close to the roundabout, this option provides a lane to divide

traffic and allow cars to get around each other, which allows for safer vehicular and pedestrian traffic.

Prior to implementing this change, communication should be had with the school district to determine their future plans and use for this site to ensure that the proposed design best meets the needs of the school district both now and into the future.

7.4 Improvement Alternative 4 – Lincoln Avenue South

We recommend another future traffic study be conducted when the new high school located on the south side of the City is in-use. This will help determine the validity of a future roundabout at this location. In the meantime, we recommend implementing a left turn lane in both the eastbound and westbound directions.

8 Project Schedule

A proposed project schedule has been prepared for both the recommended full reconstruction of CSAH 48 from Oak Avenue to Grove Avenue, and the Concrete Pavement Rehabilitation from Grove Avenue to Chambers Avenue. The proposed schedule can be seen below:

1. Feasibility Study presented to County Board ..... April 2023
2. County Board awards roadway design project ..... May 2023
3. Construction Limits identified and set and ROW acquisition process begins. ..... June 2023
4. 30% Plans ..... August 1, 2023
5. 60% Plans ..... October 1, 2023
6. 90% Plans ..... December 1, 2023
7. 95% Plans ..... January 15, 2024
8. State Aid Approval & 100% Plans ..... March 2024
9. Advertisement for Bids for reconstruction project ..... February 2025
10. Contract Award for reconstruction project ..... March 2025
11. Begin construction for reconstruction project ..... April/May 2025
12. Construction completed for reconstruction project ..... November 2025
13. Advertisement for Bids for Concrete Pavement Repair project ..... Winter 2025/2026
14. Contract Award for Concrete Pavement Repair project ..... Spring 2026
15. Begin construction for Concrete Pavement Repair project ..... Spring 2026
16. Construction completed for Concrete Pavement Repair project ..... Fall 2026

9 Conclusion

Based upon our assessment of the current infrastructure condition, the preliminary cost estimates, and traffic engineering analysis, presented as part of this feasibility report, it is recommended that along CSAH 48 (Main Street), full depth reconstruction from Oak Avenue through Grove Avenue should be completed. As part of this reconstruction, a single lane roundabout should be constructed at the intersection of Main Street and Grove Avenue.

East of Grove Avenue, a Concrete Pavement Repair (CPR) (Proposed Improvement Alternative 2) should be completed. As part of this project, left turn lanes should be constructed at the intersection of Lincoln Avenue which includes minor widening of the roadway on the east side of Lincoln Avenue.

We also recommend the Pull-Off Lane option (Proposed Improvement Alternative 3B) at the Owatonna Education Center. Prior to this improvement being designed, further discussions should be had with the Owatonna Public School District to determine the future use for this parcel and whether or not this improvement will benefit the site long term.

Appendix A

Geotechnical Evaluation Report

Geotechnical Evaluation Report

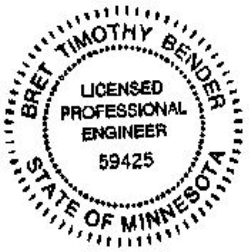
Steele County CSAH 48 Reconstruction
CSAH 48 (E Main Street) from S Oak Avenue to S Chambers Avenue
Owatonna, Minnesota

Prepared for

Short Elliott Hendrickson, Inc.

Professional Certification:
I hereby certify that this plan, specification, or 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.

Bret T. Bender, PE
Project Engineer
License Number: 59425
November 11, 2022



Project B2207129

Braun Intertec Corporation

BRAUN INTERTEC
The Science You Build On.

Braun Intertec Corporation
4210 Highway 14 East
Rochester, MN 55904

Phone: 507.281.2515
Fax: 507.281.5303
Web: braunintertec.com

November 11, 2022 Project B2207129

Mr. Connor Burke, PE
Short Elliott Hendrickson, Inc.
717 3rd Ave SE, Suite 101
Rochester, MN 55904

Re: Geotechnical Evaluation
Steele County CSAH 48 Reconstruction
CSAH 48 (E Main Street) from S Oak Avenue to S Chambers Avenue
Owatonna, Minnesota

Dear Mr. Burke:

We are pleased to present this Geotechnical Evaluation Report for the Steele County CSAH 48 Reconstruction project located at the above-referenced site in Owatonna, Minnesota.

Thank you for making Braun Intertec your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Bret Bender at 612.708.6758 (bbender@braunintertec.com) or Neil Lund at 612.369.3163 (nlund@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION

Bret T. Bender, PE
Project Engineer

For Neil Lund
Nov 11 2022 1:38 PM

Neil G. Lund, PE
Technical Manager, Senior Engineer

c: Paul Sponholz, Steele County

AA/EOE

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MnPAVE-Flexible Results

A. Introduction

A.1. Project Description

This Geotechnical Evaluation Report addresses the proposed design and construction of the County State Aid Highway (CSAH) 48 Reconstruction project, located in Owatonna, Minnesota. The project will include the reconstruction and/or rehabilitation of portions of CSAH 48 (East Main Street) from South Oak Avenue to South Chambers Avenue. We understand that a feasibility study is in progress for the project, that the project will likely occur within the next 2 to 10 years, and that the project will likely include the following:

- Full reconstruction or approximately 0.4 miles of CSAH 48 from Oak Avenue to Grove Avenue including reconstruction of utilities and pavements.
    - Both bituminous and concrete pavement options are under consideration.
    - Utilities to be reconstructed will include sanitary sewer, water main, and storm sewer, as well as underground electric, fiber optic, and gas lines.
    - A new roundabout intersection is planned for the intersection of CSAH 48 and Grove Avenue.
    - This area currently includes existing concrete pavements, with a bituminous overlay from Oak Avenue to Elm Avenue, concrete curb & gutter, sidewalks, and driveway aprons.
- Rehabilitation of approximately 0.4 mile of existing concrete pavements from Grove Avenue to Chambers Avenue
    - This area currently includes existing concrete pavements, concrete curb & gutter, sidewalks, and driveway aprons.

For the purposes of this report, we have assumed that finished grades will remain within 2 feet or less from existing grades.

Based on our understanding of the project, traffic volumes obtained using the Minnesota Department of Transportation (MnDOT) Traffic Mapping Application, and the MnDOT State Aid 10 Ton ESAL Calculator assuming a typical “Urban” traffic distribution, we anticipate the following pavement loads as summarized in Table 1 below.

Table 1. Proposed Pavement Types and Traffic Loads

Aspect	Description
Pavement Types	Rigid (Concrete) – CSAH 48, including Roundabout Flexible (Bituminous) – CSAH 48, excluding Roundabout
Assumed pavement loads	Concrete Pavement, Oak Ave to Grove Ave, including Roundabout: 435 HCADT, 0.5% annual growth*
	Concrete Pavement, Grove Ave to Chambers Ave: 366 HCADT, 0.5% annual growth*
	Bituminous Pavement, Oak Ave to Grove Ave, excluding Roundabout: 1,408,000 BESALs, 0.5% annual growth*

*Equivalent 18,000-lb single axle loads based on 20-year design life for flexible pavement (BESALs). Heavy Commercial Average Daily Traffic (HCADT) and Growth Percentage used in MnPAVE-Rigid for at 35-year concrete pavement design life.

We have described our understanding of the proposed construction and site to the extent others reported it to us. Depending on the extent of available information, we may have made assumptions based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, the project team should notify us. New or changed information could require additional evaluation, analyses and/or recommendations.

A.2. Site Conditions and History

Currently, the western segment of the project alignment from Oak Avenue to Elm Avenue has two drive lanes in each direction (eastbound and westbound), parking lanes in both directions, and dedicated turn lanes at the Oak Avenue and Elm Avenue intersections. The pavements in the western segment consist of concrete overlain with bituminous.

The eastern segment of the project alignment from Elm Avenue to Chambers Avenue has one drive lane in each direction, parking lanes in both directions, and dedicated turn lanes at the Elm Avenue, Grove Avenue, and Lincoln Avenue intersections. Pavements in the eastern segment are concrete, and were constructed in approximately 1998.

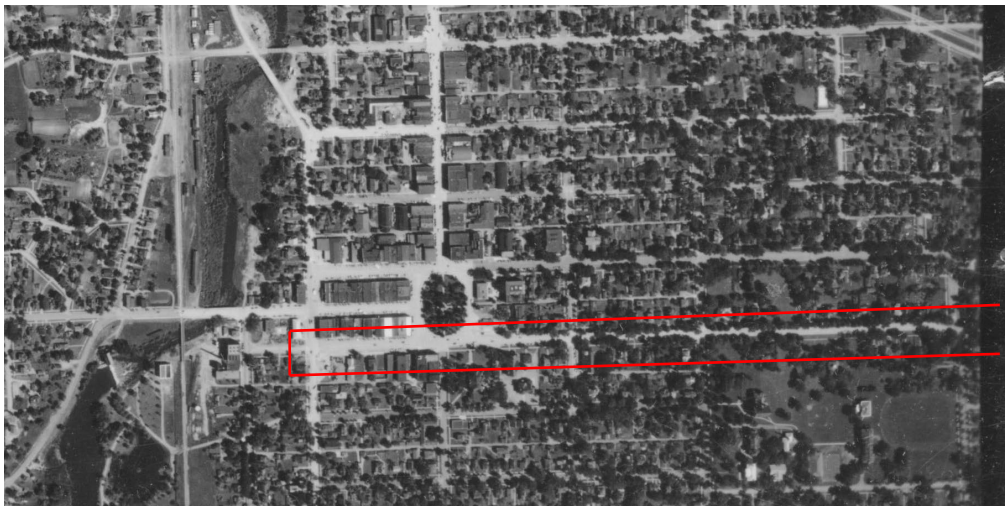
Land uses along the project alignment include a mixture of commercial, government, educational, and single-family residential development. Notable developments along the alignment include:

- The City of Owatonna City Hall and Fire Station
- The Steele County Courthouse
- An office of Federated Insurance Companies
- First Baptist Church
- A United States Post Office
- The Owatonna Education Center
- Pillsbury College Prep dormitories

Terrain along the alignment ranges from flat to rolling, with current grades ranging from approximately elevation 1,150 feet to 1,200 feet (NAVD88). West of Grove Avenue the site is relatively flat with grades generally sloping downward from east to west. Existing grades rise to the east of Grove Avenue, with the highest crest between Lincoln Avenue and Chambers Avenue. The Straight River lies to the west of the project, approximately 475 feet west of Oak Ave, near an elevation of 1,120 feet.

Historically, the land along the alignment appears to have generally been developed by 1938. Photographs 1 through 5 below show aerial views of the site in 1938, 1958, 1991, 2003, and 2017. The approximate project extents are shown outlined in red.

Photograph 1. Aerial Photograph of the Site in 1938



Photograph obtained using the University of Minnesota Libraries Historical Aerial Photographs Online web application.

Photograph 2. Aerial Photograph of the Site in 1958

Photograph obtained using the University of Minnesota Libraries Historical Aerial Photographs Online web application.

Photograph 3. Aerial Photograph of the Site in 1991

Photograph obtained using Google Earth.

Photograph 4. Aerial Photograph of the Site in 2003

Photograph obtained using Google Earth.

Photograph 5. Aerial Photograph of the Site in 2017

Photograph obtained using Google Earth.

A.3. Purpose

The purpose of our geotechnical evaluation is to characterize subsurface geologic conditions at selected exploration locations, evaluate their impact on the project, and provide geotechnical recommendations for the design and construction of utilities and pavements.

A.4. Background Information and Reference Documents

We reviewed the following information in preparation of this report:

- A Request for Proposal letter prepared by Short Elliott Hendrickson, Inc. (SEH) dated July 5, 2022.
- Topographic data obtained using the Minnesota Department of Natural Resources MNTOPO web application.
- Aerial photographs of the site and surrounding area obtained using the University of Minnesota Historical Aerial Photographs Online web application and Google Earth™.
- The University of Minnesota Duluth Natural Resources Research Institute, Minnesota Natural Resource Atlas, Depth to Bedrock – State web application.
- A map of the Surficial Geology of the Faribault 30 x 60 Minute Quadrangle, South-Central Minnesota prepared by The University of Minnesota, Minnesota Geological Survey, dated 2002, numbered Map M-130.
- A bedrock geology map prepared by the University of Minnesota, Minnesota Geological Survey, dated 1966, titles St. Paul Sheet, Bedrock Geology.
- The Minnesota Department of Transportation (MnDOT) *Standard Specifications for Construction,* 2020 Edition.
- The MnDOT *Pavement Design Manual,* dated July 10, 2019.
- The MnDOT *2017 Geotechnical Manual*.
- The MnDOT Network Level Concrete Decision Tree (2016 version) for concrete pavement rehabilitation planning.
- The MnDOT *Distress Identification Manual*, prepared by MnDOT, dated July 2011.
- *An Overview of MnDOT's Pavement Condition Rating Procedures and Indices*, prepared by MnDOT, dated April 2018.
- The MnDOT *Concrete Pavement Rehabilitation Guide* interactive web application available at the following website: http://www.dot.state.mn.us/materials/concretepavementrehabilitation.html
- Steele County Pavement Management Data for CSAH 48 collected by MnDOT in 2020, including Ride Quality Index (RQI), Surface Rating (SR), and Pavement Quality Index (PQI) and supporting data.

- Communications with Connor Burke of SEH regarding the scope and schedule of this evaluation and anticipated project details.

A.5. Scope of Services

We performed our scope of services for the project in accordance with our Proposal numbered QTB162161 to SEH, dated July 18, 2022, and authorized on July 26, 2022. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Reviewing the background information and reference documents previously cited.
- Staking and clearing the exploration location of underground utilities. SEH selected and we staked the exploration locations. We acquired the surface elevations and locations with GPS technology using the State of Minnesota's permanent GPS base station network. The Soil Boring Location Sketch included in the Appendix shows the approximate locations of the borings.
- Performing eight (8) standard penetration test (SPT) borings, denoted as B-01 to B-08, to nominal depths of 15 to 20 feet below grade across the site.
    - A termination depth of 20 feet was planned at all of the boring locations, but three borings were terminated shallower due to auger refusal.
    - We note that no soil borings were drilled from Elm Avenue to Grove Avenue, as complete reconstruction for this segment of roadway had not been proposed prior to our field exploration. We recommend additional soil borings be drilled in this area.
- Performing four (4) concrete pavement cores, denoted as C-01 to C-04 across the site.
    - Hand auger borings were performed at each location to document apparent aggregate base beneath the pavement. The hand auger borings were extended to depths of 15 to 29 inches below the existing pavement surface.
- Performing laboratory testing on select samples to aid in soil classification and engineering analysis.
- Perform engineering analysis including pavement thickness design and an assessment of concrete pavement rehabilitation options.
- Preparing this report containing a boring location sketch, logs of soil borings, a summary of the soils encountered, results of laboratory tests, and recommendations for pavement subgrade preparation, concrete pavement rehabilitation, and the design of new utilities and pavements.

Our scope of services did not include environmental services or testing and our geotechnical personnel performing this evaluation are not trained to provide environmental services or testing. We can provide environmental services or testing at your request.

B. Results

B.1. Geologic Overview

Our review of the surficial geology of the project area suggests native soils will primarily consist of glacial till and outwash deposits related to the Des Moines Lobe. Bedrock is mapped with surface elevations ranging from approximately elevation 1150 feet to 1250 feet, corresponding to depths within 50 feet of existing surface grades. The first-encountered bedrock formation in the area is mapped as the Galena Formation, which includes dolostone and limestone.

We based the geologic origins used in this report on the soil types, in-situ and laboratory testing, and available common knowledge of the geological history of the site. Because of the complex depositional history, geologic origins can be difficult to ascertain. We did not perform a detailed investigation of the geologic history for the site.

B.2. Boring and Coring Results

Table 2 below provides a summary of the soil boring results, in the general order we encountered the strata, and Table 3 below provides a summary of the pavement core and hand auger results. Please refer to the Log of Boring sheets in the Appendix for additional details. The Descriptive Terminology sheets in the Appendix include definitions of abbreviations used in Tables 2 and 3. For simplicity in this report, we define existing fill to mean existing, uncontrolled or undocumented fill.

Table 2. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Pavement Section	--	--	▪ Overall thickness at boring locations ranged from 9 ¾ inches to 20 ¼ inches. ▪ All boring locations encountered bituminous over concrete. Apparent aggregate base below the concrete was encountered only at Borings B-02 and B-05. ▪ Bituminous thickness ranged from 2 ½ to 3 ¾ inches. ▪ Concrete thickness ranged from 6 to 11 inches. ▪ Apparent aggregate base thickness was 6 inches at B-02 and 9 inches at B-05.
Fill	SP, SP-SM, SM, SC, CL	3 to 25 Blows per foot of sampler penetration (BPF)	▪ General penetration resistance of 3 to 15 BPF. Blow count of 25 BPF at 5 feet in Boring B-04 likely due to gravel or possible cobble. ▪ Moisture condition generally moist. Occasional dry sand layers. ▪ Present to depths of 7 to 12 feet at the boring locations. ▪ Variable soil types. Soils occasionally intermixed. ▪ Upper 2 to 4 feet often included slightly organic soils. Organic soils present to 4 feet in Boring B-06. ▪ Existing fill contained trace amounts of bituminous debris at B-02. ▪ Variable amounts of Gravel. Possible cobbles at Borings B-03 and B-04.
Glacial Deposits	SP, SP-SM, SM	3 BPF to 50 blows for 0 inches of penetration	▪ Primarily glacial outwash sands. Glacial till sandy lean clay encountered below 14 feet in Boring B-02 and below 20 feet in boring B-07. ▪ Variable amounts of gravel; may contain cobbles and boulders. ▪ Moisture condition generally moist. ▪ Penetration resistance in sands varied from 3 BPF to 50 blows for 0 inches of penetration indicating the soils varied from very loose to dense. However, blow counts greater than 50 indicated sampler refusal on possible bedrock or other obstruction. ▪ Penetration resistance in clays ranged from 17 to 18 BPF indicating the soils were very stiff.
	CL	17 to 18 BPF	
Possible Bedrock	Dolostone or Limestone (Galena Formation)	--	▪ Borings B-01, B-03, and B-05 met refusal at depths of 15 feet, 18 feet, and 16 feet respectively. ▪ Rock coring would be needed to confirm the presence and quality of bedrock as the borings could have potentially met refusal on cobbles, boulders, or bedrock “floats” near the bedrock surface.

*Abbreviations defined in the attached Descriptive Terminology sheets.

Table 3. Pavement Core Profile Summary*

Core Location	Measured Concrete Pavement Thickness**	Commentary and Details
C-01	7 ¾ inches	▪ Thickness of apparent aggregate base of at least 7 inches. Refusal to hand auger met at depth of 15 inches below pavement surface. ▪ Apparent aggregate base classified as Silty Sand with Gravel (SM). ▪ Concrete materials appeared to be in good condition.
C-02	8 inches	▪ Thickness of apparent aggregate base of at least 7 inches. Refusal to hand auger met at depth of 15 inches below pavement surface. ▪ Apparent aggregate base classified as Silty Sand with Gravel (SM). ▪ Concrete materials appeared to be in good condition.
C-03	8 inches	▪ Thickness of apparent aggregate base of at least 11 inches. Refusal to hand auger met at depth of 18 inches below pavement surface. ▪ Apparent aggregate base classified as Silty Sand with Gravel (SM). ▪ Concrete materials appeared to be in good condition.
C-04	7 inches	▪ Measured thickness of apparent aggregate base of 22 inches. Hand auger terminated at 29 inches below pavement surface. ▪ Apparent aggregate base classified as Silty Sand with Gravel (SM). ▪ Concrete materials appeared to be in good condition.

*Abbreviations defined in the attached Descriptive Terminology sheets.

**Average of three measurements taken around the core circumference.

We did not perform gradation analysis on the apparent aggregate base material encountered as part of the pavement section, in accordance with our scope of work. Therefore, we cannot conclusively determine if the encountered material satisfies a particular specification.

The Pavement Core Photographs included in the attached Appendix show the condition and thickness of the existing pavement at each boring and core location, with the exception of boring B-04 where only a partial core was recovered. The overlying bituminous layers appeared to have debonded from the underlying concrete at all of the boring locations except boring B-02 and B-04. Evidence of mild stripping of asphalt from the aggregate was observed in the bituminous layer at boring B-01.

Though difficult to identify in photographs, an apparent wire reinforcement with a diameter of ¼ inch was noted within the concrete layers at locations B-01, B-03, B-05, and B-08. The concrete around the reinforcement did not appear spalled or corroded.

B.3. Groundwater

We did not observe groundwater while advancing our borings. Therefore, it appears that groundwater is below the depths explored. Project planning should anticipate seasonal and annual fluctuations of groundwater.

B.4. Laboratory Test Results

The boring logs show the results of the laboratory testing we performed, next to the tested sample depth.

The moisture content (per ASTM D2216) of the tested samples of sandy soils varied from approximately 6 to 9 percent, indicating that the materials ranged from below to well below their probable optimum moisture contents for compaction.

The moisture content of the tested samples of clayey soils varied from approximately 10 to 25 percent, indicating that the materials ranged from slightly below to well above their probable optimum moisture contents for compaction.

Our mechanical analyses through a #200 sieve (per ASTM D1140) indicated that the tested soils contained 19 to 35 percent fines (silt and clay particles) by weight. The tested soils were classified as clayey sand (SC).

Our organic content tests (per ASTM D2974) indicated that the tested soils contained 3 to 6 percent organic matter by weight. The tested soils were classified as “slightly organic” if containing 2 to 5 percent organic content, and as “organic” if containing greater than 5 percent organic content. We generally do not recommend reusing materials with organic contents exceeding 5 percent as fill below pavements.

B.5. Pavement Reconnaissance Results

B.5.a. Pavement Management Data

We were provided with pavement management data collected in 2020 by MnDOT for Steele County. The data is included in the attached Appendix, and provides a summary of pavement distresses and quality indices based on a state-wide standardized survey process and rating system. The surveyed portions of CSAH 48 within the project limits had Ride Quality Index (RQI) results ranging from 1.0 to 1.3, Surface Rating (SR) results ranging from 3.5 to 3.9, Pavement Quality Index (PQI) results ranging from 1.9 to 2.3, and International Roughness Index (IRI) results ranging from 217 inches/mile to 262 inches/mile.

The perceived serviceability of pavement is often correlated to road user comfort, as expressed using the RQI rating. The RQI is calculated based upon the SR, PQI, and IRI and can vary from 5.0 for new pavement to 0.0 for worst-case conditions. The RQI results of 1.0 to 1.3 indicate the road user comfort based on the current roadway condition is likely poor to very poor.

Pavement distresses contribute to the pavement quality indices. Common distresses documented in the 2020 data for CSAH 48 included the following:

- Slight transverse joint spalling
- Faulted joints, greater than ¼-inch
- Cracked panels
- Broken panels
- Patches greater than 5 square feet

Additional distresses may be present that are not documented, as surveys do not cover the entire length or every lane of the roadway.

B.5.b. Site Reconnaissance

We conducted a site reconnaissance on August 10, 2022 to observe and photograph the existing pavement conditions along CSAH 48. The pavement photographs P-01 through P-20 in the attached Appendix document examples of the distresses observed. The observed distresses generally appeared consistent with anticipated conditions based upon review of the provided 2020 pavement management data, with the following additional observations:

- Severe joint spalling and multiple cracking distresses were observed at locations between Oak Avenue and Elm Avenue, similar to the example shown in Photograph P-01.

- MnDOT does not assign severity levels to faulting beyond ¼-inch, however noticeable faulting was observed at numerous locations between Grove Avenue and Chambers Avenue.
    - Faulting generally appeared concentrated near existing manholes, similar to the examples shown in Photographs P-10, P-12, P-17, and P-18.
    - Substantially-faulted panels that were also cracked, broken, and showed evidence of previous patching were observed around a manhole located approximately 275 feet east of Lincoln Avenue as shown in Photograph P-17.

C. Recommendations

C.1. Design and Construction Discussion – Reconstruction Area

C.1.a. Introduction

Based on our understanding of the project as discussed above, and the results of our site reconnaissance, pavement coring, soil borings, and laboratory testing, the subgrade conditions generally appear suitable for support of the proposed construction and rehabilitation. However, appropriate consideration should be given to a number of factors that will impact the design and construction of the project, as discussed in the following sections.

C.1.b. Recycling and/or Reuse of Existing Pavement Materials

The in-place pavement structure in the reconstruction area from Oak Avenue to Grove Avenue includes both bituminous and concrete materials. Reclamation of the existing bituminous via cold-milling, or of the concrete via breaking, removal, and crushing at an off-site plant for various types of reuse may be a viable option. However, the bituminous and concrete sections were variable in thickness, and apparent aggregate base was only encountered at two boring locations, thus if reuse of removed and processed concrete is planned the contractor should take care to accommodate for variability in the pavement sections, and to avoid contamination of broken concrete with subgrade soil during removal processes. We also recommend frequent sieve analyses and other quality control measures to verify the consistency and suitability of the reclaimed products. The MnDOT Schedule of Materials Control provides guidance on test quantities.

We note that concrete breaking and removal will cause vibrations beyond levels typically expected for city road reconstruction. The design team and contractor should be aware, and could consider pre-construction conditions surveys and/or vibration monitoring. We can provide these services if requested.

C.1.c. Reuse of On-Site Soils

A complete reconstruction is proposed for the area of the alignment from Oak Avenue to Grove Avenue. The existing fill and native soils in the area of the project from Oak Avenue to Elm Avenue generally appeared suitable for reuse as utility trench backfill and pavement subgrade fill; however:

- Organic soil, i.e. soil having an organic content greater than 5 percent, was present to a depth of 4 feet in Boring B-06. Organic soil is considered unsuitable and should not be reused within roadway embankments or as backfill in utility trenches.
- Slightly organic soils, i.e. soils having an organic content of 2 to 5 percent, were encountered to depths of 2 to 4 feet in several borings. Slightly organic soils can be considered for reuse within roadway embankments and as backfill in utility trenches, though moisture conditioning of these materials to facilitate compaction may prove more challenging or require greater effort relative to non-organic soils.
- Clayey sand and sandy lean clay soils were present at moisture contents ranging from near to well above their probable optimum moisture content for compaction. Moisture conditioning, i.e. spreading and drying, may be required to facilitate compaction of these materials.
- No soil borings were drilled from Elm Avenue to Grove Avenue, as complete reconstruction and a new roundabout were not proposed for this area prior to our field exploration. We recommend that additional soil borings be drilled in this area in order to validate the discussion and recommendations in this report.

C.1.d. Construction Disturbance

Clayey sand and sandy lean clay soils were present at and near anticipated subgrade elevations in the reconstruction area. These soils are moisture sensitive and may become disturbed if subjected to repeated construction traffic, particularly in times of wet weather. The contractor should take care with means, methods, and equipment to limit disturbance of the soils, and to correct areas that become disturbed.

C.1.e. Possible Shallow Bedrock

We were not provided with anticipated utility invert depths or elevations for the reconstruction portion of the project. However, if utility invert depths of 15 feet or greater are planned, additional exploration may be warranted, as Borings B-01, B-03, and B-05 met auger refusal at depths of 15 to 18 feet on unknown obstructions that may possibly be the bedrock surface or may be cobbles, boulders, or rock “floats” near the bedrock surface. As such, the contractor should be aware that excavation of cobbles, boulders, or bedrock may be required.

C.1.f. Dewatering

We did not encounter groundwater in our soil borings. Thus, we do not anticipate dewatering will be required for the reconstruction portion of the project. However, if water, such as stormwater runoff, accumulates in excavations for the project, we recommend removal of the water and any softened, loosened or disturbed soils prior to placement of additional fill.

C.2. Design and Construction Discussion – Concrete Pavement Rehabilitation

We understand concrete pavement rehabilitation is under consideration for the segment of the project from Grove Avenue to Chambers Avenue. The provided 2020 Ride Quality Index (RQI) data ranges from 1.0 to 1.3, indicating the road user comfort is likely poor to very poor. However, the provided 2020 Surface Rating (SR) data ranges from 3.5 to 3.9, indicating the road surface is generally in fair to good condition overall. Based on the MnDOT Network Level Decision Tree, documented distresses, and the provided RQI and SR data, we anticipate the most-feasible and most-likely treatment options for this segment of roadway are:

- Option 1: Do Nothing
- Option 2: Minor Concrete Pavement Rehabilitation (CPR) & Plane

If Option 1 is selected, it will be of importance for Steele County to continue to monitor distresses along the project alignment. We note that if left as-is, the condition of currently cracked, broken, and/or faulted panels may degrade more quickly over time due to potentially increased water intrusion, impacted surface drainage patterns, crack propagation, and/or traffic damage increasing areas of distress.

If Option 2 is selected, Steele County will have the opportunity to increase road user comfort, increase the performance longevity of the existing pavement, interrupt distresses, and correct some surface drainage patterns. However, the project team should be aware that the short-term cost of Option 2 will be significantly greater than Option 1, and that additional detailed investigation will be required to identify and mark the number and extent of required repairs. The actual extent of required repairs will be preliminarily estimated and undetermined until the investigation is completed. Additional investigation should be performed by qualified personnel, and should include the following:

- Detailed visual documentation
- Chaining
- Hammering
- Additional concrete coring if warranted, such as to identify dowel bar locations or the presence of joint tunneling

C.3. Site Grading and Subgrade Preparation

C.3.a. Pavement Subgrade Preparation

For subgrade preparation within the existing roadways in the reconstruction area, we recommend removing the existing pavement section and subcutting to the proposed subgrade depth per the design. In addition, we recommend removing vegetation, topsoil, topsoil fill, organic soils (greater than 5 percent by weight) and soft or unsuitable soils where encountered. The exposed subgrade soils should be evaluated in the field by a geotechnical engineer (or qualified technician working under the direction of a geotechnical engineer), scarified and surface compacted prior to placing additional fill to final grades and/or performing the subgrade proofroll described in Section C.2.e below.

C.3.b. Excavation Oversizing

When removing unsuitable materials below structures or pavements, we recommend the excavation extend outward and downward at a slope of 1H:1V (horizontal:vertical) or flatter.

C.3.c. Excavated Slopes

Based on the borings, we anticipate on-site soils in excavations will consist of existing fill and sandy soils. These soils are typically considered Type C Soil under OSHA (Occupational Safety and Health Administration) guidelines. OSHA guidelines indicate unsupported excavations in Type C soils should have a gradient no steeper than 1-1/2H:1V. Slopes constructed in this manner may still exhibit surface sloughing. OSHA requires an engineer to evaluate slopes or excavations over 20 feet in depth.

An OSHA-approved qualified person should review the soil classification in the field. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, “Excavations and Trenches.” This document states excavation safety is the responsibility of the contractor. The project specifications should reference these OSHA requirements.

C.3.d. Excavation Dewatering

We do not anticipate dewatering will be required for the project. However, we recommend removing any accumulated water, such as stormwater runoff, from the excavations. Project planning should include temporary sumps and pumps for excavations in low-permeability soils, such as clays. We caution that dewatering of high-permeability soils (e.g., sands) from within the excavation with conventional pumps has the potential to loosen the soils, due to upward flow.

C.3.e. Pavement Subgrade Proofroll

After preparing the subgrade as described above and prior to the placement of the aggregate base, we recommend proofrolling (test rolling) the subgrade soils with a fully loaded tandem-axle truck (a TR10 test roller) per MnDOT Specification 2111. We also recommend having a geotechnical representative observe the proofroll. Areas that fail the proofroll likely indicate soft or weak areas that will require additional soil correction work to support pavements.

The contractor should correct areas that display excessive yielding or rutting during the proofroll, as determined by the geotechnical representative. Possible options for subgrade correction include moisture conditioning and recompaction, or subcutting and replacement with soil or crushed aggregate. We recommend performing a second proofroll after the aggregate base material is in place, and prior to placing bituminous or concrete pavement.

C.3.f. Engineered Fill Materials and Compaction

We recommend embankment (or subgrade) fill and utility trench backfill meet the requirements of MnDOT 2106 for select grading material, which excludes soils with a silt content greater than 80 percent, organic soils, and marl (silty or clayey swamp deposits, unstable when wet, crumbly when dry, often containing shells).

We recommend constructing embankments and compacting engineered fill in accordance with MnDOT Specifications 2106 and 2211. This includes spreading engineered fill in loose lifts of approximately 12 inches or less in thickness. The project documents should specify evaluating compaction using the Specified Density Method in accordance with MnDOT Specification 2106.3G1. A geotechnical representative or MnDOT certified grading and base individual, under the direction of a professional geotechnical engineer, should observe fill placement and perform testing.

The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

C.4. Pavements

C.4.a. Design Sections

Our scope of services for this project did not include laboratory tests on subgrade soils to determine an R-value for pavement design. Based on our experience with soils similar to the clayey sand and sandy lean clay soils anticipated at the pavement subgrade elevation, we recommend pavement design assume an R-value of 15. Note the contractor may need to perform limited removal of unsuitable or less suitable soils to achieve this value.

We used MnDOT's MnPAVE-Rigid and MnPAVE-Flexible software for design of the concrete and bituminous pavement sections summarized in Tables 4 and 5 below.

Table 4. Recommended Concrete Pavement Section, CSAH 48, Oak Ave to Grove Ave and Roundabout

Layer	Thickness (inches)	Notes or MnDOT Specification/Designation
Concrete	8*	Plain, doweled, tied to curb (or shoulder/parking lane) Assumes 15-foot transverse joint spacing We recommend unsealed, sawed joints (joint type C1U per MnDOT Standard Plan 5-297.221)
Aggregate Base	6*	Class 5 or Class 5Q (MnDOT Spec. 3138)
Subbase	12	Select Granular (Spec. 3149.2.B.2)

*Values increased from MnPAVE-Rigid output to facilitate constructability.

Table 5. Recommended Bituminous Pavement Section, CSAH 48, Oak Ave to Grove Ave*

Layer	Thickness (inches)	Notes or MnDOT Specification/Designation
HMA	3 (2 lifts)	SPWEA340C (MnDOT Spec. 2360)
HMA	1 ½ (1 lift)	SPNWB330C (MnDOT Spec. 2360)
Aggregate Base	8	Class 5 or Class 5Q (MnDOT Spec. 3138)
Subbase	12	Select Granular (Spec. 3149.2.B.2)

*Excluding Roundabout – this design should be reevaluated to accommodate roundabout traffic

C.4.b. Pavement Materials and Compaction

We recommend specifying materials based on those provided in the above tables.

We recommend compacting the select granular subbase and aggregate base materials to meet the requirements of MnDOT's Penetration Index Method (Specification 2106.3G3).

C.4.c. Subgrade Drainage

We recommend installing perforated drainpipes along pavement edges such that drainage of the select granular subbase and aggregate base layers will be maintained. The drainpipes should be routed to storm sewers or another approved outlet.

C.4.d. Performance and Maintenance

We based the above pavement designs on a 20-year performance life for bituminous (flexible) pavements and a 35-year life for concrete (rigid) pavements. This is the amount of time before we anticipate the pavement will require major rehabilitation or reconstruction. This performance life assumes routine maintenance, such as seal coating and crack sealing, will be performed. The actual pavement life will vary depending on variations in weather, traffic conditions and maintenance.

It is common to place the non-wear course of bituminous and then delay placement of wear course. For this situation, we recommend evaluating if the reduced pavement section will have sufficient structure to support any construction, bus, and commercial truck traffic to which the reduced section may be subjected.

C.5. Utilities

C.5.a. Subgrade Stabilization

For utilities, we anticipate the soils at typical invert elevations will be suitable for utility support. However, if construction encounters unfavorable conditions such as soft clay, organic soils or perched water at invert grades, the unsuitable soils may require some additional subcutting and replacement with sand or crushed rock to prepare a proper subgrade for pipe support.

C.5.b. Corrosion Potential

Based on our experience, some of the soils encountered by the borings are moderately corrosive to metallic conduits, but only marginally corrosive to concrete. We recommend specifying non-corrosive materials or providing corrosion protection, unless project planning chooses to perform additional tests to demonstrate the soils are not corrosive.

C.5.c. Bedrock Removal and Pipe Bedding

Borings B-01, B-03, and B-05 met refusal at depths of 15 feet, 18 feet, and 16 feet respectively, possibly upon bedrock or cobbles, boulders, or slabs near the bedrock surface.

The contractor should be aware that removal of cobbles, boulders, slabs, or bedrock may be required, particularly if the project design places utility inverts or structure bottoms near or below the elevations where auger refusal was encountered. As we were not able to extend the borings using our drill rig's hollow-stem auger, we anticipate that rock removal using toothed buckets and/or ripping teeth may prove challenging and that additional rock removal measures may be required, such as pneumatic hammers or grinding teeth.

If bedrock is present at proposed utility invert elevations or structure bottoms, we recommend subcutting the bedrock a minimum of 6 inches and placement of a granular bedding of sand or crushed rock to minimize the risk of damage due to point loading the pipes or structures. The contractor should take care to follow the pipe or structure manufacturer's recommendations regarding bedding material type and thickness requirements, as some manufacturers may recommend greater than 6 inches of bedding.

D. Procedures

D.1. Penetration Test Borings

We drilled the penetration test borings with a truck-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples at 2 1/2- or 5-foot intervals in general accordance to ASTM D1586. The boring logs show the actual sample intervals and corresponding depths.

We sealed penetration test boreholes meeting the Minnesota Department of Health (MDH) Environmental Borehole criteria with an MDH-approved grout. We will forward a sealing record for those boreholes to the Minnesota Department of Health Well Management Section.

D.2. Manual Exploration

D.2.a. Hand Auger Borings

We drilled hand auger borings with a 3-inch-diameter bucket auger. We advanced the borings in 3- to 6-inch increments to depths of less than 3 feet below existing pavement surface elevations at the concrete pavement core locations. We then withdrew the auger from the borehole to obtain cuttings. The borings were advanced until apparent aggregate base was penetrated, or until auger refusal was met.

D.3. Exploration Logs

D.3.a. Log of Boring Sheets

The Appendix includes Log of Boring sheets for our penetration test borings. The logs identify and describe the penetrated geologic materials, and present the results of penetration resistance tests performed. The logs also present the results of laboratory tests performed on penetration test samples, and groundwater observations. The Appendix also includes a Fence Diagram intended to provide a summarized cross-sectional view of the soil profile across the site.

We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

D.3.b. Geologic Origins

We assigned geologic origins to the materials shown on the logs and referenced within this report, based on the following:

- A review of the background information and reference documents cited above
- Visual classification of the various geologic material samples retrieved during the course of our subsurface exploration
- Penetration resistance testing performed for the project

- Laboratory test results, and
- Available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

D.4. Material Classification and Testing

D.4.a. Visual and Manual Classification

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The Appendix includes a chart explaining the classification system we used.

D.4.b. Laboratory Testing

The exploration logs in the Appendix note most of the results of the laboratory tests performed on geologic material samples. The remaining laboratory test results follow the exploration logs. We performed the tests in general accordance with ASTM procedures.

D.5. Groundwater Measurements

The drillers checked for groundwater while advancing the penetration test borings, and again after auger withdrawal. We then filled the boreholes or allowed them to remain open for an extended period of observation, as noted on the boring logs.

E. Qualifications

E.1. Variations in Subsurface Conditions

E.1.a. Material Strata

We developed our evaluation, analyses and recommendations from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses to some extent. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation and thickness, away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work, or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may reevaluate our recommendations. Such variations could increase construction costs, and we recommend including a contingency to accommodate them.

E.1.b. Groundwater Levels

We made groundwater measurements under the conditions reported herein and shown on the exploration logs, and interpreted in the text of this report. Note that the observation periods were relatively short, and project planning can expect groundwater levels to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

E.2. Continuity of Professional Responsibility

E.2.a. Plan Review

We based this report on a limited amount of information, and we made a number of assumptions to help us develop our recommendations. We should be retained to review the geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

E.2.b. Construction Observations and Testing

We recommend retaining us to perform the required observations and testing during construction as part of the ongoing geotechnical evaluation. This will allow us to correlate the subsurface conditions exposed during construction with those encountered by the borings and provide professional continuity from the design phase to the construction phase. If we do not perform observations and testing during construction, it becomes the responsibility of others to validate the assumption made during the preparation of this report and to accept the construction-related geotechnical engineer-of-record responsibilities.

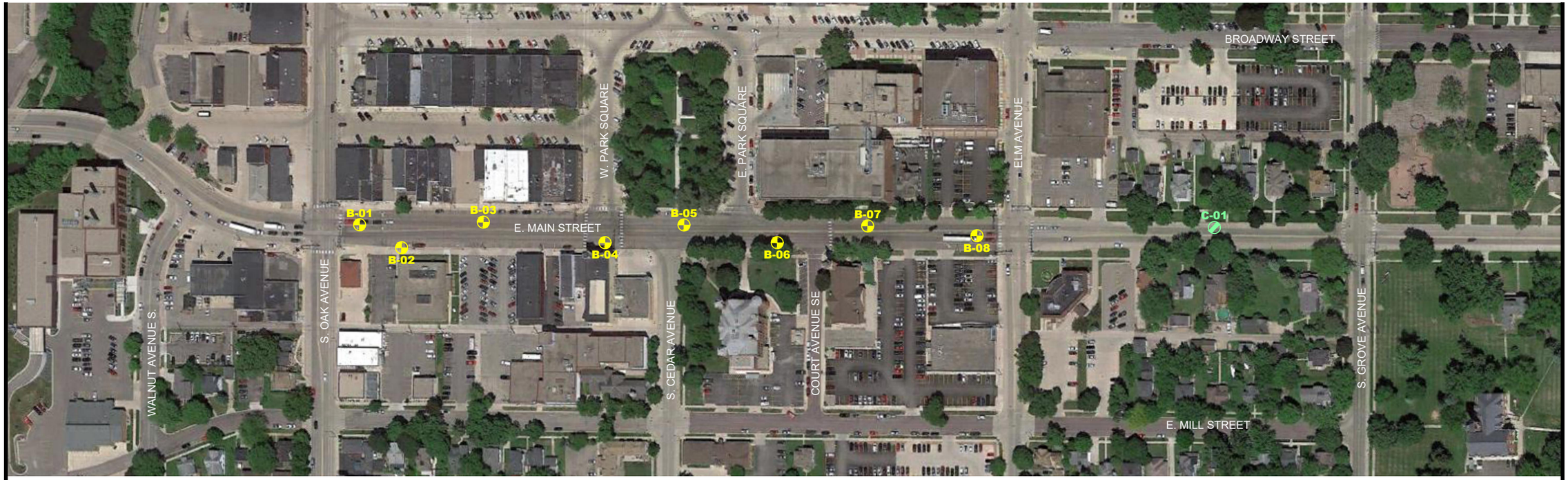
E.3. Use of Report

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

E.4. Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix

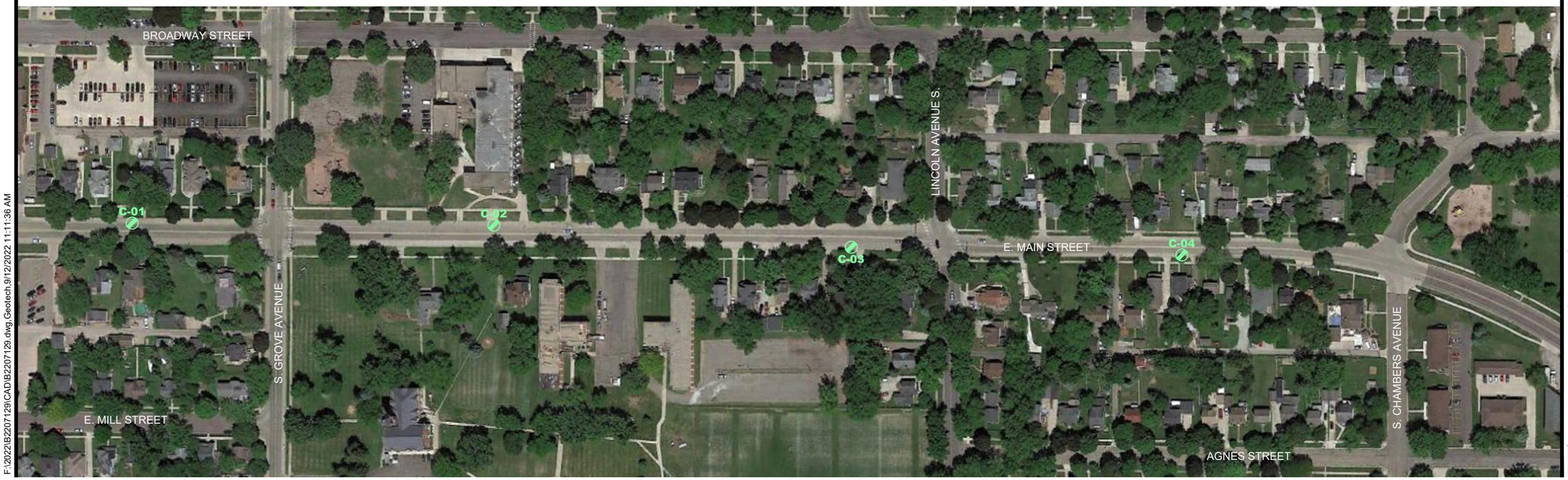


DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

DENOTES APPROXIMATE LOCATION OF PAVEMENT CORE

100' 0 200'

SCALE: 1"= 200'



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The Science You Build On.
11001 Hampshire Avenue S
Minneapolis, MN 55438
952.995.2000
braunintertec.com

Drawing Information

Project No: B2207129

Drawing No: B2207129

Drawn By:	JAG
Date Drawn:	8/8/22
Checked By:	BTB
Last Modified:	9/12/22

Project Information

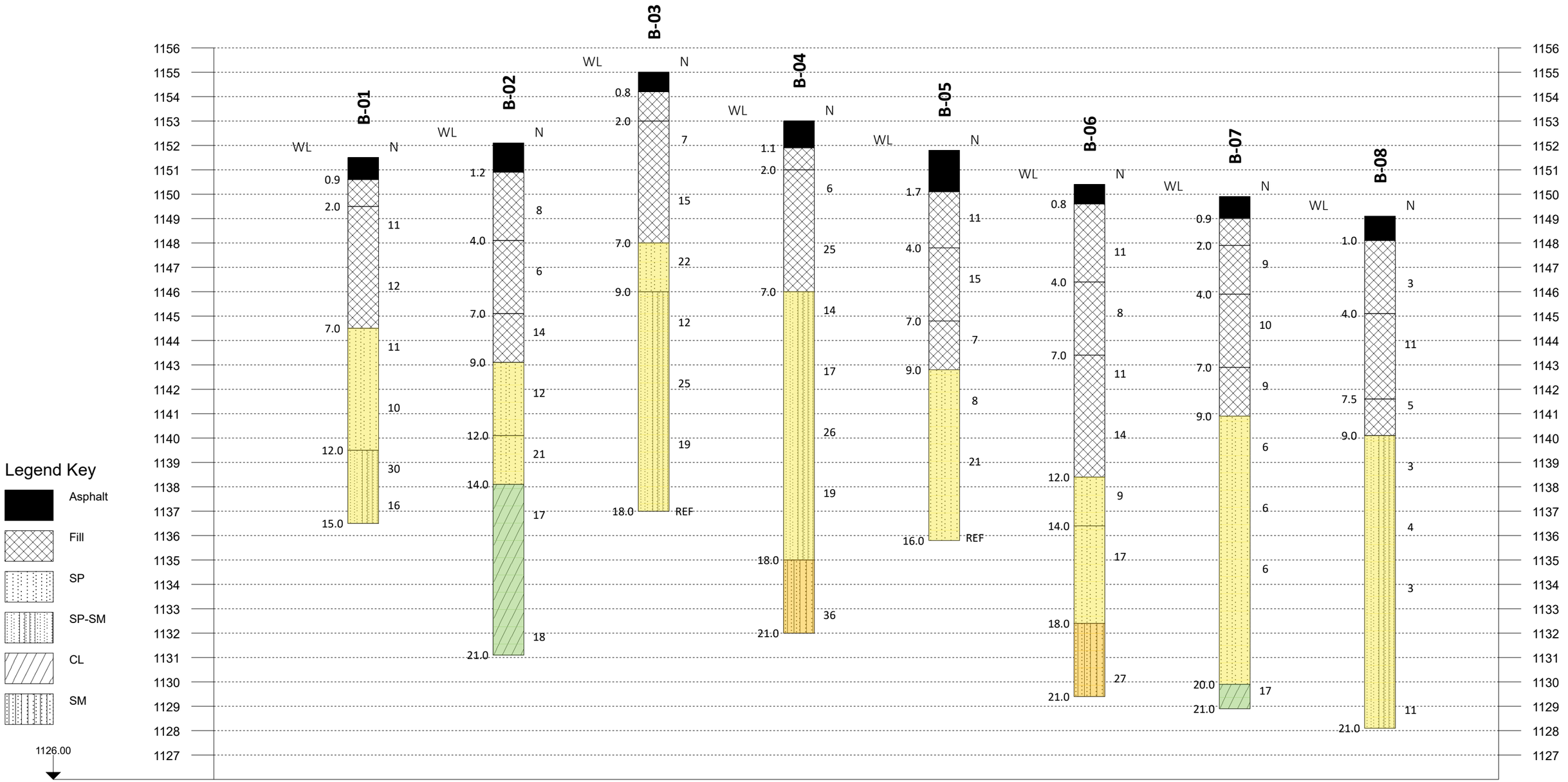
Steele County CSAH 48 Reconstruction

CSAH 48 (E. Main Street) from S. Oak Avenue to S. Chambers Avenue

Owatonna, Minnesota

Soil Boring Location Sketch

F:\2022\B2207129\CAD\B2207129.dwg,Geotech,9/12/2022 11:11:36 AM



Project ID: B2207129
Vert. Scale: 1"= 4'
Hor. Scale: NTS
Date: 09/08/2022

Fence Diagram
Geotechnical & Environmental Evaluation
Steele County CSAH 48 Reconstruction
E Main Street from S. Oak Ave to S. Chambers Ave
Owatonna, Minnesota

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2207129
Geotechnical & Environmental Evaluation
Steele County CSAH 48 Reconstruction
E Main Street from S. Oak Ave to S. Chambers Ave
Owatonna, Minnesota

BORING: **B-01**
LOCATION: See attached sketch. Westbound drive lane.
DATUM: NAD 1983 HARN Adj MN Steele (US Feet)
NORTHING: 191257 EASTING: 418120
DRILLER: E. Rislov LOGGED BY: B. Bender START DATE: 08/15/22 END DATE: 08/15/22
SURFACE ELEVATION: 1151.5 ft RIG: 7519 METHOD: 3 1/4" HSA SURFACING: Bituminous WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1150.6		PAVEMENT, 3 1/2 inches of bituminous over 7 inches of concrete, no apparent aggregate base					
0.9 1149.5		FILL: CLAYEY SAND with GRAVEL (SC), dark brown, moist		3-6-5 (11) 17"		16	P200=35%
2.0		FILL: POORLY GRADED SAND with GRAVEL (SP), fine to coarse-grained, brown, dry				7	
			5	3-4-8 (12) 17"			
1144.5							
7.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, brown, moist, medium dense to loose (GLACIAL OUTWASH)		3-5-6 (11) 18"			
			10	3-5-5 (10) 17"			
1139.5							
12.0		POORLY GRADED SAND with SILT and GRAVEL (SP-SM), fine to coarse-grained, brown, moist, medium dense (GLACIAL OUTWASH)		16-16-14 (30) 16"			Auger met refusal at 15 feet. Possible bedrock surface
1136.5			15	4-5-11 (16) 17"			
15.0		END OF BORING					Water not observed while drilling.
		Boring immediately backfilled with bentonite grout					Water not observed to cave-in depth of 12.0 feet immediately after withdrawal of auger.
			20				
			25				
			30				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2207129
Geotechnical & Environmental Evaluation
Steele County CSAH 48 Reconstruction
E Main Street from S. Oak Ave to S. Chambers Ave
Owatonna, Minnesota

BORING: **B-02**
LOCATION: See attached sketch. Eastbound parking lane.
DATUM: NAD 1983 HARN Adj MN Steele (US Feet)
NORTHING: 191213 EASTING: 418201
DRILLER: E. Rislov LOGGED BY: B. Bender START DATE: 08/16/22 END DATE: 08/16/22
SURFACE ELEVATION: 1152.1 ft RIG: 7519 METHOD: 3 1/4" HSA SURFACING: Bituminous WEATHER: Cloudy

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1150.9		PAVEMENT, 2 1/2 inches of bituminous over 6 inches of concrete over 6 inches of apparent aggregate base					
1.2		FILL: SANDY LEAN CLAY with GRAVEL (CL), trace bituminous, dark brown to brown, moist *Sand seams at 3 feet*		3-4-4 (8) 9"		10	
1148.1							
4.0		FILL: SILTY SAND with GRAVEL (SM), fine to coarse-grained, trace Clay, brown, moist	5	2-3-3 (6) 14"		9	
1145.1							
7.0		FILL: POORLY GRADED SAND with SILT and GRAVEL (SP-SM), fine to medium-grained, brown, moist		3-6-8 (14) 17"		9	
1143.1							
9.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, brown, moist, medium dense (GLACIAL OUTWASH)	10	2-4-8 (12) 17"			
1140.1							
12.0		POORLY GRADED SAND with GRAVEL (SP), fine to coarse-grained, brown, moist, medium dense (GLACIAL OUTWASH)		7-9-12 (21) 18"			
1138.1							
14.0		SANDY LEAN CLAY with GRAVEL (CL), with Sand seams, brown, moist, very stiff (GLACIAL TILL)	15	10-10-7 (17) 18"		14	
			20	31-13-5 (18) 17"			
1131.1							
21.0		END OF BORING					Water not observed while drilling.
		Boring immediately backfilled with bentonite grout					Water not observed to cave-in depth of 16.0 feet immediately after withdrawal of auger.
			25				
			30				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2207129
Geotechnical & Environmental Evaluation
Steele County CSAH 48 Reconstruction
E Main Street from S. Oak Ave to S. Chambers Ave
Owatonna, Minnesota

BORING: **B-03**
LOCATION: See attached sketch. Westbound drive lane.
DATUM: NAD 1983 HARN Adj MN Steele (US Feet)
NORTHING: 191262 EASTING: 418357
DRILLER: E. Rislov LOGGED BY: B. Bender
START DATE: 08/15/22 END DATE: 08/15/22
SURFACE ELEVATION: 1155.0 ft RIG: 7519 METHOD: 3 1/4" HSA
SURFACING: Bituminous WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1154.2		PAVEMENT, 2.5 inches of bituminous over 7 1/4 inches of concrete, no apparent aggregate base					
0.8 1153.0		FILL: CLAYEY SAND with GRAVEL (SC), slightly organic, dark brown and black, moist				13	P200=29%
2.0		FILL: CLAYEY SAND with GRAVEL (SC), brown, moist		2-2-5 (7) 16"		13	OC=3% P200=19%
			5	8-6-9 (15) 0"			No recovery at 5 feet. Possible Gravel or cobbles.
1148.0 7.0 1146.0		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, brown, moist, medium dense (GLACIAL OUTWASH)		3-7-15 (22) 16"		7	
9.0		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, brown, moist, medium dense (GLACIAL OUTWASH)	10	5-5-7 (12) 17"			
		With Gravel at 12 feet		5-11-14 (25) 18"			
			15	11-10-9 (19) 17"			Auger met refusal at 18 feet. Split-spoon sampler met refusal at 18 feet. Possible bedrock surface
1137.0 18.0		END OF BORING		50/0" (REF) 0"			Water not observed while drilling.
		Boring immediately backfilled with bentonite grout	20				Water not observed at end of drilling.
							Water not observed to cave-in depth of 14.0 feet immediately after withdrawal of auger.
			25				
			30				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2207129
Geotechnical & Environmental Evaluation
Steele County CSAH 48 Reconstruction
E Main Street from S. Oak Ave to S. Chambers Ave
Owatonna, Minnesota

BORING: **B-04**
LOCATION: See attached sketch. Eastbound drive lane. Drilled 30 feet west of staked location.
DATUM: NAD 1983 HARN Adj MN Steele (US Feet)
NORTHING: 191222 EASTING: 418589
DRILLER: E. Rislov LOGGED BY: B. Bender START DATE: 08/16/22 END DATE: 08/16/22
SURFACE ELEVATION: 1153.0 ft RIG: 7519 METHOD: 3 1/4" HSA SURFACING: Bituminous WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1151.9		PAVEMENT, 2 1/2 inches of bituminous over 11 inches of concrete, no apparent aggregate base					
1.1						23	OC=5%
1151.0		FILL: SANDY LEAN CLAY (CL), slightly organic, black, moist		1-2-4 (6) 17"		10	
2.0		FILL: SANDY LEAN CLAY with GRAVEL (CL), with Sand seams, brown and dark brown, moist					
		Rock fragments recovered at 5 feet. Possible cobble	5	5-8-17 (25) 1"			
1146.0							
7.0		POORLY GRADED SAND with SILT and GRAVEL (SP-SM), fine to medium-grained, brown, moist, medium dense (GLACIAL OUTWASH)		7-7-7 (14) 17"			
			10	4-7-10 (17) 18"			
		Fine to course-grained at 12 feet		5-11-15 (26) 17"			
			15	6-8-11 (19) 18"			
1135.0							
18.0		SILTY SAND with GRAVEL (SM), fine to coarse-grained, trace Clay, brown, moist, dense (GLACIAL OUTWASH)	20	14-22-14 (36) 17"			
1132.0							
21.0		END OF BORING					Water not observed while drilling.
		Boring immediately backfilled with bentonite grout					Water not observed at end of drilling.
			25				
			30				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2207129
Geotechnical & Environmental Evaluation
Steele County CSAH 48 Reconstruction
E Main Street from S. Oak Ave to S. Chambers Ave
Owatonna, Minnesota

BORING: **B-05**
LOCATION: See attached sketch. Westbound drive lane.
DATUM: NAD 1983 HARN Adj MN Steele (US Feet)
NORTHING: 191257 EASTING: 418740
DRILLER: E. Rislov LOGGED BY: B. Bender START DATE: 08/15/22 END DATE: 08/15/22
SURFACE ELEVATION: 1151.8 ft RIG: 7519 METHOD: 3 1/4" HSA SURFACING: Bituminous WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1150.1		PAVEMENT, 3 1/4 inches of bituminous over 8 inches of concrete over 9 inches of apparent aggregate base					
1.7 1147.8		FILL: CLAYEY SAND (SC), trace Gravel, slightly organic, dark brown and black, moist		3-5-6 (11) 17"		15	P200=34% OC=4%
4.0 1144.8		FILL: POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, brown, dry	5	5-6-9 (15) 17"		7	
7.0 1142.8		FILL: POORLY GRADED SAND (SP), fine to coarse-grained, trace Clay seams, brown, moist		1-3-4 (7) 18"		6	
9.0		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, brown, moist, loose to medium dense (GLACIAL OUTWASH)	10	2-3-5 (8) 17"			
		With Gravel at 12 feet		10-11-10 (21) 18"			
1135.8			15				Auger met refusal at 16 feet. Possible bedrock surface
16.0		END OF BORING		50/3" (REF) 0"			Water not observed while drilling.
		Boring immediately backfilled with bentonite grout					Water not observed at end of drilling.
			20				Water not observed to cave-in depth of 13.0 feet immediately after withdrawal of auger.
			25				
			30				

BRAUN INTERTEC
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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2207129
Geotechnical & Environmental Evaluation
Steele County CSAH 48 Reconstruction
E Main Street from S. Oak Ave to S. Chambers Ave
Owatonna, Minnesota

BORING: **B-06**
LOCATION: See attached sketch. Eastbound drive lane.
DATUM: NAD 1983 HARN Adj MN Steele (US Feet)
NORTHING: 191223 EASTING: 418919
DRILLER: E. Rislov LOGGED BY: B. Bender START DATE: 08/16/22 END DATE: 08/16/22
SURFACE ELEVATION: 1150.4 ft RIG: 7519 METHOD: 3 1/4" HSA SURFACING: Bituminous WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1149.6		PAVEMENT, 2 1/2 inches of bituminous over 7 1/2 inches of concrete, no apparent aggregate base					
0.8		FILL: SANDY LEAN CLAY (CL), trace Gravel, organic, brown and black, moist		3-5-6 (11) 17"		15 22	OC=6%
1146.4							
4.0		FILL: SILTY SAND with GRAVEL (SM), fine to medium-grained, trace Clay, brown, moist	5	3-3-5 (8) 16"		9	
1143.4							
7.0		FILL: POORLY GRADED SAND with SILT and GRAVEL (SP-SM), fine to coarse-grained, brown, dry		3-5-6 (11) 17"			
			10	4-9-5 (14) 0"			No recovery at 10 feet
1138.4							
12.0		POORLY GRADED SAND with GRAVEL (SP), fine to coarse-grained, brown, dry, loose (GLACIAL OUTWASH)		3-4-5 (9) 17"			
1136.4							
14.0		POORLY GRADED SAND (SP), fine to medium-grained, brown, moist, medium dense (GLACIAL OUTWASH)	15	3-8-9 (17) 18"			
1132.4							
18.0		SILTY SAND with GRAVEL (SM), fine to coarse-grained, with Clay, brown, moist, medium dense (GLACIAL OUTWASH)	20	12-15-12 (27) 17"			
1129.4							
21.0		END OF BORING Boring immediately backfilled with bentonite grout					Water not observed while drilling. Water not observed to cave-in depth of 16.0 feet immediately after withdrawal of auger.
			25				
			30				

BRAUN INTERTEC
The Science You Build On.

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2207129
Geotechnical & Environmental Evaluation
Steele County CSAH 48 Reconstruction
E Main Street from S. Oak Ave to S. Chambers Ave
Owatonna, Minnesota

BORING: **B-07**
LOCATION: See attached sketch. Westbound drive lane.
DATUM: NAD 1983 HARN Adj MN Steele (US Feet)
NORTHING: 191255 EASTING: 419092
DRILLER: E. Rislov LOGGED BY: B. Bender START DATE: 08/15/22 END DATE: 08/15/22
SURFACE ELEVATION: 1149.9 ft RIG: 7519 METHOD: 3 1/4" HSA SURFACING: Bituminous WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1149.0		PAVEMENT, 2 3/4 inches of bituminous over 7 1/2 inches of concrete, no apparent aggregate base					
0.9 1147.9		FILL: SANDY LEAN CLAY (CL), slightly organic, black, moist		4-4-5 (9) 16"		25	OC=5%
2.0 1145.9		FILL: CLAYEY SAND with GRAVEL (SC), dark brown and brown, moist				11	P200=25%
4.0 1142.9		FILL: POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, trace Gravel, trace concrete fragments, brown, dry	5	5-5-5 (10) 17"		7	
7.0 1140.9		FILL: POORLY GRADED SAND (SP), fine to medium-grained, occasional Clay seams, brown, moist		5-4-5 (9) 18"		9	
9.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, brown, moist, loose (GLACIAL OUTWASH)	10	2-3-3 (6) 17"			
				3-3-3 (6) 18"			
			15	1-3-3 (6) 17"			
1129.9 20.0		SANDY LEAN CLAY (CL), trace Gravel, brown, moist, very stiff (GLACIAL TILL)	20	10-9-8 (17) 18"			
1128.9 21.0		END OF BORING					Water not observed while drilling.
		Boring immediately backfilled with bentonite grout					Water not observed at end of drilling.
			25				Water not observed to cave-in depth of 16.0 feet immediately after withdrawal of auger.
			30				

BRAUN INTERTEC
The Science You Build On.

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2207129
Geotechnical & Environmental Evaluation
Steele County CSAH 48 Reconstruction
E Main Street from S. Oak Ave to S. Chambers Ave
Owatonna, Minnesota

BORING: **B-08**
LOCATION: See attached sketch. Eastbound left-hand turn lane.
DATUM: NAD 1983 HARN Adj MN Steele (US Feet)
NORTHING: 191236 EASTING: 419301
DRILLER: E. Rislov LOGGED BY: B. Bender
START DATE: 08/16/22 END DATE: 08/16/22
SURFACE ELEVATION: 1149.1 ft RIG: 7519 METHOD: 3 1/4" HSA
SURFACING: Bituminous WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1148.1		PAVEMENT, 3 3/4 inches of bituminous over 7 3/4 inches of concrete, no apparent aggregate base					
1.0		FILL: SANDY LEAN CLAY (CL), slightly organic, black and dark brown, moist		1-1-2 (3) 10"		19	OC=4%
1145.1							
4.0		FILL: SANDY LEAN CLAY (CL), trace Gravel, dark brown and brown, moist	5	2-4-7 (11) 17"		21	
1141.6				2-2-3 (5) 16"			
7.5		FILL: CLAYEY SAND with GRAVEL (SC), fine to medium-grained, brown, moist					
1140.1							
9.0		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, occasional Clay seams, brown, moist, very loose to medium dense (GLACIAL OUTWASH)	10	2-1-2 (3) 16"			
				2-2-2 (4) 17"			
			15	1-1-2 (3) 18"			
			20	9-7-4 (11) 1"			
1128.1		*Limestone fragments recovered at 20 feet. Possible bedrock surface*					
21.0		END OF BORING					Water not observed while drilling.
		Boring immediately backfilled with bentonite grout					Water not observed to cave-in depth of 14.0 feet immediately after withdrawal of auger.
			25				
			30				

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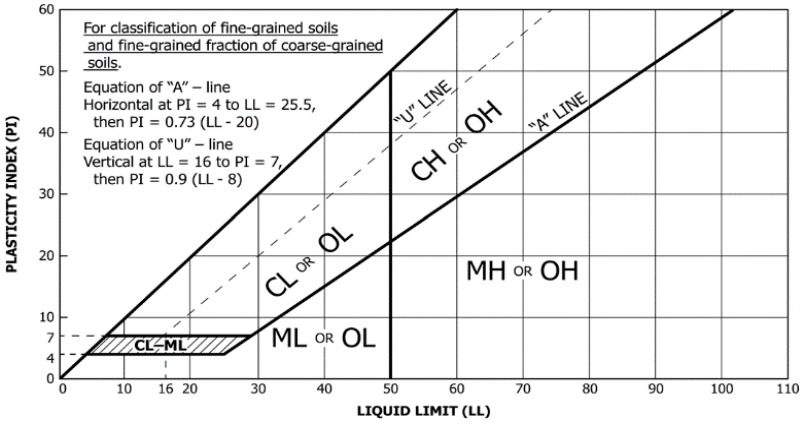
Descriptive Terminology of Soil

Based on Standards ASTM D2487/2488
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines[C])	$C_u \geq 4$ and $1 \leq C_c \leq 3^D$	GW	Well-graded gravel[E]
			$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$)[D]	GP	Poorly graded gravel[E]
		Gravels with Fines (More than 12% fines[C])	Fines classify as ML or MH	GM	Silty gravel[E F G]
			Fines Classify as CL or CH	GC	Clayey gravel[E F G]
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines[H])	$C_u \geq 6$ and $1 \leq C_c \leq 3^D$	SW	Well-graded sand[I]
			$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$)[D]	SP	Poorly graded sand[I]
		Sands with Fines (More than 12% fines[H])	Fines classify as ML or MH	SM	Silty sand[F G I]
			Fines classify as CL or CH	SC	Clayey sand[F G I]
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean clay[K L M]
			PI < 4 or plots below "A" line[J]	ML	Silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OL	Organic clay[K L M N] / Organic silt[K L M O]
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay[K L M]
			PI plots below "A" line	MH	Elastic silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OH	Organic clay[K L M P] / Organic silt[K L M Q]
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

A. Based on the material passing the 3-inch (75-mm) sieve.
B. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
C. Gravels with 5 to 12% fines require dual symbols:
   GW-GM well-graded gravel with silt
   GW-GC well-graded gravel with clay
   GP-GM poorly graded gravel with silt
   GP-GC poorly graded gravel with clay
D. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
E. If soil contains ≥ 15% sand, add "with sand" to group name.
F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
G. If fines are organic, add "with organic fines" to group name.
H. Sands with 5 to 12% fines require dual symbols:
   SW-SM well-graded sand with silt
   SW-SC well-graded sand with clay
   SP-SM poorly graded sand with silt
   SP-SC poorly graded sand with clay
I. If soil contains ≥ 15% gravel, add "with gravel" to group name.
J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
L. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
M. If soil contains ≥ 30% plus No. 200 predominantly gravel, add "gravelly" to group name.
N. PI ≥ 4 and plots on or above "A" line.
O. PI < 4 or plots below "A" line.
P. PI plots on or above "A" line.
Q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	**q_p**	Pocket penetrometer strength, tsf
WD	Wet density, pcf	**q_U**	Unconfined compression test, tsf
P200	% Passing #200 sieve	**LL**	Liquid limit
MC	Moisture content, %	**PL**	Plastic limit
OC	Organic content, %	**PI**	Plasticity index

Particle Size Identification

Boulders..... over 12"
Cobbles..... 3" to 12"
Gravel
  Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
  Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
Sand
  Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
  Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
  Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
Silt..... No. 200 (0.075 mm) to .005 mm
Clay..... < .005 mm

Relative Proportions[L, M]

trace..... 0 to 5%
little..... 6 to 14%
with..... ≥ 15%

Inclusion Thicknesses

lens..... 0 to 1/8"
seam..... 1/8" to 1"
layer..... over 1"

Apparent Relative Density of Cohesionless Soils

Very loose ..... 0 to 4 BPF
Loose ..... 5 to 10 BPF
Medium dense..... 11 to 30 BPF
Dense..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils	Blows Per Foot	Approximate Unconfined Compressive Strength
Very soft	0 to 1 BPF	< 0.25 tsf
Soft	2 to 4 BPF	0.25 to 0.5 tsf
Medium	5 to 8 BPF	0.5 to 1 tsf
Stiff	9 to 15 BPF	1 to 2 tsf
Very Stiff	16 to 30 BPF	2 to 4 tsf
Hard	over 30 BPF	> 4 tsf

Moisture Content:

Dry: Absence of moisture, dusty, dry to the touch.
Moist: Damp but no visible water.
Wet: Visible free water, usually soil is below water table.

Drilling Notes:

Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

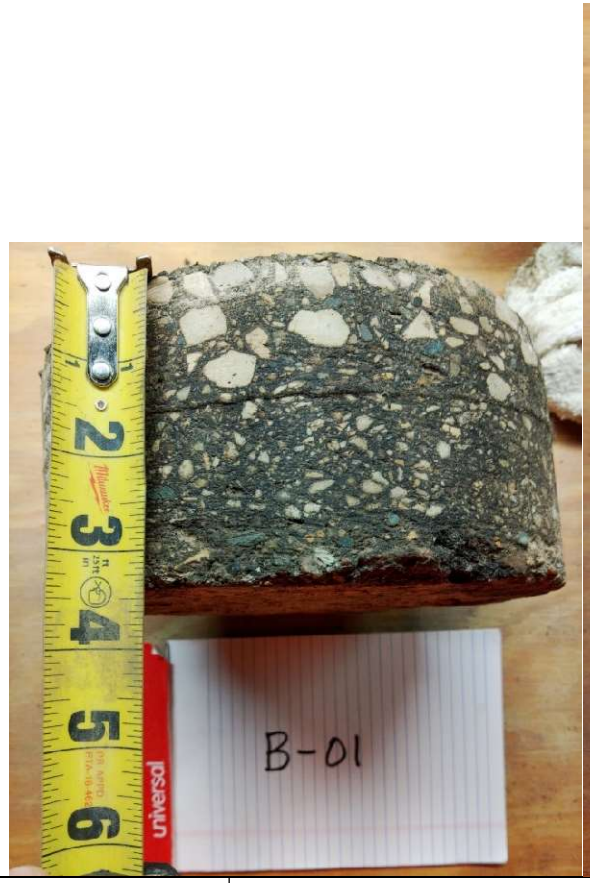
WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

Water Level: Indicates the water level measured by the drillers either while drilling (▽), at the end of drilling (▼), or at some time after drilling (▼).

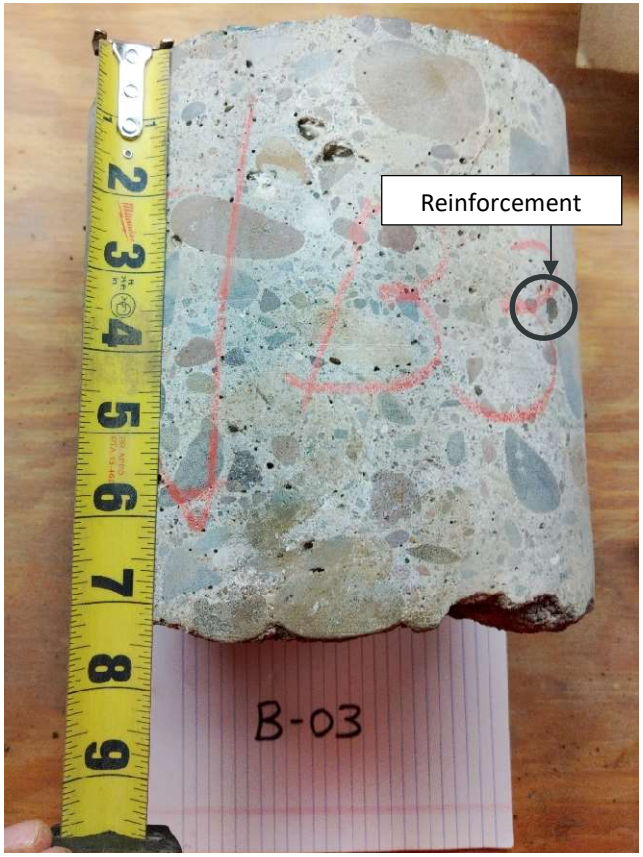
Sample Symbols

Standard Penetration Test
Modified California (MC)
Auger
Grab Sample
Rock Core
Thinwall (TW)/Shelby Tube (SH)
Texas Cone Penetrometer
Dynamic Cone Penetrometer

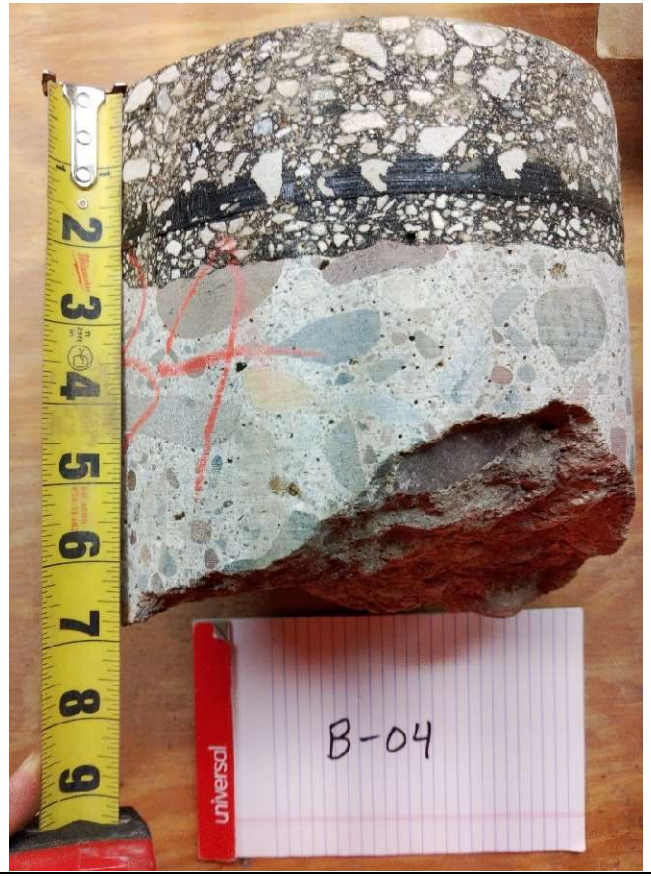


Core #:	B-01	Project: B2207129
Pavement thickness:	3 1/2 inches bituminous 7 inches concrete No apparent aggregate base	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 15, 2022	

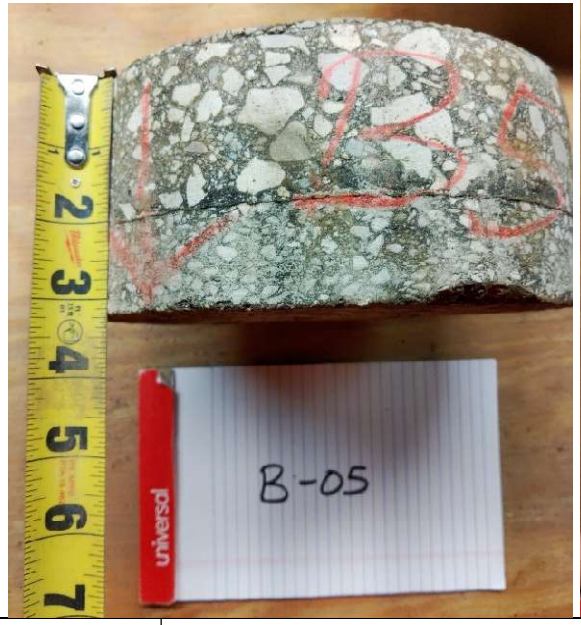
Core #:	B-02	Project: B2207129
Pavement thickness:	2 1/2 inches bituminous 6 inches concrete 6 inches apparent aggregate base	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 16, 2022	



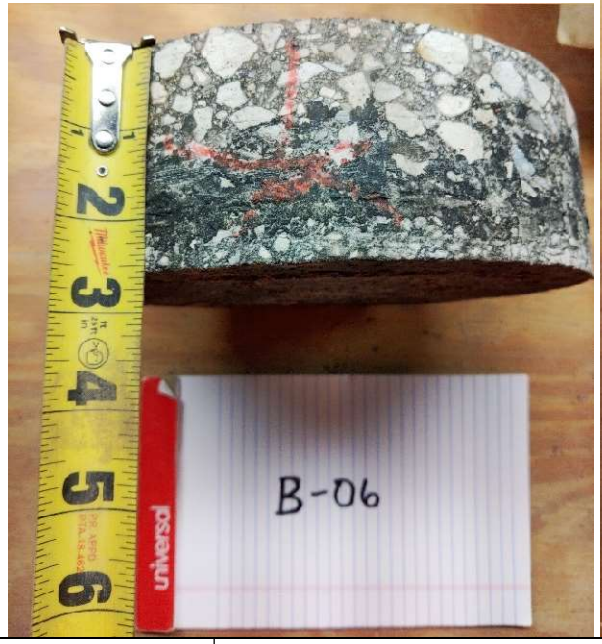
Core #:	B-03	Project: B2207129
Pavement thickness:	2 1/2 inches bituminous 7 1/4 inches concrete No apparent aggregate base	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 15, 2022	



Core #:	B-04	Project: B2207129
Pavement thickness:	2 1/2 inches bituminous 11 inches concrete (only partial core retrieved, bottom destroyed during drilling), No apparent aggregate base	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 16, 2022	

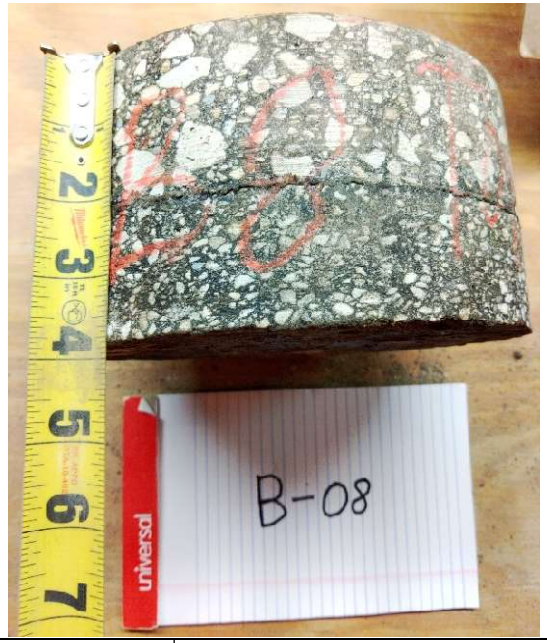


Core #:	B-05	Project: B2207129
Pavement thickness:	3 ¼ inches bituminous 8 inches concrete 9 inches apparent aggregate base	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 15, 2022	

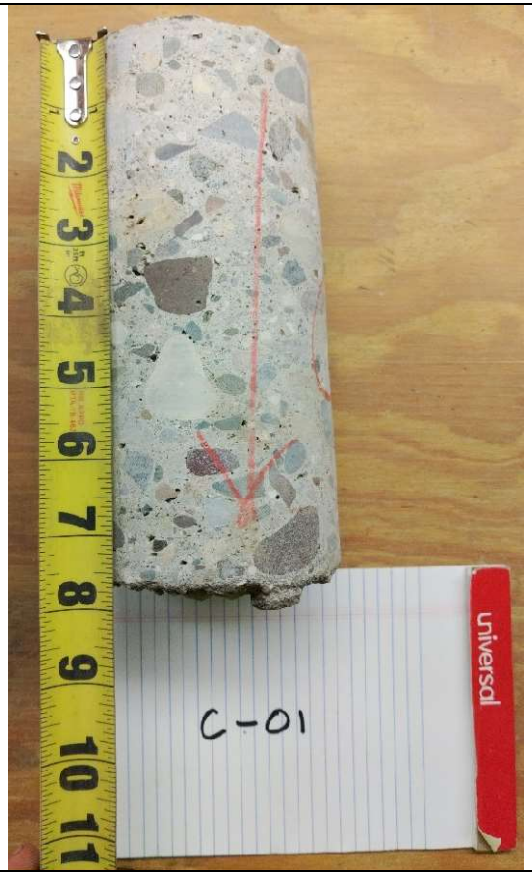


Core #:	B-06	Project: B2207129
Pavement thickness:	2 ½ inches bituminous 7 ½ inches concrete No apparent aggregate base	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 16, 2022	

Core #:	B-07	Project: B2207129
Pavement thickness:	2 ¾ inches bituminous 7 ½ inches concrete No apparent aggregate base	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 15, 2022	



Core #:	B-08	Project: B2207129
Pavement thickness:	3 ¾ inches bituminous 7 ¾ inches concrete No apparent aggregate base	
Project:	Steele County CSAH 48	
Date:	August 16, 2022	



Core #:	C-01	Project: B2207129
Pavement thickness:	7 ¾ inches concrete 7+ inches of apparent aggregate base, refusal to hand auger at 15 inches below surface	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 16, 2022	

Core #:	C-02	Project: B2207129
Pavement thickness:	8 inches concrete 7+ inches of apparent aggregate base, refusal to hand auger at 15 inches below surface	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 16, 2022	

Core #:	C-03	Project: B2207129
Pavement thickness:	8 inches concrete 11+ inches of apparent aggregate base, refusal to hand auger at 18 inches below surface	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 16, 2022	

Core #:	C-04	Project: B2207129
Pavement thickness:	7 inches concrete 22 inches of apparent aggregate base	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 16, 2022	

Photo #:	P-01	Project: B2207129
Location Description:	Near Boring B-02, looking east Multiple cracking and joint spalling	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-02	Project: B2207129
Location Description:	Near Boring B-03, looking east Joint spalling	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-03	Project: B2207129
Location Description:	Near Boring B-05, looking east Longitudinal and transverse cracking	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

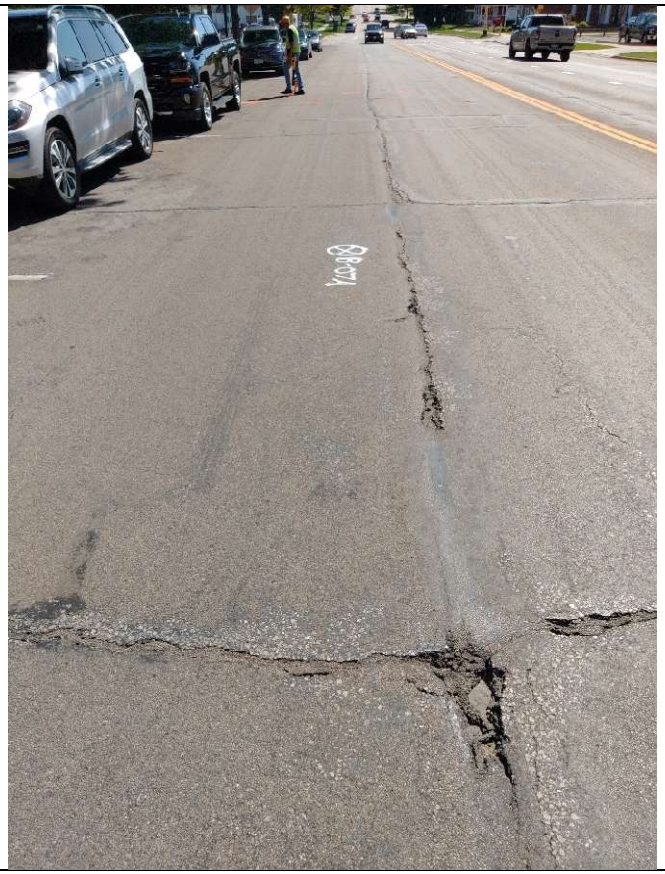


Photo #:	P-04	Project: B2207129
Location Description:	Near Boring B-07, looking east Joint spalling	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-05	Project: B2207129
Location Description:	At Elm Avenue intersection, looking southeast Cracked and broken panels, previous patches, joint spalling	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-06	Project: B2207129
Location Description:	Approx. 250’E of Elm Avenue, looking west Previous panel repair, minor raveling	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-07	Project: B2207129
Location Description:	Approx. 60’W of Grove Avenue, looking east Cracked panels, previous patching	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-08	Project: B2207129
Location Description:	At Grove Avenue intersection, looking northeast Previous panel repair, minor joint spalling, minor raveling	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-09	Project: B2207129
Location Description:	Approx. 175’E of Grove Avenue, looking east Minor joint spalling, minor raveling, previous patching	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-10	Project: B2207129
Location Description:	Approx. 275’E of Grove Avenue, looking east Cracked and broken panels, previous patching	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-11	Project: B2207129
Location Description:	Approx. 625’E of Grove Avenue, looking west Cracked and broken panels, previous patching, faulting	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-12	Project: B2207129
Location Description:	Approx. 500’W of Lincoln Avenue, looking east Previous patching, faulting	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-13	Project: B2207129
Location Description:	Approx. 290’W of Lincoln Avenue, looking east Cracked and broken panels, previous patching, faulting	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-14	Project: B2207129
Location Description:	At Lincoln Avenue intersection, looking west Cracked panels, previous patching, minor raveling	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-15	Project: B2207129
Location Description:	Approx. 75’E of Lincoln Avenue, looking east Cracked panels, previous patching, faulting, minor joint spalling	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-16	Project: B2207129
Location Description:	Approx. 250’E of Lincoln Avenue, looking east Cracked panels, previous patching	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-17	Project: B2207129
Location Description:	Approx. 275’E of Lincoln Avenue, looking northwest at MH Cracked and broken panels, previous patching, faulting	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-18	Project: B2207129
Location Description:	Approx. 400’E of Lincoln Avenue, looking east Previous patching, faulting	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-19	Project: B2207129
Location Description:	Approx. 275’W of Chambers Avenue, looking east Cracked and broken panels, previous patching	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

Photo #:	P-20	Project: B2207129
Location Description:	At Chambers Avenue intersection, looking northeast Cracked panels, previous patching	BRAUN INTERTEC
Project:	Steele County CSAH 48	
Date:	August 10, 2022	

County	Route Type	Route Number	Beginning M.P.	Ending M.P.	Length (miles)	Beginning Termini	Remarks	Number of Lanes	Year	Direction	Pavement Type	RQI	SR	PQI	IRI_LWP (in/mi)	IRI_RWP (in/mi)	SLS	SES	FLJ	CRA	BRO	FLP	OVR	5SF	DCR	SLJ	SEJ	Faulting (inches)
STEELE	CS	48	2.032	2.200	0.168	CHAMBERS AVE RT	CONCRETE	2	2020	D	CON	1.0			248	217												
STEELE	CS	48	2.032	2.200	0.168	CHAMBERS AVE RT	CONCRETE	2	2020	I	CON	1.3	3.9	2.3	223	254			2	2								0.07
STEELE	CS	48	2.200	2.440	0.240	LINCOLN AVE	CONCRETE	2	2020	D	CON	1.1			243	218												
STEELE	CS	48	2.200	2.440	0.240	LINCOLN AVE	CONCRETE	2	2020	I	CON	1.0	3.7	1.9	254	262	2		4	6	1			2				0.08
STEELE	CS	48	2.440	2.570	0.130	GROVE AVE	CONCRETE	2	2020	D	CON	1.0			250	278												
STEELE	CS	48	2.440	2.570	0.130	GROVE AVE	CONCRETE	2	2020	I	CON	1.3	3.5	2.1	228	246			9	9				6				0.10

State Aid 10 Ton ESAL Traffic Forecast Calculator

This ESAL calculator is for use with default Heavy Commerical Traffic values; click "User Defined Traffic Values" sheet below if you wish to enter your own Heavy Commercial Traffic values.

Instructions: All yellow boxes require an input value.
Dropdown choices are provided for Base Year (C18), Number of Lanes (C19), and Urban or Rural (C21).
You must click on cells C18, C19, and C21 to access the dropdown choices.

General Information

Date	9/19/22	
Forecast Performed by	Braun Intertec	
Name of County or City	Steele County	
Project Number	B2207129	
Project Description	CSAH 48 Reconstruction	
Route Number	48	
Base Year (i.e. opening to traffic)	2032	
Number of Lanes (total both directions)	2 = typical 2 lane	
Current AADT	10,000	
Urban or Rural	Urban	
Historical AADT (enter a minimum of two years)	**Year**	**AADT**
Enter oldest traffic data here	1995	9,700
Enter second oldest traffic data here	1999	10,700
Enter third oldest traffic data here	2011	10,800
Enter fourth oldest traffic data here	2019	10,000
Base Year AADT	2032	10,470
20-Year AADT	2052	11,517
35-Year AADT	2067	12,302
Growth Rate	0.50%	

Vehicle Type	Vehicle Class %	ESAL Factors Flexible	ESAL Factors Rigid
2AX-6TIRE SU	1.46%	0.25	0.24
3AX+SU	0.09%	0.58	0.85
3AX TST	0.12%	0.39	0.37
4AX TST	0.24%	0.51	0.53
5AX+TST	1.80%	1.13	1.89
TR TR, BUSES	0.63%	0.57	0.74
TWIN TRAILERS	0.00%	2.40	2.33
Total	**4.35%**	**NA**	**NA**

20-Year Flexible Forecast (10 Ton) = 1,408,000
20-Year Rigid Forecast (10 Ton) = 2,109,000
35-Year Flexible Forecast (10 Ton) = 2,500,000
35-Year Rigid Forecast (10 Ton) = 3,745,000

Note: This ESAL Calculator provides reasonable estimation of ESAL's based on accurate AADT values. It is limited to an AADT value of 20,000. For roadways exceeding an AADT of 20,000, it is recommended to use the MnDOT ESAL Forecasting Tool found on MnDOT's Pavement Design web page at:
http://www.dot.state.mn.us/materials/pvmtdesign/software.html

Revised: 5/6/2020

DEPARTMENT OF TRANSPORTATION

MnPAVE Rigid 3.0 Design Summary

Created 10/5/2022 9:31 AM

MnPAVE Rigid File:

Calculated thickness: 7.2 in.

Main Inputs

Design life: 35 years

Climate (MnDOT district): D6

Initial 2-way traffic: 435 HCADT

Linear traffic growth: 0.5

Axle load spectra: MnDOT Average

Number of lanes (2-way): 2

Base material: Class 5 Aggregate

Base thickness: 4.0 in.

Subbase material: Select Granular

Subbase thickness: 12.0 in.

Joint spacing: 15 ft.

Widened lane? No

Shoulder type: Tied PCC

Defaults

Reliability analysis: Monte Carlo (MnPAVE Flexible)

Allowable cracked slabs: 15%

Reliability level: 50%

Flexural strength: 650 psi

COV, PCC thickness: 3.0%

COV, Flexural strength: 8.6%

MEPDG coefficient 1: 0.90

MEPDG coefficient 2: -2.64

Calculated total trucks over service life: 2,986,783

Designer: TBD

Notes:

Disclaimer: The Minnesota Department of Transportation makes no guarantee or warranty, either express or implied, with respect to the reuse of the data provided herewith, regardless of its format or means of its transmission. The user accepts the data "as is", and assumes all risks associated with its use. By accepting of this data, the user agrees not to transmit this data or provide access to it or any part of it to another party unless the user shall include with the data a copy of this disclaimer. The Minnesota Department of Transportation assumes no responsibility, actual or consequential, for damage that results from any user's reliance on this data.

MnPAVE Design Summary

MnPAVE 6.405 Simulation Input File: MnPAVE1

Confidence Level for Preliminary Life Estimate = 70%

Confidence and Reliability may not agree. Thickness and modulus are reduced when Confidence > 50%.

Monte Carlo Reliability randomly selects values for each layer. Use Reliability for final design.

Preliminary Life Estimate		20-Year Reliability (5,000 cycles)	
Fatigue	**Rutting**	**Fatigue**	**Rutting**
41 years	**36 years**	**99.5%**	**98.9%**

Project Information

District	County	City
6	Steele	Owatonna

Project Number	Route	Reference Post
B2207129	CSAH 48	from Oak to Grove

Letting Date	Construction Type
11/01/22	Reconstruction

Designer	Soils Engineer
TBD	Braun Intertec

Climate Information

Seasons	Location
5	44˚ 0’ Latitude, 93˚ 11’ Longitude

Structural Information (Design Level: Intermediate)

Layer	Type	Subtype	Height (in.)
1a	Hot-Mix Asphalt (Pb = 5.0%)	PG64-34 (2360F 1/2")	3.00
1b	Hot-Mix Asphalt (Pb = 5.0%)	PG58-34 (2360F 1/2")	1.50
2	Aggregate Base	MnDOT Class 5	8.00
3	Aggregate Subbase	MnDOT Select Granular	12.00
4	Engineered Soil	R-Value = 15 (CL)	12.00
5	Undisturbed Soil	Engineered Soil Modulus/2	

Traffic Information (Speed = 30 mph)

Load Type	First Year ESAL	Growth Rate	Axle Repetitions
ESAL	67,210	0.5% (simple)	1,408,000

Notes

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Printed Tuesday, September 27, 2022 at 18:05:18

Appendix B

CSAH 48 (Main Street) Oak Avenue to Chambers Avenue Intersection Control Evaluation Report

Intersection Control Evaluation Report

CSAH 48 (Main Street) - Oak Avenue to Chambers Avenue

Owatonna, Minnesota

SEH

Building a Better World for All of Us®

Engineers | Architects | Planners | Scientists

Intersection Control Evaluation Report

CSAH 48 (Main Street) - Oak Avenue to Chambers Avenue
Owatonna, Minnesota

SEH No. STEEL 164362

July 1, 2022

I hereby 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.

Justin Anibas, PE (MN)

Date: 07/01/2022 License No.: 59411

Approved By:

MnDOT District 6 State Aid Engineer Date

Steele County Engineer Date

City of Owatonna Engineer Date

Short Elliott Hendrickson Inc.
3535 Vadnais Center Drive
St. Paul, MN 55110

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Intersection Control Evaluation Report

CSAH 48 (Main Street) - Oak Avenue to Chambers Avenue

Prepared by Short Elliott Hendrickson Inc. for Steele County, in cooperation with the City of Owatonna.

1 Background and Description

County State Aid Highway 48 (CSAH 48), also known as Main Street, is an east-west minor arterial roadway in the City of Owatonna. CSAH 48 spans from the west at Oak Avenue to the US Highway 14 Interchange southeast of Owatonna with daily traffic volumes ranging from 5,200 to 10,000 vehicles per day (vpd) through the project area.

The planned project will include rehabilitation of CSAH 48 between Oak Avenue and Chambers Avenue and is anticipated to be constructed in 2024-2026. This project is intended to maintain or improve traffic operations and safety along the corridor as well as improve pedestrian facilities to meet ADA standards.

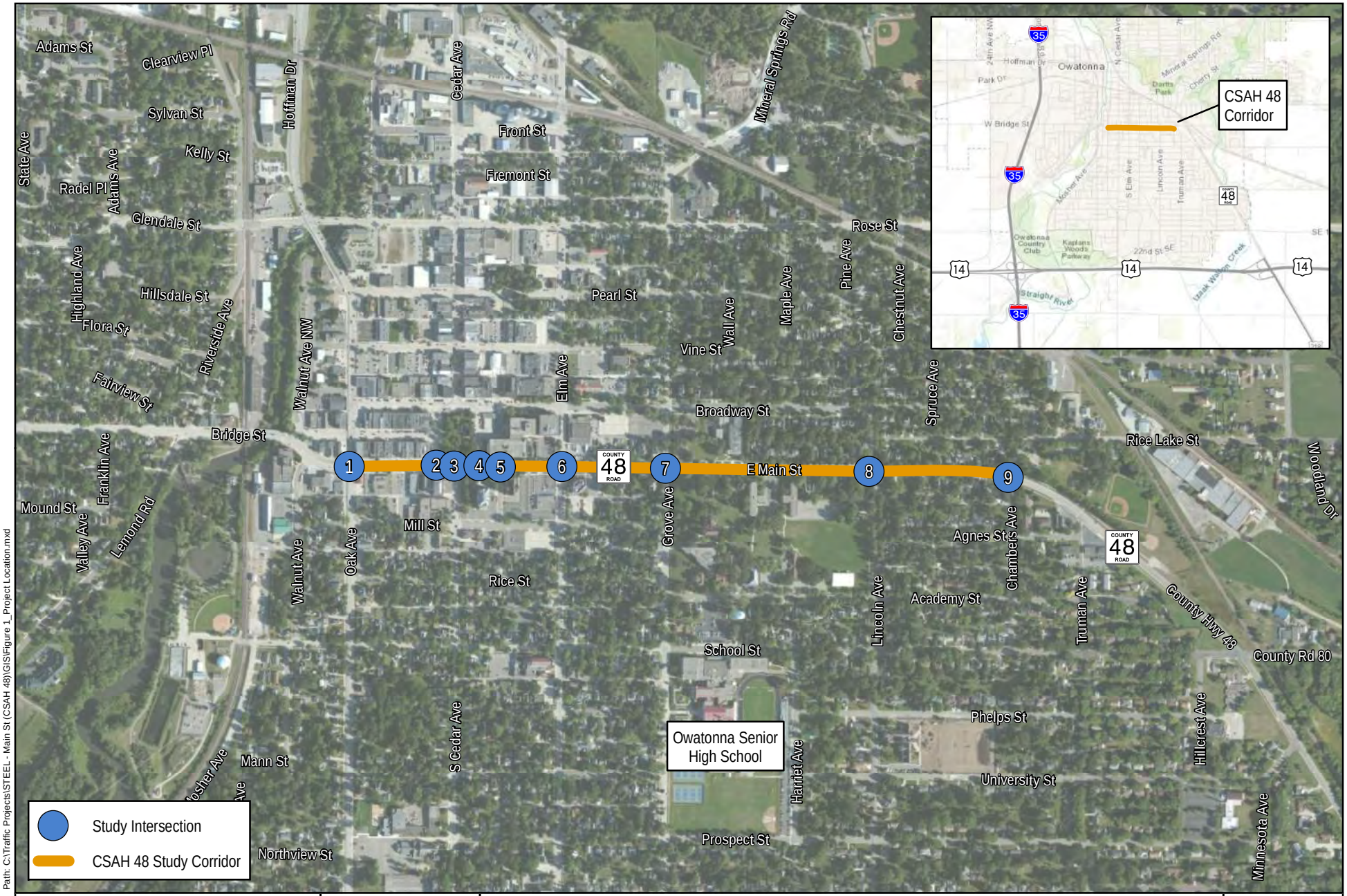
1.1 Overview

The primary purpose of this study is to determine the optimal type of intersection traffic control needs for the eight study intersections along CSAH 48 from Oak Avenue to Chambers Avenue. The following identifies the study intersections and their existing control:

- CSAH 48 at Oak Avenue (CSAH 45) (traffic signal control)
- CSAH 48 at W Park Square (traffic signal control)
- CSAH 48 at Cedar Avenue (MSAS 120) (minor stop control)
- CSAH 48 at E Park Square (no control – one-way departing)
- CSAH 48 at Court Avenue (no control – one-way departing)
  - Pedestrian flashing beacon on the east leg of the intersection
- CSAH 48 at Elm Avenue (MSAS 122) (traffic signal control)
- CSAH 48 at Grove Avenue (MSAS 121) (traffic signal control)
- CSAH 48 at Lincoln Ave (MSAS 123) (all-way stop control)
  - Traffic signal removed from the intersection in Spring 2021
- CSAH 48 at Chambers Avenue (minor stop control)

The Minnesota Department of Transportation (MnDOT) Intersection Control Evaluation (ICE) is an objective process used to investigate and determine the optimal type of traffic control that should be provided at each intersection to serve the existing conditions and future needs. The investigation includes analyzing traffic operations during the AM and PM peak hours for the existing (2021) and forecast (2045) traffic conditions. The evaluation includes assessing traffic control volume warrants, intersection and roadway safety, and traffic operations.

The range of traffic control options includes a No Build scenario, with no change to the existing control conditions, and viable traffic control changes for each intersection, including all-way stop control, traffic signal control, roundabout control, and minor street stop control. **Figure 1** depicts the study intersections and rehabilitation area in a location map.



Path: C:\Traffic Projects\STEEL - Main St (CSAH 48)\GIS\Figure 1_Project Location.mxd

Project: STEEL 164362
Print Date: 6/9/2022

Map by: jdanibas
Projection: Steele Co. Coords.
Source: ESRI Online

PROJECT LOCATION

CSAH 48 (MAIN ST) REHABILITATION PROJECT
Owatonna, MN

Figure 1

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.

2 Existing Conditions

CSAH 48 is a 4-lane undivided roadway west of Elm Avenue and a 2-lane undivided roadway east of Elm Avenue through the project area; there is on-street parallel parking on both sides of the street for most of the project area, with marked parking spaces between Oak Avenue and Elm Avenue. There are currently time of day restrictions on parking through the downtown area. Parking is currently prohibited on the south side of CSAH 48 just east of Grove Avenue near the Owatonna Education Center to avoid parent's dropping off their students on the south side of CSAH 48. The posted speed limit is 30 mph. West of Grove Avenue, CSAH 48 is surrounded by downtown Owatonna, which consists of mostly commercial land uses. East of Grove Avenue, CSAH 48 is surrounded by primarily residential land uses.

There are currently four signalized intersections in the project area, two minor street stop-controlled intersections, and two uncontrolled intersections (minor street is one-way departing), and one all-way stop controlled intersection included in the nine study intersections.

East of the project area, CSAH 48 turns to a primarily north-south roadway and connects to US Highway 14 via a grade-separated interchange.

2.1 Crash History

Five years of crash data, from January 1, 2017 through December 31, 2021, was analyzed using MnDOT's crash mapping application (MnCMAT2). The type and severity of crashes were reviewed, and crash rates were calculated for each study intersection. Crash information is summarized in **Table 1** for the study intersections and **Table 2** for study segments; a total of 95 crashes have occurred within the study area in the last 5 years.

The crash rate at each intersection is expressed as the number of crashes per million entering vehicles (MEV). The critical crash rate is a statistical value that is unique to each intersection and is based on vehicular exposure and the statewide average crash rate for similar intersections. An intersection with a crash rate higher than the critical rate can indicate a safety concern at the intersection and the site should be reviewed.

For the purposes of this analysis, the Lincoln Avenue crash rate was compared to a crash rate for a traffic signal as the intersection was traffic signal controlled until Spring 2021 when it was converted to all-way stop control.

Crash severity is separated into five categories based on injuries sustained during the crash.

- Fatal – Crash that results in a death
- Severity A – Crash that results in an incapacitating injury or serious injury
- Severity B – Crash that results in a non-incapacitating injury or minor injury
- Severity C – Crash that results in possible injury
- Property Damage – Crash that results in property damage only, with no injuries

The following trends were evident from all crashes along CSAH 48 (all 95 crashes):

- 86 of the 95 crashes (91%) occurred at the nine study intersections with the remaining nine occurring between the study intersections.
- Approximately 49% of crashes along CSAH 48 are rear end crashes, 81% of which occurred at the 5 signalized intersections (includes Lincoln Ave) along the corridor.

- Approximately 17% of crashes along CSAH 48 are sideswipe crashes.
- Approximately 12% of crashes along CSAH 48 are right angle crashes.
- There seems to be a higher percentage of crashes during the afternoon peak period (12 PM to 3 PM, 33%) and the PM peak hour (3 to 6 PM, 30%).
- Fridays have the highest percentage (21%) of crashes, there is no definitive pattern of higher crashes on any given weekday.
- 84% of crashes along CSAH 48 were coded as daylight hours.
- 83% of crashes along CSAH 48 occurred in either clear or cloudy conditions, which are generally considered good weather conditions.
  - 10% of crashes occurred when it was snowing/blowing and 7% occurred when it was raining.

2.1.1 Pedestrian and Bicycle Crashes

There were a total of 4 reported crashes involving bicyclists and 2 involving pedestrians in the last 5 years (2017-2021). Below is a description of each pedestrian and bicycle crash along the roadway.

Bicycle Crashes (2017- 2021)

- All four occurred at the Oak Avenue intersection and were all minor injury crashes
- Two involved a southbound right turning driver failing to yield to a bicyclist in crosswalk on the west leg of the intersection
- One involved a westbound left turning driver failing to yield a bicyclist in the crosswalk on the south leg of the intersection
- One involved a southbound right turning driver attempting to make a right turn on red failing to yield to a bicyclist in the crosswalk on the north leg of the intersection

Pedestrian Crashes (2017- 2021)

- One occurred at Oak Avenue (minor injury) and involved an eastbound right turning driver attempting to make a right turn on red failing to yield to a pedestrian in the crosswalk on the west leg of the intersection.
- One occurred at Elm Avenue (fatal) and involved a southbound right turning driver attempting to make a right turn on red, then striking a pedestrian in the crosswalk on the west leg on the intersection.
- Three additional pedestrian crashes have occurred along the corridor between January 2011 and March 2022
  - One occurred in September 2011 at the Court Avenue pedestrian flashing beacon (serious injury) and involved a westbound driver failing to yield to a pedestrian crossing using the marked crosswalk and the pedestrian flashing beacon
  - One occurred in May 2011 at Grove Avenue (minor injury) and involved a pedestrian disregarding the traffic signal crossing the roadway in the crosswalk on the east leg of the intersection and being struck by an eastbound vehicle at low speed.
  - One occurred in January 2022 at Grove Avenue (minor injury) and involved a pedestrian disregarding the traffic signal crossing the roadway in the crosswalk on the west leg of the intersection and being struck by a westbound vehicle at low speed.

2.1.2 Intersection Crashes

As shown in **Table 1**, a total 77 crashes occurred at the nine study intersections in the 5-year analysis period. There was one fatal crash and no serious injury crashes. The fatal crash occurred at the Elm Avenue signal and involved a pedestrian as described in the previous section.

Based on the observed crashes rates in comparison to the calculated critical rate, the CSAH 48 intersections at Oak Avenue and Grove Avenue are above the calculated critical crash rate (see **Table 1**); this is an indication of potential safety concerns at those intersections. It should be noted that Oak Avenue was restriped from a 4-lane roadway to a 3-lane roadway in June 2020, which improved safety at the intersection. Prior to Oak Avenue being restriped, the intersection averaged 7.3 crashes per year, which has been reduced to 6.3 crashes per year with the 3-lane section.

Table 1 – Intersection Crash History (2017-2021)

CSAH 48 at:	Crash Severity					Crash Rates	
	Fatal & Severity A	Severity B	Severity C	Property Damage	Total	Intersection Rate	Critical Rate
Oak Ave	0	6	1	28	35	**0.87**	**0.82**
W Park Square	0	0	0	6	6	0.27	0.93
Cedar Ave	0	0	0	2	2	0.10	0.45
E Park Square	0	0	0	1	1	0.06	0.48
Court Ave	0	0	0	2	2	0.13	0.50
Elm Ave	1	0	0	5	6	0.27	0.93
Grove Ave	0	1	0	21	22	**0.94**	**0.92**
Lincoln Ave	0	0	0	10	10	0.53	0.97
Chambers Ave	0	0	0	2	2	0.16	0.54
TOTAL	**1**	**7**	**1**	**77**	**86**	n/a	n/a

The following trends are evident for each study intersection along CSAH 48:

- CSAH 48 at Oak Avenue (traffic signal) – 35 crashes
  - 18 of the 35 crashes were rear end crashes. 7 of the rear ends involved eastbound vehicles and 0 involved westbound vehicles (4 northbound, 7 southbound).
  - The intersection was restriped from a 4-lane roadway to a 3-lane roadway in 2020 and was completed on June 1, 2020. 25 of the 35 crashes at the intersection occurred before Oak Avenue was restriped (7.3 per year). The remaining 10 occurred after the intersection was restriped (6.3 per year). Overall, the restriping on Oak Avenue has improved safety at the intersection.
  - There were 4 crashes involving bicyclists, all minor injury (see **Section 2.1.1**)
  - There was 1 crash involving a pedestrian, which was a minor injury crash (see **Section 2.1.1**)
- CSAH 48 at W Park Square (traffic signal) – 6 crashes
  - 4 of the 6 crashes were rear end crashes. 3 of the rear ends involved eastbound vehicles and 1 involved westbound vehicles.

- CSAH 48 at Cedar Ave (minor stop) – 2 crashes
  - With only 2 crashes, both were weather related, over the previous 5 years there have been no crash patterns at this intersection.
- CSAH 48 at E Park Square (no control – one-way departing) – 1 crash
  - With 1 crash over the previous 5 years there have been no crash patterns at this intersection.
- CSAH 48 at Court Avenue (no control – one-way departing) – 2 crashes
  - Both crashes were rear end collisions from vehicles stopping for pedestrians crossing using the pedestrian flashing beacon to cross CSAH 48 (one eastbound, one westbound)
- CSAH 48 at Elm Avenue (traffic signal) – 6 crashes
  - 3 of the 6 crashes were sideswipe crashes. 2 of the sideswipe crashes involved eastbound vehicles and 1 involved westbound vehicles
    - Sideswipe crashes at this intersection may be contributed to the lane configuration for eastbound with an existing left turn lane drop occurring as drivers approach the Elm Avenue intersection.
  - There was 1 crash involving a pedestrian, which resulted in a fatality (see **Section 2.1.1**).
- CSAH 48 at Grove Avenue (traffic signal) – 22 crashes
  - 10 of the 22 crashes were rear end crashes. 9 of the rear ends involved eastbound vehicles and 0 involved westbound vehicles (1 southbound).
  - 3 crashes were right-angle, 4 were sideswipes, and 2 were head-on crashes; many involved turning vehicles; the intersection does not have striped turn lanes.
- CSAH 48 at Lincoln Avenue (all-way stop; traffic signal removed in 2021) – 10 crashes
  - 6 of the crashes occurred before 2021, when the intersection was under traffic signal control. 3 of the 6 crashes before 2021 were rear end crashes (1 eastbound, 2 westbound)
  - 4 of the crashes occurred in 2021 after the signal was removed and replaced with an all-way stop. 3 of the 4 crashes under all-way stop control were rear end crashes (1 westbound, 1 northbound, 1 southbound)
    - While crashes have increased since removal of the signal system, after review of the crash data, it appears that rear end crashes have been attributed to motorists still adjusting to the traffic control change at this intersection.
- CSAH 48 at Chambers Avenue (minor stop) – 2 crashes
  - With 2 crashes over the previous 5 years there have been no crash patterns at this intersection.

2.1.3 Segment Crashes

An additional 9 crashes occurred along CSAH 48 between the study intersections. These included crashes at business and residential accesses and along the roadway segments between access points. None of the roadway segments have a sustained crash problem. **Table 2** shows a summary of the crashes along the segments of CSAH 48 between intersections.

Table 2 – Segment Crash History (2017-2021)

From	To	Crash Severity					Crash Rates	
		Fatal & Severity A	Severity B	Severity C	Property Damage	Total	Segment Rate	Critical Rate
Oak Ave	W Park Square	0	0	0	1	1	0.55	7.78
W Park Square	Cedar Ave	0	0	0	0	0	0.00	5.33
Cedar Ave	E Park Square	0	0	0	0	0	0.00	5.54
E Park Square	Court Ave	0	0	0	0	0	0.00	5.63
Court Ave	Elm Ave	0	0	0	0	0	0.00	9.03
Elm Ave	Grove Ave	0	0	0	4	4	2.09	5.28
Grove Ave	Lincoln Ave	0	0	0	3	3	1.09	4.07
Lincoln Ave	Chambers Ave	0	0	0	1	1	0.56	4.66
TOTAL		**0**	**0**	**0**	**9**	**9**	n/a	n/a

The following trends are evident for the crashes along segments between the study intersections along CSAH 48:

- 4 of the 9 segment crashes involved parked vehicles or drivers attempting to park along CSAH 48
- 3 of the 9 segment crashes were rear end crashes involving drivers on CSAH 48 rear ending vehicles attempting to enter business accesses. All 3 crashes occurred between Elm Avenue and Grove Avenue.
- 4 of the 9 crashes occurred with poor weather conditions such as rain, snow, ice, etc.

2.2 Existing Traffic Volumes

24-hour intersection turning movement counts were collected in December 2021 at all nine study intersections. The AM peak hour was determined to be 7:15 to 8:15 AM and the PM peak hour was determined to be 4:00 to 5:00 PM.

Passenger vehicles, heavy vehicles, pedestrians, and bicyclists were all counted. The intersection daily volumes show around 2% heavy vehicles on CSAH 48. However, based on discussions with the Project Management Team (PMT) and comments from the public, it is understood that there are times of the year where there is higher truck activity along the corridor, especially during the late summer months.

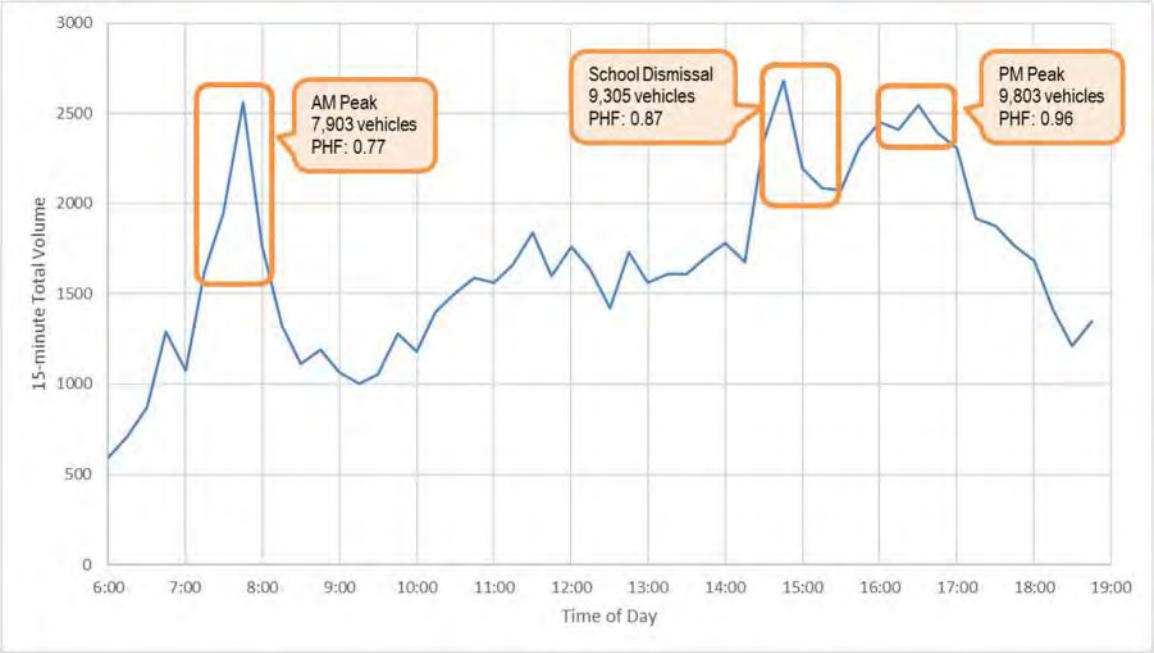
In addition to the AM and PM peak hours, there is also a school dismissal peak hour along CSAH 48 due to the proximity of CSAH 48 to the existing Owatonna Senior High School. The school dismissal peak hour has the highest 15-minute traffic demands of the day. However, the school dismissal peak hour was not analyzed as part of this project because the hourly volumes were lower than the PM peak hour and Owatonna High School is moving to the southeast corner of Owatonna near the CSAH 48/US Highway 14 interchange in 2024.

The PM peak hour has the highest hourly traffic volumes throughout the day, although the AM peak hour has a higher 15-minute peak traffic demand when compared to the PM peak hour due to the school arrival peak for the nearby schools occurring during the AM peak hour. The large 15-minute peak traffic demands during the AM peak compared to the rest of the AM peak hour results in a low peak hour factor (PHF) of 0.77 as compared to the determined PHF for the PM peak hour of 0.96. The PHF is a measure of traffic demand fluctuations within the peak hour, it is calculated by the hourly volume during the peak hour divided by the peak 15-minute traffic volume multiplied by four (Hourly Volume / [Peak 15-min x 4])

Figure 2 represents the summation of all traffic data collected at the nine study intersections represented as a line graph by time of day; this is the total 15-minute demands for all intersections.

The existing 2021 vehicle turning movement volumes, roadway geometrics, and intersection control are shown in **Figure 3**.

Figure 2 – 2021 Existing CSAH 48 Corridor Volume Graph

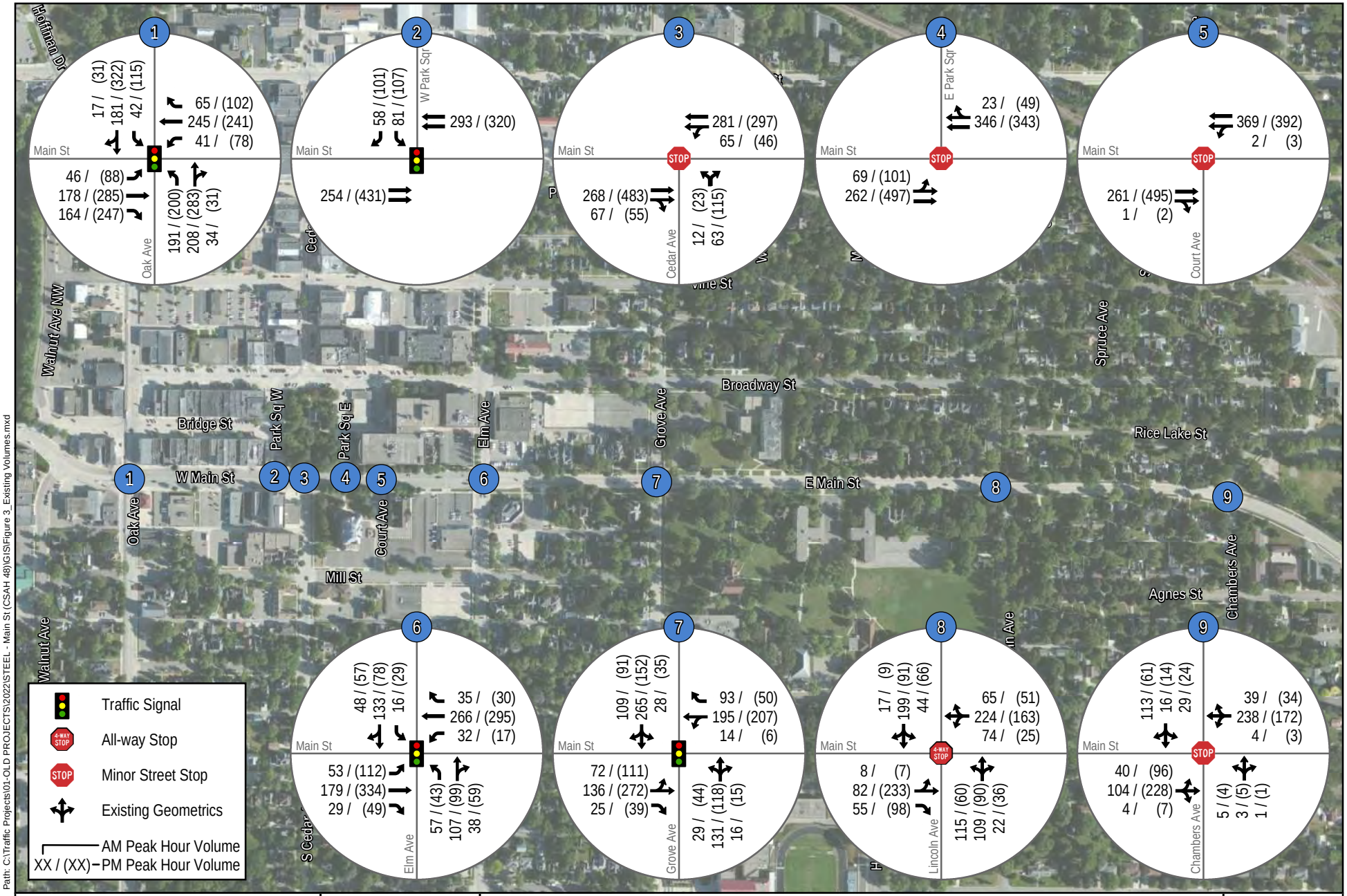


24-hour Pedestrian and bicycle counts were collected at each study intersection in December 2021 as part of the vehicle turning movement counts. It is likely that the December 2021 counts are lower than summer peak pedestrian and bicycle demands due to weather. The pedestrian and bicycle counts show that there are two locations with high pedestrian and bicycle crossing activity. The pedestrian flashing beacon at Court Avenue had 384 pedestrians crossing CSAH 48 and the west leg of the signalized Elm Avenue intersection had 254 pedestrians crossing of CSAH 48. The majority of the pedestrian crossing activity at these locations is generated by the Federated Insurance Company offices, which is located north of CSAH 48 but has a majority of their employee parking south of CSAH 48. It should also be noted that pedestrian demand observed may have been lower due to some of the Federated Insurance workforce potentially working remote.

During the AM peak hour, 55 pedestrians crossed CSAH 48 at Court Avenue and 33 crossed CSAH 48 at the Elm Drive signal. During the PM peak hour, 71 pedestrians crossed CSAH 48 at Court Avenue and 31 crossed CSAH 48 at the Elm Drive signal.

Besides the crossings at Court Avenue and Elm Avenue, none of the other crosswalks have more than 70 daily crossings with most of the crossings serving less than 25 pedestrians/bicycles each day. Looking at the peak hour data, no other crossings have more than 7 crossings in each hour.

The existing peak hour and daily pedestrian/bicycle volumes are shown in **Figure 4**.



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Project: STEEL 164362
Print Date: 4/10/2023

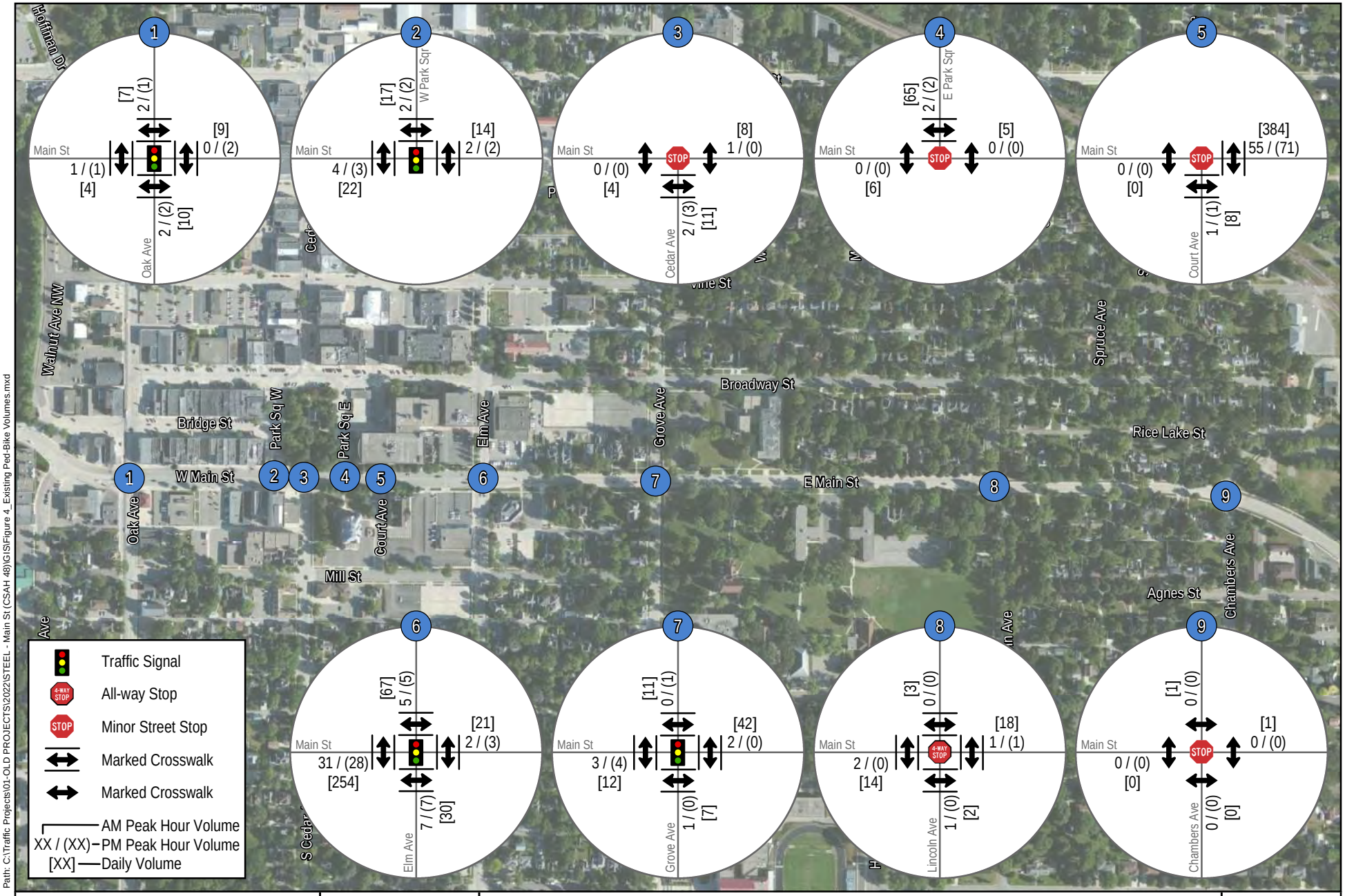
Map by: jdanibas
Projection: Steele Co. Coords.
Source: ESRI Online

EXISTING 2021 TRAFFIC VOLUMES

CSAH 48 (MAIN ST) REHABILITATION PROJECT
Owatonna, MN

Figure 3

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.



Project: STEEL 164362
Print Date: 4/10/2023

Map by: jdanibas
Projection: Steele Co. Coords.
Source: ESRI Online

EXISTING 2021 PEDESTRIAN & BIKE VOLUMES

CSAH 48 (MAIN ST) REHABILITATION PROJECT
Owatonna, MN

Figure 4

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.

The December 2021 peak hour and daily traffic volumes were compared to historical January 2020 counts at the signalized intersections along CSAH 48 (including Lincoln Ave) and MnDOT's traffic flow maps to ensure that there were no significant COVID impacts to roadway volumes. From this review the following was found:

- The West Park Square southbound approach was adjusted to better match January 2020 volumes due to some construction in the area north of CSAH 48 during December 2021.
- CSAH 48 and all other roadways compared favorably to the January 2020 hourly and MnDOT's traffic flow maps daily volumes and were not adjusted.

According to MnDOT's Traffic Mapping Application the most current "official" Average Annual Daily Traffic (AADT) value is from 2019.The AADT for the different roadways in the study area are shown in **Table 3.** Mainline CSAH 48 AADTs range from 5,200 to 10,000 within the study area.

Table 3 – Existing Daily Traffic Demands

Roadway	Description	Year	AADT
CSAH 48	West of Oak Ave	2019	11,900
	Oak Ave to E Park Square	2019	10,000
	E Park Square to Grove Ave	2019	8,400
	Grove Ave to Chambers Ave	2019	6,200
	East of Chambers Ave	2019	5,200
Oak Ave	North of CSAH 48	2019	10,000
	South of CSAH 48	2019	11,900
Cedar Ave	South of CSAH 48	2019	2,900
Elm Ave	North of CSAH 48	2019	3,050
Grove Ave	North of CSAH 48	2019	6,900
	South of CSAH 48	2019	4,250
Lincoln Ave	South of CSAH 48	2019	4,750

3 Future Conditions

MnDOT's Office of State Aid maintains current 20-year growth factors for all counties in Minnesota. The current growth factor for Steele County is 1.2, which equates to a linear growth rate of 1% per year over a 20-year projection. Therefore, a linear growth rate of 1% per year was utilized to develop 2045 forecast traffic volumes.

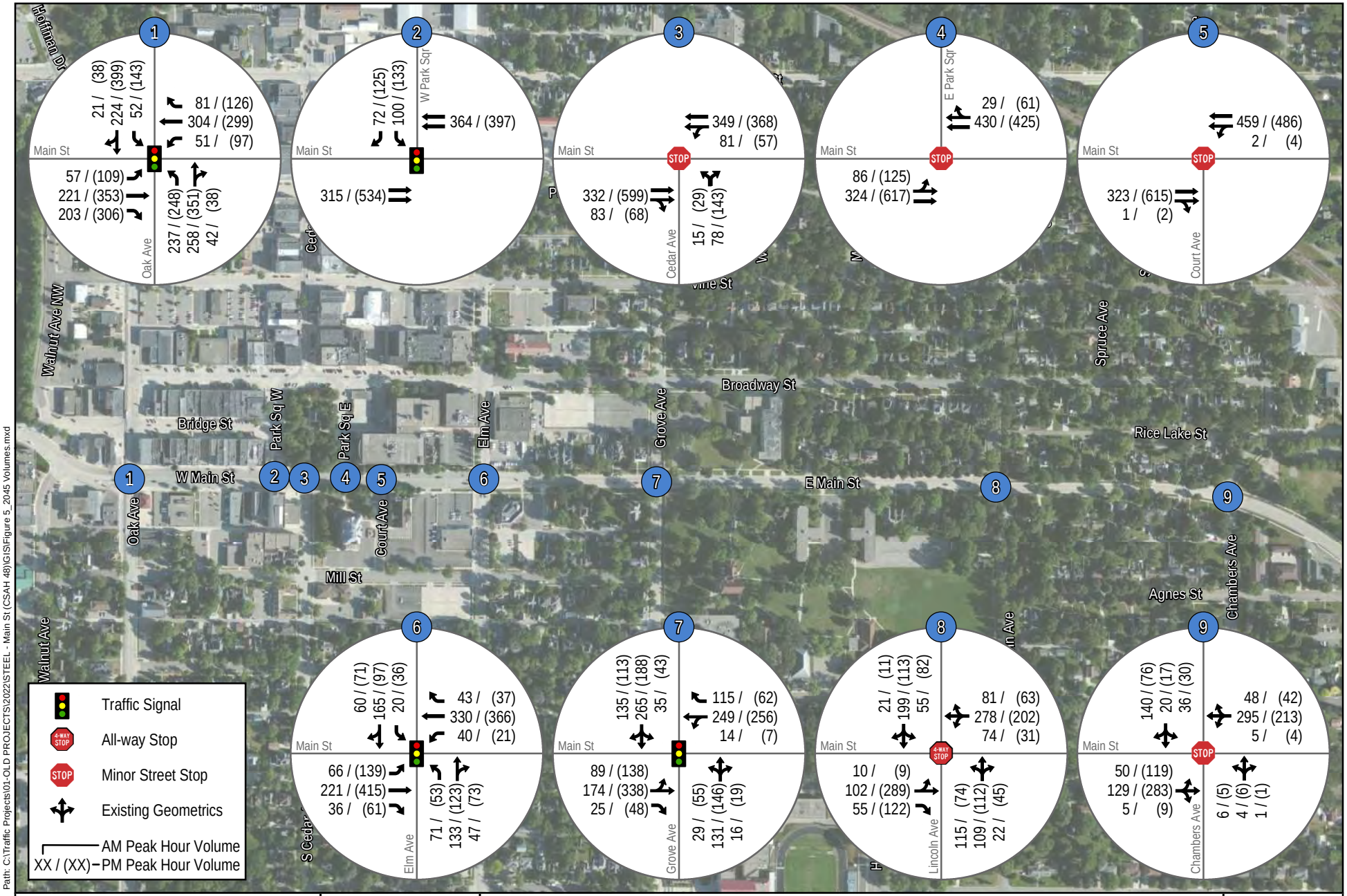
To account for the relocating of Owatonna High School in 2024, the south legs of Grove Avenue and Lincoln Avenue were not increased between 2021 and 2045 during the AM peak hour as much of the growth on these legs would likely be offset by the moving of the high school.

As was discussed in **Section 2.2**, the AM peak hour has a low PHF due to the school arrival peak hour for the High School falling within the AM peak hour. To account for the moving of Owatonna High School, the 15-minute traffic demand splits along CSAH 48 were adjusted to provide more balanced 15-minute demands throughout the hour. After adjustment, the PHF for the AM peak hour changed from 0.77 to approximately 0.85.

Table 4 shows the most recent AADTs, the 2045 forecast AADTs, and corresponding linear growth rate. The Future 2045 traffic volumes can be found in **Figure 5**.

Table 4 – 2045 Forecasted Traffic Demands

Roadway	Description	2019 Existing AADT	2045 Forecast AADT	Linear Growth Rate
CSAH 48	West of Oak Ave	11,900	15,000	1%
	Oak Ave to E Park Square	10,000	12,600	1%
	E Park Square to Grove Ave	8,400	10,600	1%
	Grove Ave to Chambers Ave	6,200	7,800	1%
	East of Chambers Ave	5,200	6,550	1%
Oak Ave	North of CSAH 48	10,000	12,600	1%
	South of CSAH 48	11,900	15,000	1%
Cedar Ave	South of CSAH 48	2,900	3,650	1%
Elm Ave	North of CSAH 48	3,050	3,850	1%
Grove Ave	North of CSAH 48	6,900	8,700	1%
	South of CSAH 48	4,250	5,350	1%
Lincoln Ave	South of CSAH 48	4,750	6,000	1%



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Project: STEEL 164362
Print Date: 4/10/2023

Map by: jdanibas
Projection: Steele Co. Coords.
Source: ESRI Online

FUTURE 2045 TRAFFIC VOLUMES

CSAH 48 (MAIN ST) REHABILITATION PROJECT
Owatonna, MN

Figure 5

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4 Analysis of Alternatives

Intersection control evaluations rely on traffic control warrants to assess the different options available at any intersection. To determine the control options, warrants are evaluated to assess where control changes can be made based on volumes. The results are used to aid in the evaluation of traffic safety and traffic operations at the study intersections.

4.1 Warrant Analysis

The Minnesota Manual on Uniform Traffic Control Devices (MnMUTCD) provides guidance on when it may be appropriate to use all-way stop or signal control at an intersection. This guidance is provided in the form of “warrants”, or criteria, and engineering analysis of the intersection’s design factors to determine when all-way stop or signal control may be justified. All-way stop or signal control should not be installed at an intersection unless a MnMUTCD warrant is met. Meeting a warrant at an intersection does not in itself require the installation of a particular control type. The particular control type also requires an engineering analysis of the intersection’s design in order for it to be justified.

Under the MnDOT ICE process, roundabouts are considered to be warranted if traffic volumes meet the criteria for either all-way stop or traffic signal control.

4.1.1 Requirements for Installation of a Traffic Signal

For traffic signal installation, MnDOT typically requires volume thresholds for Warrant 1 to be satisfied, which requires 8-hours of combined major approach volumes and the highest minor street approach volume to meet MnMUTCD thresholds. These thresholds vary with the number of approach lanes on the major and minor street. Other warrants may be used as indicators of a need to consider traffic control change; an engineering study that considers factors, including warrants, should be performed to determine the optimum type of control at an intersection.

4.1.2 Requirements for Removal of an Existing Traffic Signal

The MnDOT Traffic Engineering Manual (TEM) provides guidance on volume requirements to remove an existing traffic signal. Based on Chapter 9, section 9-5.02.05 of the TEM, an intersection that meets 80 percent of the volume requirements of Warrant 1 should be considered justified and should not be removed. A signalized intersection that does not meet 60 percent of the volume requirements of Warrant 1, and meets no other Warrant, is an unjustified traffic signal and should be removed.

A signalized intersection that does not meet 80 percent of the volume requirements but does meet 60 percent of the volume requirements of Warrant 1 is in a “gray area” and may be considered for traffic signal removal. Additional studies, findings, engineering judgment and documentation beyond the volume requirements are needed to justify retaining the signal.

4.1.3 Additional Methodology

E Park Square and Court Avenue are both one-way roadways departing CSAH 48 and, therefore, do not have any minor street approach volumes that could be used for warrant analysis.

The MnMUTCD states that the traffic signal warrant analysis can be performed with the major street left turns as the minor street traffic volume. For this analysis, the opposing through and

right turning traffic is used as the major street traffic volume. Therefore, for E Park Square the eastbound left turns were used as the minor street volume and westbound CSAH 48 traffic was used as the major street volume. For Court Avenue, the westbound left turns were used as the minor street volume and eastbound CSAH 48 traffic was used as the major street volume.

4.2 Warrant Analysis Assumptions

MnDOT guidelines suggest that for the purpose of warrant analysis, 100% of right turning traffic from the minor leg should be removed because right turning vehicles are typically able to enter the traffic stream with minimal delay or conflict; the right turning traffic would not require a traffic signal to reduce delay or improve safety. In certain circumstances (i.e. high right turn volume, minimum mainline gaps, etc.), MnDOT procedures allow for the inclusion of 50% of the minor street right turning traffic in the analysis. The MnDOT guidance states "if right turning volume exceeds 70% of its potential capacity for any hour for each approach, 50% of the right turning volume for all hours should be added back in."

- Based upon MnDOT guidance, the analysis of the nine study intersections includes removal of 100% of the right turning traffic on the minor approaches.

MnDOT guidelines suggest that the warrant thresholds may also be reduced based on the roadway speeds and population of the city the intersection is within. If either major approach to the intersection has a posted speed, or 85th percentile speed, that exceeds 40 mph, then a reduction to 70% threshold volumes is allowed. If the population of the city is less than 10,000 people, a reduction to 70% threshold volumes is allowed.

- Based upon MnDOT guidance, the analysis of the nine study intersections does not include reductions based on speeds or population as all roadways are posted at 30 mph and the City of Owatonna has a population above 10,000.

Traffic warrants were completed for the existing and forecasted 2045 traffic demands.

4.2.1 Warrant Results Summary

Based on the existing and 2045 traffic volumes, the following study intersections do not meet the all-way stop warrant or any traffic signal warrant and should retain their existing minor street stop intersection control.

- CSAH 48 at Cedar Avenue (minor stop control)
- CSAH 48 at E Park Square (no control – one-way departing)
- CSAH 48 at Court Avenue (no control – one-way departing)
- CSAH 48 at Chambers Avenue (minor stop control)

All-Way Stop Warrants

Based on both the existing and 2045 traffic volumes, the intersections of CSAH 48 at Oak Avenue, Elm Avenue, Grove Avenue, and Lincoln Avenue all meet the volume thresholds for the all-way stop warrants.

The intersection of CSAH 48 at W Park Square does not meet the all-way stop warrant thresholds under either existing or 2045 conditions.

Traffic Signal Warrants

Under existing and 2045 conditions, the intersection of CSAH 48 at Oak Avenue meets the full volume thresholds for signal warrants, which means the existing signal control at the intersection is justified.

Under existing and 2045 conditions, the intersection of CSAH 48 at W Park Square meets 60% of the traffic signal warrant volume thresholds but not 80%, this intersection is in the gray area where removal of the traffic signal should be considered.

Under existing and 2045 conditions, the intersection of CSAH 48 at Elm Avenue meets 60% of the traffic signal warrant volume thresholds but not 80%, this intersection is in the gray area where removal of the traffic signal should be considered.

Under existing conditions, the intersection of CSAH 48 at Grove Avenue meets 60% of the traffic signal warrant volume thresholds but not 80%, this intersection is in the gray area where removal of the traffic signal should be considered. However, under 2045 conditions, this intersection meets 80% of the traffic signal warrant volume thresholds, which means the existing signal control is considered justified.

Under existing and 2045 conditions, the intersection of CSAH 48 at Lincoln Avenue does not meet the volume thresholds for Signal Warrant 1 (8 hour). However, volume thresholds are met for Signal Warrant 2 (4 hour) under 2045 conditions, which indicates that there may be a need for a traffic control change in the future as traffic volumes continue to grow from the existing conditions.

Table 5 provides the all-way stop and traffic signal warrant summary for the 2021 existing and 2045 future volume conditions. Complete all-way stop and traffic signal analysis can be found in **Appendix A**.

Table 5 – Warrant Analysis Results

Intersection	2019 Existing		2045 Future Demands	
TH 19 at:	All-way Stop Warrant	Signal Warrant 1 (8 Hour Volume)	All-way Stop Warrant	Signal Warrant 1 (8 Hour Volume)
Oak Avenue (Traffic Signal)	**Met** **14 of 8 hours**	**Met** **10 of 8 hours**	**Met** **15 of 8 hours**	**Met** **11 of 8 hours**
W Park Square (Traffic Signal)	Not Met 2 of 8 hours	Not Met[2] 0 of 8 hours	Not Met 7 of 8 hours	Not Met[2] 3 of 8 hours
Cedar Avenue (Minor Street Stop)	Not Met 0 of 8 hours	Not Met 0 of 8 hours	Not Met 0 of 8 hours	Not Met 0 of 8 hours
E Park Square[4] (No Control)	n/a	Not Met 0 of 8 hours	n/a	Not Met 0 of 8 hours
Court Avenue[4] (No Control)	n/a	Not Met 0 of 8 hours	n/a	Not Met 0 of 8 hours
Elm Avenue (Traffic Signal)	**Met** **11 of 8 hours**	Not Met[2] 0 of 8 hours	**Met** **12 of 8 hours**	Not Met[2] 2 of 8 hours
Grove Avenue (Traffic Signal)	**Met** **11 of 8 hours**	Not Met[2] 1 of 8 hours	**Met** **13 of 8 hours**	Not Met[1] 5 of 8 hours
Lincoln Avenue (All-way Stop)	**Met** **10 of 8 hours**	Not Met 1 of 8 hours	**Met** **11 of 8 hours**	Not Met 5 of 8 hours
Chambers Avenue (Minor Street Stop)	Not Met 0 of 8 hours	Not Met 0 of 8 hours	Not Met 0 of 8 hours	Not Met 0 of 8 hours

Notes:

1. Existing signal that does meet the 80 percent volume threshold for Warrant 1.
2. Existing signal that does meet the 60 percent volume threshold, but not the 80 percent threshold for Warrant 1.
3. Existing signal that does not meet the 60 percent volume threshold for Warrant 1.
4. One-way departing roadway; Intersection analyzed with major left turn movement as minor approach

4.3 Safety Analysis

Future crash estimates were prepared by applying existing and MnDOT statewide average (5-year) crash rates to the 2045 projected traffic volumes for the study intersections in each alternative.

The following crash rates were utilized in this analysis:

- No Build estimates are based on the existing crash rates described in **Section 2**.
- The MnDOT statewide average crash rate for urban minor street stop-controlled intersections is 0.18 crashes per million entering vehicles (MEV).
- Signalized intersection rates are based on the MnDOT statewide average crash rates for:
  - Low speed (<45 mph), low volume (<15,000 vpd on highest volume leg) signalized intersections; the average crash rate is 0.52 crashes per MEV.
- Roundabout crash estimation was done using MnDOT's *A Study of the Traffic Safety at Roundabouts in Minnesota*; the study concluded the following:

  - Single-lane roundabouts have a crash rate of 0.32 crashes per MEV.
  - Hybrid (2x1) roundabouts have a crash rate of 0.76 crashes per MEV.
- For reduced conflict intersections like ¾ access or right-in/right-out (RI/RO) the MnDOT statewide average crash rate for "other" intersection types was used; the average crash rate is 0.15 crashes per MEV.
- If an intersection is going to maintain the same signal control but will be improved in some way (improved geometry, FYA, signage, etc.) the intersection would be expected to have a crash rate close to the statewide average.

Table 6 shows the projected number of total annual crashes at the nine study intersections for each control type for the forecast 2045 traffic conditions.

Table 6 – 2045 Estimated Crashes by Control Type

CSAH 48 at:	Crash Estimate[1]	Total Annual Crash Estimate by Control Type[2]			
	No Build	Minor Stop	All-Way Stop	Traffic Signal	Roundabout[3]
Oak Ave	8.7	1.8	3.5	5.2	7.6
W Park Square	1.5	1.0	1.9	2.8	1.7
Cedar Ave	0.5	0.9	1.8	2.6	1.6
E Park Square	0.3	0.8	1.5	2.1	1.3
Court Ave	0.5	0.7	1.3	2.0	1.2
Elm Ave	1.5	1.0	2.0	2.9	1.8
Grove Ave	5.5	1.1	2.1	3.0	1.9
Lincoln Ave	2.5	0.9	1.6	2.4	1.5
Chambers Ave	0.5	0.6	1.1	1.6	1.0

1 Existing Intersection Crash Rate (2017 to 2021; 5-year data) used to calculate No Build estimate.

2 MnDOT Statewide Average Crash Rates (2015 5-year data; latest published) used to calculate control options.

3 Single lane roundabout at all intersections except Oak Avenue, which would require a hybrid design (2x1).

The existing traffic signal control at Oak Avenue and Grove Avenue have a higher crash rate than the average for a similar traffic signal. All other intersections have a calculated crash rate that is below the average crash rate for the existing control type.

With the exception of the hybrid roundabout at Oak Avenue, single lane roundabouts are expected to have fewer total crashes and would significantly reduce the crash severity at the existing signalized or all-way stop controlled intersections. At Oak Avenue, the hybrid design roundabout option would be expected to incur more crashes than an average traffic signal.

4.4 Traffic Operations

Traffic operations analyses for the existing conditions and forecast 2045 traffic operations were conducted to determine the level of service (LOS), delay, and queueing information for the AM and PM peak hour conditions of each potential control type.

LOS is a qualitative rating system used to describe the efficiency of traffic operations at an intersection. Six LOS levels are defined, designated by letters A through F. LOS A represents the

best operating conditions (no congestion), and LOS F represents the worst operating conditions (severe congestion).

LOS for intersections is determined by the average control delay per vehicle. The range of control delay for each LOS is different for signalized and unsignalized intersections (including roundabouts). The expectation is that a signalized intersection is designed to carry higher traffic volumes and will experience greater delays than an unsignalized intersection; driver tolerance for delay is greater at a signal than a stop sign. Therefore, LOS thresholds for each LOS category are lower for unsignalized intersections than for signalized intersections.

Table 7 shows the LOS thresholds for signalized and unsignalized control. For this study it was assumed that a LOS D or better, for all approaches and the overall intersection, represent acceptable operating conditions.

Table 7 – Level of Service Thresholds

Level of Service	Average Control Delay (sec/veh)	
	Signalized Intersection	Unsignalized (Stop or Roundabout) Intersection
A	0 to 10	0 to 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

The traffic operations analyses were conducted using the Synchro (Version 11) software package, which utilizes the Highway Capacity Manual calculations; no microsimulations were conducted as part of this study. Synchro 11 calculations more accurately matched traffic operations along the corridor based on field observations and a delay study at the intersection of Main Street at Lincoln Avenue. **Appendix B** includes all relevant operational reports.

4.4.1 Existing Conditions

Many of the existing intersections operate acceptably in both the AM and PM peak hours.

In the AM peak hour, the recent intersection control change at Lincoln Avenue to an all-way stop has delays issues in the morning peak due to the high directional traffic patterns and limited turn lanes at the intersection. In the morning, the westbound approach has the highest overall volume in a single shared use lane compared to the other three intersection approaches, and thus incurs the highest overall delays and longest queues. Under existing conditions, there are long delays and queues during for 15-20 minutes just before the nearby High School begins. With the High School moving in 2024, the 15-minute peaks on Main Street during school arrival and dismissal are expected to be lower.

In the PM peak hour, all intersections operate at a LOS C or better. At Grove Avenue, the northbound approach does operate at a LOS E due to the shared left-through lanes on the minor street approaches. **Table 8** presents the existing traffic operations for the AM and PM peak hours.

Table 8 – Existing Traffic Operations

CSAH 48 at:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
Oak Ave (Signal)	EB	21.8 / C	25.6 / C	24.6 / C	30.1 / C
	WB	30.5 / C		27.5 / C	
	NB	21.2 / C		30.7 / C	
	SB	34.4 / C		39.1 / D	
W Park Sq. (Signal)	EB	3.8 / A	8.5 / A	4.0 / A	11.5 / B
	WB	1.9 / A		8.7 / A	
	SB	28.3 / C		30.6 / C	
Cedar Ave (minor stop)	EB	0.0 / A	2.3 / A	0.0 / A	2.5 / A
	WB	2.2 / A		1.4 / A	
	NB	12.3 / B		13.3 / B	
E Park Sq. (no control)	EB	2.3 / A	1.3 / A	1.8 / A	1.1 / A
	WB	0.0 / A		0.0 / A	
Court Ave (no control)	EB	0.0 / A	0.1 / A	0.0 / A	0.0 / A
	WB	0.1 / A		0.1 / A	
Elm Ave (Signal)	EB	11.9 / B	20.1 / C	11.5 / B	19.5 / B
	WB	15.0 / B		13.5 / B	
	NB	23.4 / C		37.7 / D	
	SB	34.1 / C		33.6 / C	
Grove Ave (Signal)	EB	9.8 / A	16.0 / B	6.7 / A	21.9 / C
	WB	10.3 / B		6.0 / A	
	NB	18.7 / B		**57.9 / E**	
	SB	22.0 / C		34.4 / C	
Lincoln Ave (all-way stop)	EB	15.4 / C	**50.7 / F**	14.3 / B	14.9 / B
	WB	**78.8 / F**		16.1 / C	
	NB	**42.7 / E**		15.3 / C	
	SB	**40.6 / E**		13.9 / B	
Chambers Ave (minor stop)	EB	2.4 / A	5.1 / A	2.1 / A	3.8 / A
	WB	0.2 / A		0.1 / A	
	NB	16.7 / C		17.3 / C	
	SB	15.5 / C		14.0 / B	

4.4.2 2045 Future No Build Conditions

With increased traffic volumes under the future 2045 conditions, delays at all intersections have increased; however, many intersections are still expected to operate acceptably.

In the AM peak hour, Lincoln Avenue as an all-way stop has increased delays issues in the morning peak due to the high directional traffic patterns and limited turn lanes at the intersection. Due to the removal of the peak 15-minute high school arrival demand at the intersection, the

northbound and southbound approaches will see a slight improvement; overall intersection LOS is worse than existing.

In the PM peak hour, all intersections are expected to operate at a LOS D or better. At Grove Avenue, the northbound approach is still expected to operate at a LOS E due to the shared left-through lanes on the minor street approaches.

Table 9 presents the 2045 No Build traffic operations for the AM and PM peak hours.

Table 9 – Future 2045 No Build Traffic Operations

CSAH 48 at:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
Oak Ave (Signal)	EB	21.5 / C	28.3 / C	36.0 / D	39.6 / D
	WB	32.7 / C		33.8 / C	
	NB	25.1 / C		39.0 / D	
	SB	38.8 / D		50.5 / D	
W Park Sq. (Signal)	EB	3.9 / A	7.8 / A	4.9 / A	9.7 / A
	WB	2.8 / A		2.5 / A	
	SB	25.7 / C		29.7 / C	
Cedar Ave (minor stop)	EB	0.0 / A	2.6 / A	0.0 / A	3.1 / A
	WB	2.4 / A		1.7 / A	
	NB	13.9 / B		16.3 / C	
E Park Sq. (no control)	EB	2.0 / A	1.0 / A	2.2 / A	1.3 / A
	WB	0.0 / A		0.0 / A	
Court Ave (no control)	EB	0.0 / A	0.1 / A	0.0 / A	0.1 / A
	WB	0.1 / A		0.3 / A	
Elm Ave (Signal)	EB	8.4 / A	19.4 / C	8.9 / A	20.5 / C
	WB	15.1 / B		16.2 / B	
	NB	25.8 / C		41.4 / D	
	SB	35.2 / D		37.6 / D	
Grove Ave (Signal)	EB	7.0 / A	14.9 / B	9.1 / A	24.2 / C
	WB	8.8 / A		7.9 / A	
	NB	21.2 / C		**64.8 / E**	
	SB	22.7 / C		33.5 / C	
Lincoln Ave (all-way stop)	EB	15.7 / C	**58.6 / F**	24.7 / C	26.8 / D
	WB	**109.3 / F**		32.7 / D	
	NB	26.1 / D		27.3 / D	
	SB	31.0 / D		21.8 / C	
Chambers Ave (minor stop)	EB	2.7 / A	7.2 / A	2.2 / A	4.7 / A
	WB	0.2 / A		0.1 / A	
	NB	21.1 / C		23.6 / C	
	SB	21.1 / C		18.4 / C	

4.4.3 Intersection Control Options

Based on the existing and future 2045 traffic volumes and intersection operations, some of the study intersections warrant a traffic control change. Based on the traffic control warrant analysis, some of the study intersections justify evaluation of all-way stop control, traffic signal control, and roundabout control as future control options.

To improve corridor safety and accessibility for all modes of travel, CSAH 48 is planned to have an overall reduction in travel lanes between Oak Avenue and Elm Avenue. The current roadway is a 4-lane undivided facility between the intersections, the proposed 3-lane design will include a single through lane in each direction and a Two Way Center Left Turn Lane (TWCLTL). Between Elm Avenue and Chamber Avenue, the existing 2-lane undivided roadway is proposed to include a TWCLTL as well.

This proposed “Base” condition, 3-lane roadway between Oak Avenue and Chambers Avenue was evaluated under the existing traffic control as well as all viable traffic control alternatives at each intersection.

In addition to the operational results, discussion with the Project Management Team (PMT) about the results and impacts of each alternative was considered.

4.4.3.1 CSAH 48 at Oak Avenue

The existing traffic signal control at the Oak Avenue intersection operates well but has a crash rate that is higher than the critical crash rate; the intersection meets all control warrants.

Control options evaluated for this study intersection included retaining the traffic signal control and providing roundabout control. All-way stop control was not considered at this intersection due to the existing signal and the high daily volumes on both Main Street and Oak Avenue.

The existing traffic signal control is expected to continue to operate acceptably through 2045. The proposed base build condition would reconfigure the east leg of the intersection for better lane alignments and extending the westbound left turn lane. The inclusion of Flashing Yellow Arrows (FYA) is recommended to improve the overall safety of the intersection.

A single lane roundabout was evaluated at the intersection but resulted in failing traffic operations. Therefore, a hybrid roundabout design was considered to serve the intersection demands. Based on the traffic volumes, CSAH 48 would remain two-lanes through the roundabout and Oak Avenue would have single lane approaches.

It should be noted that the existing signal at Oak Avenue was installed in 1982 with minor revisions in 1991 and 2022 and is approximately 41 years old and at the end of its useful life. This signal should be replaced prior to any operational or geometric improvements are made to the intersection.

Table 10 presents the traffic operations for the control options evaluated at the Oak Avenue intersection.

Table 10 – 2045 CSAH 48 at Oak Avenue Options

Control Option:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
Traffic Signal (Base Build)	EB	21.5 / C	28.3 / C	36.0 / D	39.9 / D
	WB	32.7 / C		34.9 / C	
	NB	25.1 / C		39.0 / D	
	SB	38.8 / D		50.5 / D	
Single Lane Roundabout	EB	14.0 / B	17.3 / C	**117.2 / F**	**64.2 / E**
	WB	23.3 / C		**36.2 / E**	
	NB	16.5 / C		**44.7 / E**	
	SB	15.4 / C		**40.5 / E**	
Hybrid Roundabout (2 EB/WB lanes)	EB	6.8 / A	10.1 / B	12.7 / B	17.8 / C
	WB	8.9 / A		10.3 / B	
	NB	13.0 / B		25.2 / D	
	SB	11.7 / B		23.3 / C	

While the hybrid roundabout design does provide the best overall traffic operations, the multi-lane design is expected to have a higher crash frequency than the traffic signal alternative. Additionally, the hybrid design requires a larger construction footprint that would have significant right-of-way impacts to the adjacent buildings abutting CSAH 48.

Therefore, the only viable traffic control option for the Oak Avenue intersection is traffic signal control; inclusion of FYA on all approaches and restriping of the east leg is expected to improve the overall safety of the intersection.

4.4.3.2 CSAH 48 at West Park Square

The existing traffic signal control is expected to operate acceptably through 2045. The existing and future intersection volumes do not meet the all-way stop warrants and are in the “gray area” for traffic signal warrants; the gray area indicates the control could potentially be removed.

Control options evaluated for this study intersection included retaining the traffic signal control and converting to a minor street stop-controlled intersection. All-way stop and roundabout control are not warranted at this intersection.

Table 11 presents the traffic operations for the control options evaluated at the West Park Square intersection.

Table 11 – 2045 CSAH 48 at West Park Square Options

Control Option:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
Traffic Signal (Base Build)	EB	5.2 / A	9.2 / A	8.5 / A	11.9 / B
	WB	4.8 / A		3.9 / A	
	SB	25.8 / C		30.1 / C	
Minor Stop Control	EB	0.0 / A	2.7 / A	0.0 / A	4.0 / A
	WB	0.0 / A		0.0 / A	
	SB	13.6 / B		17.7 / C	

Both control options have acceptable operations, but the minor street stop control is expected to have lower overall intersection delays. The CSAH 48 mainline traffic would no longer be controlled with no eastbound/westbound turns at the intersection; the southbound approach has improved delays as traffic can enter CSAH 48 with any gap in traffic and no longer has to wait for the signal to switch phases.

4.4.3.3 CSAH 48 at Cedar Avenue

The existing minor street stop control is expected to operate acceptably through 2045. The existing and future intersection volumes do not meet the all-way stop or traffic signal warrants. Therefore, only the existing minor street stop control was evaluated with the proposed 3-lane configuration along Main Street.

Table 12 presents the traffic operations for the control options evaluated at the Cedar Avenue intersection.

Table 12 – 2045 CSAH 48 at Cedar Avenue Options

Control Option:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
Minor Street Stop (Base Build)	EB	0.0 / A	2.4 / A	0.0 / A	3.4 / A
	WB	2.1 / A		1.3 / A	
	NB	13.6 / B		19.4 / C	

4.4.3.4 CSAH 48 at East Park Square

The existing intersection has no control with only a departing minor roadway at the intersection, the current intersection is expected to operate acceptably through 2045. The existing and future intersection volumes do not meet the all-way stop warrants or traffic signal warrants.

Table 13 presents the traffic operations for the control options evaluated at the East Park Square intersection.

Table 13 – 2045 CSAH 48 at East Park Square Options

Control Option:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
No Control (Base Build)	EB	1.6 / A	0.8 / A	1.6 / A	0.9 / A
	WB	0.0 / A		0.0 / A	

4.4.3.5 CSAH 48 at Court Avenue

The existing intersection has no control with only a departing minor roadway at the intersection, the current intersection is expected to operate acceptably through 2045. The existing and future intersection volumes do not meet the all-way stop warrants or traffic signal warrants.

The intersection currently has very low volumes utilizing the Court Avenue departing leg; less than 100 vehicles per day use the roadway. The intersection currently has a pedestrian flashing beacon on the east leg that is heavily used by Federated Insurance employees. The pedestrian flashing beacon is proposed to be upgraded to include a Rectangular Rapid Flashing Beacon (RRFB). Due to the low volume, it is proposed to close the Court Avenue intersection to provide a pedestrian median refuge island on the east leg. The proposed pedestrian refuge island and RRFB system will increase pedestrian visibility at the intersection and allow pedestrians to cross CSAH 48 one direction and one lane at a time, increasing pedestrian safety at the intersection.

Table 14 presents the traffic operations for the control options evaluated at the Court Avenue intersection; intersection closure is not shown as there are no delays because vehicles would only be able to travel eastbound and westbound through the intersection.

Table 14 – 2045 CSAH 48 at Court Avenue Options

Control Option:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
No Control (Base Build)	EB	0.0 / A	0.1 / A	0.0 / A	0.1 / A
	WB	0.1 / A		0.2 / A	

While the existing intersection is expected to operate acceptably, closure of the intersection has negligible impacts to vehicle operations along the corridor, but a substantial benefit to pedestrians crossing CSAH 48.

4.4.3.6 CSAH 48 at Elm Avenue

The existing traffic signal control at the Elm Avenue intersection is expected to operate well through 2045. The existing and future intersection volumes meet the all-way stop warrants and are in the “gray area” for traffic signal warrants; the gray area indicates the control could potentially be removed.

Control options evaluated for this study intersection included retaining the traffic signal control, all-way stop control, minor stop control, and providing roundabout control.

The existing traffic signal control is expected to continue to operate acceptably through 2045. Under minor street stop control, the Elm Avenue approaches would operate at a LOS F and the high volume of pedestrians on the west leg of the intersection would have trouble crossing CSAH 48. Under all-way stop control, the CSAH 48 approaches have significant delays and the intersection would operate at a LOS F. Under single lane roundabout control, the intersection would operate at LOS A for all approaches.

Table 15 presents the traffic operations for the control options evaluated at the Elm Avenue intersection.

Table 15 – 2045 CSAH 48 at Elm Avenue Options

Control Option:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
Traffic Signal (Base Build)	EB	10.3 / B	21.3 / C	10.5 / B	21.8 / C
	WB	19.5 / B		17.7 / B	
	NB	25.8 / C		42.0 / D	
	SB	35.2 / D		38.4 / D	
Minor Stop Control	EB	1.3 / A	**65.8 / F**	2.0 / A	**211.7 / F**
	WB	0.9 / A		0.5 / A	
	NB	**231.9 / F**		**>300 / F**	
	SB	**82.2 / F**		**>300 / F**	
All Way Stop Control	EB	32.8 / D	32.3 / D	**108.8 / F**	**79.1 / F**
	WB	**47.6 / E**		**100.7 / F**	
	NB	18.5 / C		20.7 / C	
	SB	22.2 / C		18.9 / C	
Single Lane Roundabout	EB	7.6 / A	8.5 / A	9.8 / A	9.2 / A
	WB	9.8 / A		9.2 / A	
	NB	7.2 / A		9.5 / A	
	SB	8.9 / A		6.9 / A	

Traffic signal control and roundabout control are the only two viable control options for this study intersection. The existing signal control has a crash rate that is less than the single lane roundabout. A single lane roundabout would also have right-of-way impacts; therefore, based on discussion with the PMT, the signal control is recommended.

4.4.3.7 CSAH 48 at Grove Avenue

The existing traffic signal control at the Grove Avenue intersection is expected to generally operate well through 2045; the existing crash rate does exceed the critical crash rate. The existing and future intersection volumes meet the all-way stop warrants and meet the 80% criteria for traffic signal warrants.

Control options evaluated for this study intersection included retaining the traffic signal control, all-way stop control, minor stop control, and providing roundabout control.

The existing traffic signal control is expected to continue to operate acceptably through 2045, except for the northbound approach in the PM peak hour due to the shared through/left turn lane. Under minor street stop control, the Grove Avenue approaches would operate with significant delays at a LOS F. Under all-way stop control, the CSAH 48 approaches have poor operations and the intersection would operate at LOS E. Under single lane roundabout control, the intersection would operate at LOS A and all approaches at LOS B or better.

Table 16 presents the traffic operations for the control options evaluated at the Grove Avenue intersection.

Table 16 – 2045 CSAH 48 at Grove Avenue Options

Control Option:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
Traffic Signal (Base Build)	EB	6.4 / A	15.6 / B	6.9 / A	25.8 / C
	WB	11.8 / B		9.2 / A	
	NB	21.2 / C		**76.1 / E**	
	SB	22.7 / C		34.8 / C	
Minor Stop Control	EB	3.0 / A	**78.4 / F**	2.4 / A	**>300 / F**
	WB	0.3 / A		0.3 / A	
	NB	**>300 / F**		**>300 / F**	
	SB	**>300 / F**		**>300 / F**	
All Way Stop Control	EB	19.5 / C	29.6 / D	**63.0 / F**	**43.2 / E**
	WB	**44.2 / E**		**44.7 / E**	
	NB	18.7 / C		26.0 / D	
	SB	30.4 / D		24.3 / C	
Single Lane Roundabout	EB	8.0 / A	9.1 / A	9.5 / A	8.4 / A
	WB	8.9 / A		7.6 / A	
	NB	5.9 / A		7.9 / A	
	SB	11.1 / B		7.6 / A	

To improve traffic operations under signal control, the northbound and southbound approaches would likely need to be widened to include dedicated northbound and southbound left turn lanes. A single lane roundabout would also require some widening of the north and south intersection legs but would improve safety and would result in lower overall vehicle delays the intersection. Therefore, based on discussions with the PMT, a single lane roundabout is recommended at this intersection.

4.4.3.8 CSAH 48 at Lincoln Avenue

The existing all-way stop control at the Lincoln Avenue intersection is expected to operate acceptably have degrading operations through 2045. The existing and future intersection volumes meet the all-way stop warrants but does not meet the traffic signal warrants.

Control options evaluated for this study intersection included retaining the all-way stop control, minor stop control, and providing roundabout control.

The existing intersection at Lincoln Avenue has some alignment issues where the CSAH 48 approaches and Lincoln Avenue approaches are offset from one another and through vehicles must do a lane shift through the intersection. The offset along Lincoln Avenue could be realigned but it would require a shift of the roadway north of CSAH 48. If the intersection control remains all-way stop control, shifting Lincoln Avenue would not be necessary as each vehicle would need to stop at the intersection. However, if the intersection were changed to roundabout control, Lincoln Avenue would be shifted to improve the through route along Lincoln Avenue.

The existing all-way stop control is expected to continue to operate acceptably once the High School moves in 2024 but will have degrading operations through 2045. Under minor street stop control, the Lincoln Avenue approaches would operate with significant delays at a LOS F. Under single lane roundabout control, the intersection would operate at LOS A and all approaches at LOS B or better.

Table 17 presents the traffic operations for the control options evaluated at the Lincoln Avenue intersection.

Table 17 – 2045 CSAH 48 at Lincoln Avenue Options

Control Option:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
All Way Stop Control (Base Build)	EB	18.0 / C	34.9 / D	**77.0 / F**	**44.6 / E**
	WB	**48.3 / E**		28.7 / D	
	NB	26.0 / D		30.3 / D	
	SB	31.1 / D		23.8 / C	
Minor Stop Control	EB	0.6 / A	**>300 / F**	0.3 / A	**91.8 / F**
	WB	1.7 / A		1.0 / A	
	NB	**>300 / F**		**216.9 / F**	
	SB	**>300 / F**		**239.2 / F**	
Single Lane Roundabout	EB	6.2 / A	8.5 / A	8.0 / A	6.9 / A
	WB	9.8 / A		6.0 / A	
	NB	6.2 / A		7.0 / A	
	SB	10.1 / B		5.9 / A	

4.4.3.8.1 Lincoln Avenue All-way Stop Capacity Analysis

Based on observations of the intersection of CSAH 48 at Lincoln Avenue, the existing all-way stop control has minimal delay and queuing issues except for the 15-minutes right before and after the nearby High School starts and ends. When the High School moves in 2024, it is expected that those 15-minute peaks in traffic demands will lessen, and the intersection is expected to overall perform acceptably during the AM and PM peak hours. However, as traffic volumes continue to grow through the 2045 design year, operations at the all-way stop are expected to degrade and the intersection may require a traffic control change.

An iterative capacity analysis of the all-way stop control at the intersection was performed to estimate how long the all-way stop could provide acceptable traffic operations and when the intersection may need to be upgraded to a single lane roundabout. Intersection demands were

grown linearly at 1% growth per year except for the south leg, which was not grown to account for the removal of school volumes. This is the same growth rate used for the rest of the analysis for CSAH 48.

Analysis of the all-way stop with the proposed 3-lane section on CSAH 48 were completed for 2025 (year after school moves) and 2045 (design year) as well as iteratively to determine when the first approach would operate at LOS E and LOS F, which were estimated to be 2032 and 2038, respectively.

In 2025 once the school moves, the intersection is expected to operate acceptably with LOS C during the AM and PM peak hour with each approach operating at LOS D or better. Based on the forecast traffic growth along CSAH 48, the eastbound approach would operate at LOS E in the PM peak hour starting in 2032 but the intersection would operate at LOS C. The eastbound approach would be expected to operate at LOS F in the PM peak hour in 2038, with the intersection operating at LOS D. As was discussed previously, by 2045 the eastbound approach will operate at LOS F during the PM peak hour with the intersection operating at LOS E.

Table 18 presents the traffic operations for the CSAH 48 at Lincoln Avenue all-way stop capacity analysis based on forecast traffic volumes in 2025, 2033, 2040, and 2045.

Table 18 – 2045 CSAH 48 at Lincoln Avenue All-way Stop Capacity Analysis

Year	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
2025	EB	15.2 / B	22.0 / C	25.7 / D	19.6 / C
	WB	24.6 / C		16.7 / C	
	NB	21.4 / C		17.2 / C	
	SB	22.6 / C		15.4 / C	
2032 (First approach at LOS E)	EB	16.0 / C	25.4 / D	**36.0 / E**	25.2 / D
	WB	30.6 / D		20.1 / C	
	NB	22.8 / C		20.7 / C	
	SB	25.3 / D		17.9 / C	
2038 (First approach at LOS F)	EB	16.9 / C	28.8 / D	**50.0 / F**	32.3 / D
	WB	**36.8 / E**		23.9 / C	
	NB	24.1 / C		24.5 / C	
	SB	27.4 / D		20.4 / C	
2045	EB	18.0 / C	34.9 / D	**77.0 / F**	**44.6 / E**
	WB	**48.3 / E**		28.7 / D	
	NB	26.0 / D		30.3 / D	
	SB	31.1 / D		23.8 / C	

Based on the capacity analysis of the all-way stop control at Lincoln Avenue, it is expected that the all-way stop control will provide acceptable traffic operations for the next 10-15 years after the High School moves in 2024 and the 15-minute peak traffic demands lessen. It is still possible that there will be peak times of the day where there are longer delays and queues, but the

intersection is expected to function well overall. Based on this finding, it is recommended that the intersection of CSAH 48 at Lincoln Avenue remain all-way stop controlled at this time. This means that the north leg of Lincoln Avenue does not need to be shifted to align with the south leg at this time because all vehicles are required to stop. This intersection should continue to be monitored after the High School moves in 2024 and as traffic volumes continue to grow to determine when an intersection capacity improvement may be needed, at which point a single-lane roundabout would be recommended.

4.4.3.9 CSAH 48 at Chambers Avenue

The existing minor street stop control is expected to operate acceptably through 2045. The existing and future intersection volumes do not meet the all-way stop warrants or traffic signal warrants. Therefore, only the existing minor street stop control was evaluated.

The existing intersection at Chambers Avenue has some alignment issues where the Chambers Avenue approaches are offset from one another and through vehicles must do a lane shift through the intersection. It is proposed that the alignment of Chambers Avenue north of CSAH 48 be fixed as part of this project to improve the operations of the intersection.

Table 19 presents the traffic operations for the control options evaluated at the Chambers Avenue intersection.

Table 19 – 2045 CSAH 48 at Chambers Avenue Options

Control Option:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
Minor Street Stop (Base Build)	EB	2.7 / A	7.2 / A	2.2 / A	4.7 / A
	WB	0.2 / A		0.1 / A	
	NB	20.9 / C		23.2 / C	
	SB	20.9 / C		18.1 / C	

4.4.4 Proposed Build Traffic Operations

Based on the traffic control analysis of each intersection individually, the proposed build improvements are listed below. A full preliminary layout for the proposed build conditions can be found in **Appendix C**.

- Convert CSAH 48 to a 3-lane roadway with a continuous two-way left turn lane (TWLTL) between Oak Avenue and Chambers Avenue
- CSAH 48 at Oak Avenue remains signalized with restriping on the east leg to create a longer westbound left turn lane and create more defined lane assignments
  - Flashing yellow arrow (FYA) added to the intersection to improve safety
- CSAH 48 at W Park Square converted to minor stop control
  - The north leg could be reconstructed to eliminate the median between the turn lanes
  - A pedestrian refuge island could be considered on the west leg to improve pedestrian safety at the uncontrolled crossing; the east leg pedestrian crossing could be removed
- CSAH 48 at Cedar Avenue remains minor stop controlled
- CSAH 48 at E Park Square remains uncontrolled
- Court Avenue access to CSAH 48 is closed to provide a pedestrian refuge island and an RRFB on the east leg of the intersection, which is heavily used by Federated Insurance employees to cross CSAH 48.
- CSAH 48 at Elm Avenue to remain signalized
  - Signal would no longer be coordinated because the W Park Square and Grove Avenue signals are proposed to be removed
- CSAH 48 at Grove Avenue convert to a single lane roundabout
- CSAH 48 at Lincoln Avenue to remain all-way stop for the next 10-15 years until traffic demands require the need for a single-lane roundabout.
- CSAH 48 at Chambers Avenue remains minor stop controlled
  - Realign the north leg of the intersection so that the two Chambers Avenue approaches align with one another

Based on the existing crash rates, the nine study intersections are estimated to have 21.5 crashes per year in 2045 under No Build conditions. With the above proposed improvements, the Build conditions are expected to have 12.4 crashes per year in 2045, which is a 42% reduction in crashes along the corridor.

The above proposed improvements along CSAH 48 are expected to provide acceptable traffic operations at all study intersections through the 2045 design year. **Table 20** presents the traffic operations for the proposed 2045 Build conditions. It should be noted that the 2045 Build conditions operations analysis included a single lane roundabout at Lincoln Avenue because that is the long-term solution at the intersection. The green highlighted intersections show where traffic control changes are recommended.

Table 20 – Future 2045 No Build Traffic Operations

CSAH 48 at:	Approach	AM Peak Hour		PM Peak Hour	
		Approach (delay / LOS)	Intersection (delay / LOS)	Approach (delay / LOS)	Intersection (delay / LOS)
Oak Ave (Signal)	EB	21.5 / C	28.3 / C	36.0 / D	39.9 / D
	WB	32.7 / C		34.9 / C	
	NB	25.1 C		39.0 / D	
	SB	38.8 / D		50.5 / D	
W Park Sq. (minor stop)	EB	0.0 / A	2.7 / A	0.0 / A	4.0 / A
	WB	0.0 / A		0.0 / A	
	SB	13.6 / B		17.7 / B	
Cedar Ave (minor stop)	EB	0.0 / A	2.4 / A	0.0 / A	3.4 / A
	WB	2.1 / A		1.3 / A	
	NB	13.5 / B		19.7 / C	
E Park Sq. (no control)	EB	1.6 / A	0.8 / A	1.6 / A	0.9 / A
	WB	0.0 / A		0.0 / A	
Court Ave (CLOSED)					
Elm Ave (Signal)	EB	15.4 / B	23.0 / C	14.8 / B	23.6 / C
	WB	29.9 / C		30.1 / C	
	NB	19.8 / B		29.8 / C	
	SB	26.6 / C		27.5 / C	
Grove Ave (single lane roundabout)	EB	8.0 / A	9.1 / A	9.5 / A	8.4 / A
	WB	8.9 / A		7.6 / A	
	NB	5.9 / A		7.9 / A	
	SB	11.1 / B		7.6 / A	
Lincoln Ave (single lane roundabout)	EB	6.2 / A	8.5 / A	8.0 / A	6.9 / A
	WB	9.8 / A		6.0 / A	
	NB	6.2 / A		7.0 / A	
	SB	10.1 / B		5.9 / A	
Chambers Ave (minor stop)	EB	2.7 / A	7.2 / A	2.2 / A	4.7 / A
	WB	0.2 / A		0.1 / A	
	NB	20.9 / C		23.2 / C	
	SB	20.9 / C		18.1 / C	

5 Other Considerations

In addition to traffic operations along the corridor, pedestrian safety and parking demands were also considered.

5.1 Pedestrian Considerations

CSAH 48 in the project area runs through downtown Owatonna from Oak Avenue to Elm Avenue. Within the downtown area, there are many businesses that generate consistent pedestrian activity along CSAH 48 throughout the year. One of the more significant pedestrian generators in the area is Federated Insurance, which has an office on the north side of CSAH 48 just west of Elm Avenue with most of their employee parking on the south side of CSAH 48. This results in a significant number of pedestrians crossing CSAH 48 using the pedestrian beacon at Court Avenue and the signalized intersection at Elm Avenue.

Many of the existing sidewalks are aging and the pedestrian curb ramps along the corridor are not American Disabilities Act (ADA) compliant, which makes navigating the corridor as a pedestrian or bicyclist difficult currently. As part of this project, it is anticipated that all sidewalks and pedestrian curb ramps will be upgraded so that they are ADA compliant.

The current pedestrian flashing beacon is proposed to be replaced by a Rectangular Rapid Flashing Beacon (RRFB) to improve pedestrian visibility and safety at the crossing on the east side of Court Avenue. In addition to the RRFB, it is proposed that the Court Avenue access at CSAH 48 be closed and a pedestrian refuge island be constructed on the east side of Court Avenue to increase pedestrian visibility and allow pedestrians to cross one direction of CSAH 48 at a time.

Other pedestrian enhancements considered along the corridor include:

- Restriping CSAH 48 as a 3-lane roadway between Oak Avenue and Elm Avenue, which shortens the pedestrian crossing distance compared to the existing 4-lane roadway section
- Providing curb bump-outs to shorten pedestrian crossing distances and increase pedestrian visibility and sight lines as they look for a gap in traffic to cross.
- A pedestrian refuge island could be considered on the west leg at West Park Square to improve pedestrian safety at the uncontrolled crossing; the east leg pedestrian crossing could be removed when the signal is removed

5.2 Parking Considerations

There are currently time of day restrictions on parking through the downtown area. Parking is currently prohibited on the south side of CSAH 48 just east of Grove Avenue near the Owatonna Education Center to avoid parent's dropping off their students on the south side of CSAH 48. There is also a bus drop-off/pick-up zone on the north side of CSAH 48 at the Owatonna Education center The no parking on the south side and the bus drop-off/pick-up zone on the north side of CSAH 48 near the Owatonna Education Center are proposed to remain in place. However, there are expected to be changes to parking elsewhere along the corridor.

West of Grove Avenue, there are proposed 10' parking bays created by curb bump-outs that will serve to better separate the drive lanes from the parking stalls. Time of day restrictions in the downtown area are expected to continue. From Grove Avenue to Lincoln Avenue, it is proposed that there will be marked parking stalls on the south side of the roadway only so that the roadway can be restriped as a 3-lane road. East of Lincoln Avenue, all on-street parking would be eliminated when CSAH 48 is restriped as a 3-lane roadway.

Table 21 compares the existing and proposed parking spaces along CSAH 48 from Oak Avenue to Chambers Avenue. There are currently 153 parking spaces along CSAH 48, the proposed layout reduces the number of parking spaces to 83. However, only 3 of the eliminated parking spaces are located west of Grove Avenue in the downtown area where parking demand is higher. Most of the eliminated parking spaces are east of Grove Avenue in the residential areas, which currently has low parking demand.

Table 21 – Existing vs. Proposed Parking Spaces

Area	CSAH 48 Section	Existing Spaces	Proposed Spaces	Difference
Downtown	Oak Ave to W Park Square	25	21	-4
	W Park Square to Elm Ave	23	24	1
	Elm Ave to Grove Ave	22	22	0
Residential	Grove Ave to Lincoln Ave	35	16	-19
	Lincoln Ave to Chambers Ave	48	0	-48
Downtown Area		70	67	-3
Residential Area		83	16	-67
Total		**153**	**83**	**-70**

6 Conclusions

Based on the warrant analysis and existing traffic operations analysis, most of the existing intersections along CSAH 48 between Oak Avenue and Chambers Avenue are expected to operate acceptably through the 2045 design year. All of the existing minor stop controlled, and uncontrolled intersections are expected to operate acceptably through the 2045 design year and do not have traffic demands that meet all-way or traffic signal warrants.

The following operational issues are expected under 2045 No Build conditions:

- The northbound approach to the Grove St signal is expected to operate at LOS E due to the shared through/left turn lanes on the minor street approaches
- The all-way stop control at the Lincoln Avenue intersection is expected to be over capacity and have operational issues by 2045, even with the nearby High School expected to relocate in 2024 and change traffic patterns in the area

As part of the reconstruction/restriping project, CSAH 48 will be restriped as a 3-lane roadway with a Two Way Center Left Turn Lane (TWCLTL). All build alternatives were analyzed with the 3-lane section on CSAH 48 between Oak Avenue and Chambers Avenue.

Different traffic control alternatives were considered at each intersection based on warrant analysis, 2045 traffic operations, safety, pedestrian considerations, and right-of-way impacts. Below is a summary of each intersection and the alternatives analyzed.

Oak Avenue

- Intersection meets all-way stop and traffic signal warrants
- Existing signal has a crash issue
- Traffic control alternatives analyzed:
  - Traffic signal with restriped east leg for 3-lane CSAH 48 section – operates acceptably; FYA could be added to improve overall safety
  - Single lane roundabout – operates at LOS E during the PM peak hour
  - Hybrid Roundabout with 2 through lanes EB/WB – operates acceptably but has significant right-of-way impacts

West Park Square

- Intersection does not meet all-way stop warrants and is in the “gray area” for signal removal
- Traffic control alternatives analyzed:
  - Traffic signal – operates acceptably
  - Minor stop control – operates acceptably with less overall delay than the existing signal

Cedar Avenue

- Intersection does not meet all-way stop or signal warrants
- Existing minor stop control operates acceptably and should be maintained

E Park Square

- Intersection does not meet all-way stop or signal warrants
- Currently there is no intersection control because E Park Square is one-way departing CSAH 48; this control should be maintained

Court Avenue

- Intersection does not meet all-way stop or signal warrants
- Currently there is no intersection control because Court Avenue is one-way departing CSAH 48
- Court Avenue currently serves less than 100 vehicles per day and the pedestrian beacon crossing on the east leg is heavily used by Federated Insurance employees throughout the day
- Court Avenue access to CSAH 48 could be closed to improve the pedestrian crossing at the intersection and provide a pedestrian refuge island on the east leg of the intersection, increasing pedestrian visibility and allowing pedestrians to cross one direction of CSAH 48 traffic at a time

Elm Avenue

- Intersection meets all-way stop warrants and is in the “gray area” for signal removal
- Traffic control alternatives analyzed:
  - Traffic signal – operates acceptably
  - Minor stop control – Elm Avenue approaches operate at LOS E during the PM peak hour
  - All-way stop control – operates at LOS F during the PM peak hour
  - Single lane roundabout – operates acceptably but has right-of-way impacts

Grove Avenue

- Intersection meets all-way stop warrants and 80% of the volume thresholds for traffic signal warrants
- Existing signal has a crash issue
- Traffic control alternatives analyzed:
  - Traffic signal – operates acceptably but has higher delays northbound during the PM peak hour due to the shared through/left turn lanes on Grove Avenue; would likely require roadway expansion/restriping to provide a northbound and southbound left turn lane
  - Minor stop control – Grove Avenue approaches operate at LOS F during the PM peak hour
  - All-way stop control – eastbound approach operates at LOS E during the PM peak hour
  - Single lane roundabout – operates acceptably

Lincoln Avenue

- Intersection meets all-way stop warrants but not signal warrants
- Current all-way stop has delay and queuing issues during the 15-minute arrival and dismissal peaks for the High School, which will be relocated in 2024
- Traffic control alternatives analyzed:
  - All-way stop control – based on capacity analysis could operate acceptably for the next 10-15 years before intersection operations degrade
  - Minor stop control – Lincoln Avenue approaches and the intersection operate at LOS F during the AM peak hour
  - Single lane roundabout – operates acceptably

Chambers Avenue

- Intersection does not meet all-way stop or signal warrants
- Existing minor stop control operates acceptably and should be maintained
- North leg of the intersection should be realigned to line up with the south leg

6.1 Recommendations

Based on the traffic control analysis of each intersection individually, the proposed build improvements are listed below. A full preliminary layout for the proposed build conditions can be found in **Appendix C**.

- Convert CSAH 48 to a 3-lane roadway with a continuous two-way left turn lane (TWLTL) between Oak Avenue and Chambers Avenue
- Curb bump-outs to shorten pedestrian crossing distances and increase pedestrian visibility and sight lines as they look for a gap in traffic to cross.
- CSAH 48 at Oak Avenue remains signalized with restriping on the east leg to create a longer westbound left turn lane and create more defined lane assignments
  - Flashing yellow arrow (FYA) added to the intersection to improve safety
- CSAH 48 at W Park Square converted to minor stop control
  - The north leg could be reconstructed to eliminate the median between the turn lanes
  - A pedestrian refuge island could be considered on the west leg to improve pedestrian safety at the uncontrolled crossing; the east leg pedestrian crossing could be removed
- CSAH 48 at Cedar Avenue remains minor stop controlled
- CSAH 48 at E Park Square remains uncontrolled
- Court Avenue access to CSAH 48 is closed to provide a pedestrian refuge island and an RRFB on the east leg of the intersection, which is heavily used by Federated Insurance employees to cross CSAH 48.
- CSAH 48 at Elm Avenue to remains signalized
  - Signal would no longer be coordinated because the W Park Square and Grove Avenue signals are proposed to be removed
- CSAH 48 at Grove Avenue converted to a single lane roundabout
- CSAH 48 at Lincoln Avenue to remain all-way stop for the next 10-15 years until traffic demands require the need for a single-lane roundabout.

  - Realign CSAH 48 to fix the existing alignment issues for CSAH 48 through vehicles
- CSAH 48 at Chambers Avenue remains minor stop controlled
  - Realign the north leg of the intersection so that the two Chambers Avenue approaches align with one another

Appendix A

Traffic Control Warrants

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A1a

2021 Existing - CSAH 48 at Oak Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Oak Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	3	6162
30	Major App3:	CSAH 48 WB	3	4584
30	Minor App2:	Oak Ave NB	3	5818
30	Minor App4:	Oak Ave SB	2	4721

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement
300 **200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	20	9	11	11	29	22	NO / NO
1:00 - 2:00	18	1	4	5	19	9	NO / NO
2:00 - 3:00	13	12	4	14	25	18	NO / NO
3:00 - 4:00	10	18	15	9	28	24	NO / NO
4:00 - 5:00	19	78	70	25	97	95	NO / NO
5:00 - 6:00	64	127	129	47	191	176	NO / NO
6:00 - 7:00	166	179	215	105	345	320	**YES / YES**
7:00 - 8:00	382	300	405	208	682	613	**YES / YES**
8:00 - 9:00	271	281	318	220	552	538	**YES / YES**
9:00 - 10:00	235	227	306	233	462	539	**YES / YES**
10:00 - 11:00	337	273	344	291	610	635	**YES / YES**
11:00 - 12:00	434	310	425	333	744	758	**YES / YES**
12:00 - 13:00	432	324	455	417	756	872	**YES / YES**
13:00 - 14:00	417	306	411	327	723	738	**YES / YES**
14:00 - 15:00	493	410	459	375	903	834	**YES / YES**
15:00 - 16:00	615	359	478	432	974	910	**YES / YES**
16:00 - 17:00	620	421	514	468	1041	982	**YES / YES**
17:00 - 18:00	552	300	450	427	852	877	**YES / YES**
18:00 - 19:00	427	215	282	245	642	527	**YES / YES**
19:00 - 20:00	262	170	208	225	432	433	**YES / YES**
20:00 - 21:00	169	122	145	118	291	263	NO / YES
21:00 - 22:00	92	77	106	102	169	208	NO / YES
22:00 - 23:00	66	40	44	54	106	98	NO / NO
23:00 - 24:00	48	25	20	30	73	50	NO / NO
Daily	**6162**	**4584**	**5818**	**4721**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**14**	**8**

All-way Stop Warrant: **Satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A1b

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2021 Existing - CSAH 48 at Oak Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Oak Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	6162
30	Major App3:	CSAH 48 WB	3	4584
30	Minor App2:	Oak Ave NB	3	5411
30	Minor App4:	Oak Ave SB	2	4311

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	200	100	160

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	20	9	11	10	29	11	NO / NO	NO / NO	NO / NO
1:00 - 2:00	18	1	4	5	19	5	NO / NO	NO / NO	NO / NO
2:00 - 3:00	13	12	4	12	25	12	NO / NO	NO / NO	NO / NO
3:00 - 4:00	10	18	15	9	28	15	NO / NO	NO / NO	NO / NO
4:00 - 5:00	19	78	66	17	97	66	NO / NO	NO / NO	NO / NO
5:00 - 6:00	64	127	127	42	191	127	NO / NO	NO / YES	NO / NO
6:00 - 7:00	166	179	205	91	345	205	NO / YES	NO / YES	NO / YES
7:00 - 8:00	382	300	370	192	682	370	**YES / YES**	NO / YES	NO / YES
8:00 - 9:00	271	281	301	199	552	301	NO / YES	NO / YES	NO / YES
9:00 - 10:00	235	227	286	208	462	286	NO / YES	NO / YES	NO / YES
10:00 - 11:00	337	273	322	266	610	322	**YES / YES**	NO / YES	NO / YES
11:00 - 12:00	434	310	399	304	744	399	**YES / YES**	NO / YES	**YES / YES**
12:00 - 13:00	432	324	426	369	756	426	**YES / YES**	NO / YES	**YES / YES**
13:00 - 14:00	417	306	370	302	723	370	**YES / YES**	NO / YES	**YES / YES**
14:00 - 15:00	493	410	421	355	903	421	**YES / YES**	**YES / YES**	**YES / YES**
15:00 - 16:00	615	359	438	402	974	438	**YES / YES**	**YES / YES**	**YES / YES**
16:00 - 17:00	620	421	483	437	1041	483	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	552	300	417	396	852	417	**YES / YES**	NO / YES	**YES / YES**
18:00 - 19:00	427	215	266	221	642	266	**YES / YES**	NO / YES	NO / YES
19:00 - 20:00	262	170	190	196	432	196	NO / NO	NO / YES	NO / YES
20:00 - 21:00	169	122	137	109	291	137	NO / NO	NO / YES	NO / NO
21:00 - 22:00	92	77	94	89	169	94	NO / NO	NO / NO	NO / NO
22:00 - 23:00	66	40	42	52	106	52	NO / NO	NO / NO	NO / NO
23:00 - 24:00	48	25	17	28	73	28	NO / NO	NO / NO	NO / NO
Daily	**6162**	**4584**	**5411**	**4311**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	**10**	8	**Satisfied**
Warrant 1A	Minimum Vehicular Volume	**10**	8	**Satisfied**
Warrant 1B	Interruption of Continuous Flow	3	8	Not satisfied
1A & 1B	Combination of Warrants	7	8	Not satisfied
Warrant 2	**Four Hour Volumes**	**8**	4	**Satisfied**
Warrant 3	**Peak Hour Volumes**	**2**	1	**Satisfied**
Warrant 7	**Crash Experience**	**11**	8	Crashes Insufficient

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A1c

2021 Existing - CSAH 48 at Oak Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Oak Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	6162
30	Major App3:	CSAH 48 WB	3	4584
30	Minor App2:	Oak Ave NB	3	5411
30	Minor App4:	Oak Ave SB	2	4311

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

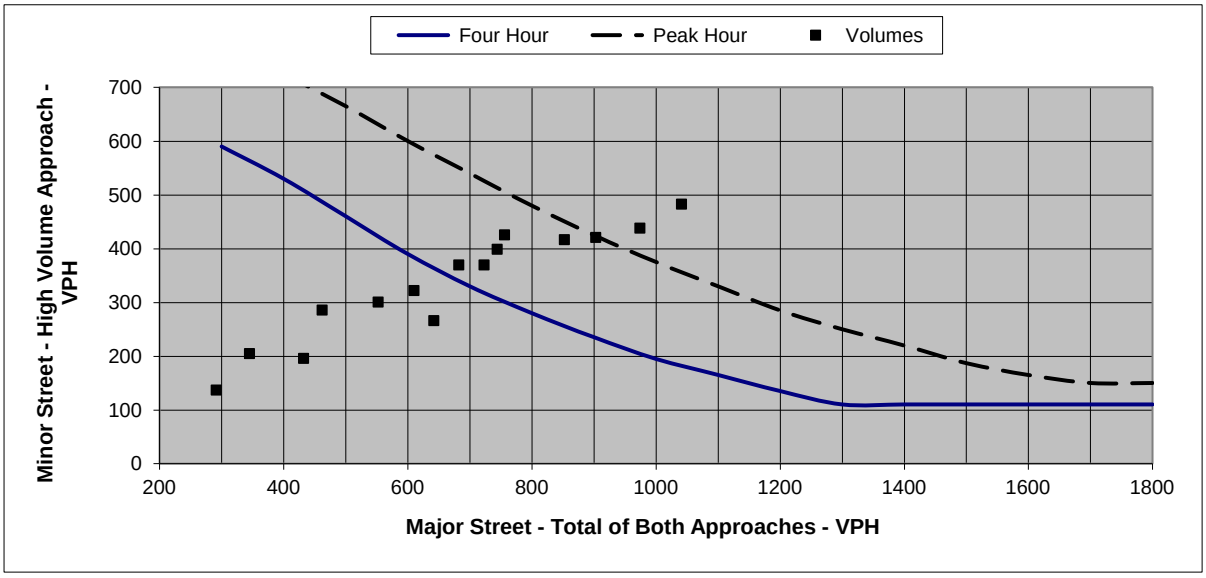


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	590	
400	530	725
500	460	665
600	390	600
700	330	540
800	280	480
900	235	425
1000	195	375
1100	165	330
1200	135	285
1300	110	250
1400	110	220
1500	110	187
1600	110	165
1700	110	150
1800	110	150

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	29	11	NO	NO
1:00 - 2:00	19	5	NO	NO
2:00 - 3:00	25	12	NO	NO
3:00 - 4:00	28	15	NO	NO
4:00 - 5:00	97	66	NO	NO
5:00 - 6:00	191	127	NO	NO
6:00 - 7:00	345	205	NO	NO
7:00 - 8:00	682	370	**YES**	NO
8:00 - 9:00	552	301	NO	NO
9:00 - 10:00	462	286	NO	NO
10:00 - 11:00	610	322	NO	NO
11:00 - 12:00	744	399	**YES**	NO
12:00 - 13:00	756	426	**YES**	NO
13:00 - 14:00	723	370	**YES**	NO
14:00 - 15:00	903	421	**YES**	NO
15:00 - 16:00	974	438	**YES**	**YES**
16:00 - 17:00	1041	483	**YES**	**YES**
17:00 - 18:00	852	417	**YES**	NO
18:00 - 19:00	642	266	NO	NO
19:00 - 20:00	432	196	NO	NO
20:00 - 21:00	291	137	NO	NO
21:00 - 22:00	169	94	NO	NO
22:00 - 23:00	106	52	NO	NO
23:00 - 24:00	73	28	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A1d

2045 Future - CSAH 48 at Oak Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Oak Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	3	7637
30	Major App3:	CSAH 48 WB	3	5681
30	Minor App2:	Oak Ave NB	3	7217
30	Minor App4:	Oak Ave SB	2	5846

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement
300 **200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	25	11	14	14	36	28	NO / NO
1:00 - 2:00	22	1	5	5	23	10	NO / NO
2:00 - 3:00	15	15	4	17	30	21	NO / NO
3:00 - 4:00	11	21	17	10	32	27	NO / NO
4:00 - 5:00	23	97	87	31	120	118	NO / NO
5:00 - 6:00	80	157	160	58	237	218	NO / YES
6:00 - 7:00	206	222	267	130	428	397	**YES / YES**
7:00 - 8:00	473	372	502	257	845	759	**YES / YES**
8:00 - 9:00	337	349	394	273	686	667	**YES / YES**
9:00 - 10:00	291	281	380	289	572	669	**YES / YES**
10:00 - 11:00	418	339	427	361	757	788	**YES / YES**
11:00 - 12:00	539	384	527	413	923	940	**YES / YES**
12:00 - 13:00	536	401	564	516	937	1080	**YES / YES**
13:00 - 14:00	516	379	510	405	895	915	**YES / YES**
14:00 - 15:00	611	509	569	465	1120	1034	**YES / YES**
15:00 - 16:00	763	444	593	535	1207	1128	**YES / YES**
16:00 - 17:00	769	522	638	580	1291	1218	**YES / YES**
17:00 - 18:00	684	372	559	530	1056	1089	**YES / YES**
18:00 - 19:00	530	267	350	303	797	653	**YES / YES**
19:00 - 20:00	325	211	259	279	536	538	**YES / YES**
20:00 - 21:00	209	150	181	146	359	327	**YES / YES**
21:00 - 22:00	113	96	131	126	209	257	NO / YES
22:00 - 23:00	81	50	55	67	131	122	NO / NO
23:00 - 24:00	60	31	24	36	91	60	NO / NO
Daily	**7637**	**5681**	**7217**	**5846**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**15**	**8**

All-way Stop Warrant: **Satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A1e

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2045 Future - CSAH 48 at Oak Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Oak Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	7637
30	Major App3:	CSAH 48 WB	3	5681
30	Minor App2:	Oak Ave NB	3	6714
30	Minor App4:	Oak Ave SB	2	5343

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	200	100	160

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	25	11	14	12	36	14	NO / NO	NO / NO	NO / NO
1:00 - 2:00	22	1	5	5	23	5	NO / NO	NO / NO	NO / NO
2:00 - 3:00	15	15	4	14	30	14	NO / NO	NO / NO	NO / NO
3:00 - 4:00	11	21	17	10	32	17	NO / NO	NO / NO	NO / NO
4:00 - 5:00	23	97	82	20	120	82	NO / NO	NO / NO	NO / NO
5:00 - 6:00	80	157	158	52	237	158	NO / NO	NO / YES	NO / NO
6:00 - 7:00	206	222	254	113	428	254	NO / YES	NO / YES	NO / YES
7:00 - 8:00	473	372	459	238	845	459	**YES / YES**	NO / YES	**YES / YES**
8:00 - 9:00	337	349	373	247	686	373	**YES / YES**	NO / YES	NO / YES
9:00 - 10:00	291	281	355	258	572	355	NO / YES	NO / YES	NO / YES
10:00 - 11:00	418	339	400	330	757	400	**YES / YES**	NO / YES	**YES / YES**
11:00 - 12:00	539	384	495	377	923	495	**YES / YES**	**YES / YES**	**YES / YES**
12:00 - 13:00	536	401	529	458	937	529	**YES / YES**	**YES / YES**	**YES / YES**
13:00 - 14:00	516	379	459	374	895	459	**YES / YES**	NO / YES	**YES / YES**
14:00 - 15:00	611	509	523	440	1120	523	**YES / YES**	**YES / YES**	**YES / YES**
15:00 - 16:00	763	444	543	499	1207	543	**YES / YES**	**YES / YES**	**YES / YES**
16:00 - 17:00	769	522	599	543	1291	599	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	684	372	518	491	1056	518	**YES / YES**	**YES / YES**	**YES / YES**
18:00 - 19:00	530	267	330	275	797	330	**YES / YES**	NO / YES	**YES / YES**
19:00 - 20:00	325	211	236	243	536	243	NO / YES	NO / YES	NO / YES
20:00 - 21:00	209	150	170	134	359	170	NO / NO	NO / YES	NO / YES
21:00 - 22:00	113	96	118	111	209	118	NO / NO	NO / YES	NO / NO
22:00 - 23:00	81	50	52	65	131	65	NO / NO	NO / NO	NO / NO
23:00 - 24:00	60	31	21	34	91	34	NO / NO	NO / NO	NO / NO
Daily	**7637**	**5681**	**6714**	**5343**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	**11**	8	**Satisfied**
Warrant 1A	Minimum Vehicular Volume	**11**	8	**Satisfied**
Warrant 1B	Interruption of Continuous Flow	6	8	Not satisfied
1A & 1B	Combination of Warrants	**10**	8	**Satisfied**
Warrant 2	**Four Hour Volumes**	**11**	4	**Satisfied**
Warrant 3	**Peak Hour Volumes**	**8**	1	**Satisfied**
Warrant 7	**Crash Experience**	**13**	8	Crashes Insufficient

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A1f

2045 Future - CSAH 48 at Oak Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Oak Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	7637
30	Major App3:	CSAH 48 WB	3	5681
30	Minor App2:	Oak Ave NB	3	6714
30	Minor App4:	Oak Ave SB	2	5343

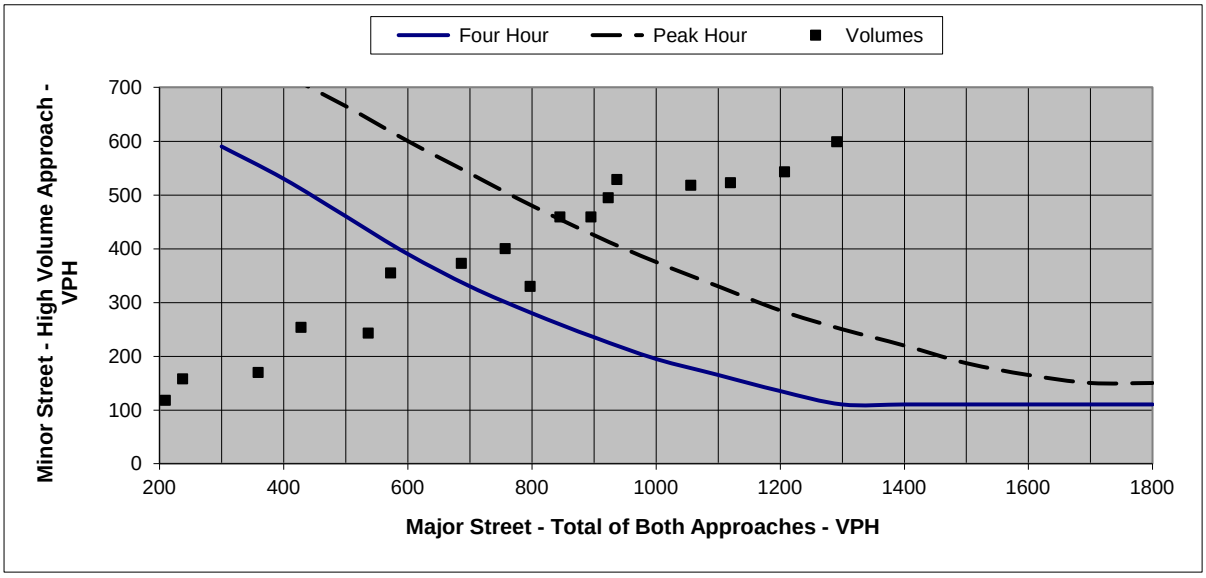


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	590	
400	530	725
500	460	665
600	390	600
700	330	540
800	280	480
900	235	425
1000	195	375
1100	165	330
1200	135	285
1300	110	250
1400	110	220
1500	110	187
1600	110	165
1700	110	150
1800	110	150

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	36	14	NO	NO
1:00 - 2:00	23	5	NO	NO
2:00 - 3:00	30	14	NO	NO
3:00 - 4:00	32	17	NO	NO
4:00 - 5:00	120	82	NO	NO
5:00 - 6:00	237	158	NO	NO
6:00 - 7:00	428	254	NO	NO
7:00 - 8:00	845	459	**YES**	**YES**
8:00 - 9:00	686	373	**YES**	NO
9:00 - 10:00	572	355	NO	NO
10:00 - 11:00	757	400	**YES**	NO
11:00 - 12:00	923	495	**YES**	**YES**
12:00 - 13:00	937	529	**YES**	**YES**
13:00 - 14:00	895	459	**YES**	**YES**
14:00 - 15:00	1120	523	**YES**	**YES**
15:00 - 16:00	1207	543	**YES**	**YES**
16:00 - 17:00	1291	599	**YES**	**YES**
17:00 - 18:00	1056	518	**YES**	**YES**
18:00 - 19:00	797	330	**YES**	NO
19:00 - 20:00	536	243	NO	NO
20:00 - 21:00	359	170	NO	NO
21:00 - 22:00	209	118	NO	NO
22:00 - 23:00	131	65	NO	NO
23:00 - 24:00	91	34	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A2a

2021 Existing - CSAH 48 at W Park Square
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	2	4106
30	Major App3:	CSAH 48 WB	2	3606
30	Minor App2:	W Park Square SB	2	2071
30	Minor App4:	N/A	0	0

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement	
300	**200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	17	7	2	0	24	2	NO / NO
1:00 - 2:00	11	1	1	0	12	1	NO / NO
2:00 - 3:00	17	11	1	0	28	1	NO / NO
3:00 - 4:00	6	18	1	0	24	1	NO / NO
4:00 - 5:00	20	77	1	0	97	1	NO / NO
5:00 - 6:00	36	124	6	0	160	6	NO / NO
6:00 - 7:00	118	162	37	0	280	37	NO / NO
7:00 - 8:00	253	251	116	0	504	116	YES / NO
8:00 - 9:00	178	237	93	0	415	93	YES / NO
9:00 - 10:00	161	179	101	0	340	101	YES / NO
10:00 - 11:00	236	214	132	0	450	132	YES / NO
11:00 - 12:00	263	216	174	0	479	174	YES / NO
12:00 - 13:00	259	226	206	0	485	206	**YES / YES**
13:00 - 14:00	288	224	168	0	512	168	YES / NO
14:00 - 15:00	333	328	179	0	661	179	YES / NO
15:00 - 16:00	385	274	182	0	659	182	YES / NO
16:00 - 17:00	431	320	208	0	751	208	**YES / YES**
17:00 - 18:00	365	215	181	0	580	181	YES / NO
18:00 - 19:00	254	172	117	0	426	117	YES / NO
19:00 - 20:00	184	120	80	0	304	80	YES / NO
20:00 - 21:00	123	103	48	0	226	48	NO / NO
21:00 - 22:00	91	65	24	0	156	24	NO / NO
22:00 - 23:00	45	39	5	0	84	5	NO / NO
23:00 - 24:00	32	23	8	0	55	8	NO / NO
Daily	**4106**	**3606**	**2071**	**0**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**2**	**8**

All-way Stop Warrant: **Not satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A2b

2021 Existing - CSAH 48 at W Park Square
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	4106
30	Major App3:	CSAH 48 WB	2	3606
30	Minor App2:	W Park Square SB	1	1093
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	17	7	0	0	24	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	11	1	1	0	12	1	NO / NO	NO / NO	NO / NO
2:00 - 3:00	17	11	0	0	28	0	NO / NO	NO / NO	NO / NO
3:00 - 4:00	6	18	1	0	24	1	NO / NO	NO / NO	NO / NO
4:00 - 5:00	20	77	0	0	97	0	NO / NO	NO / NO	NO / NO
5:00 - 6:00	36	124	3	0	160	3	NO / NO	NO / NO	NO / NO
6:00 - 7:00	118	162	20	0	280	20	NO / NO	NO / NO	NO / NO
7:00 - 8:00	253	251	67	0	504	67	NO / NO	NO / NO	NO / NO
8:00 - 9:00	178	237	49	0	415	49	NO / NO	NO / NO	NO / NO
9:00 - 10:00	161	179	53	0	340	53	NO / NO	NO / NO	NO / NO
10:00 - 11:00	236	214	73	0	450	73	NO / NO	NO / NO	NO / NO
11:00 - 12:00	263	216	80	0	479	80	NO / NO	NO / YES	NO / NO
12:00 - 13:00	259	226	108	0	485	108	NO / NO	NO / YES	NO / NO
13:00 - 14:00	288	224	86	0	512	86	NO / NO	NO / YES	NO / NO
14:00 - 15:00	333	328	97	0	661	97	YES / NO	NO / YES	NO / NO
15:00 - 16:00	385	274	97	0	659	97	YES / NO	NO / YES	NO / NO
16:00 - 17:00	431	320	107	0	751	107	YES / NO	NO / YES	YES / NO
17:00 - 18:00	365	215	96	0	580	96	NO / NO	NO / YES	NO / NO
18:00 - 19:00	254	172	74	0	426	74	NO / NO	NO / NO	NO / NO
19:00 - 20:00	184	120	30	0	304	30	NO / NO	NO / NO	NO / NO
20:00 - 21:00	123	103	29	0	226	29	NO / NO	NO / NO	NO / NO
21:00 - 22:00	91	65	12	0	156	12	NO / NO	NO / NO	NO / NO
22:00 - 23:00	45	39	4	0	84	4	NO / NO	NO / NO	NO / NO
23:00 - 24:00	32	23	6	0	55	6	NO / NO	NO / NO	NO / NO
Daily	**4106**	**3606**	**1093**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	1	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A2c

2021 Existing - CSAH 48 at W Park Square
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	4106
30	Major App3:	CSAH 48 WB	2	3606
30	Minor App2:	W Park Square SB	1	1093
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

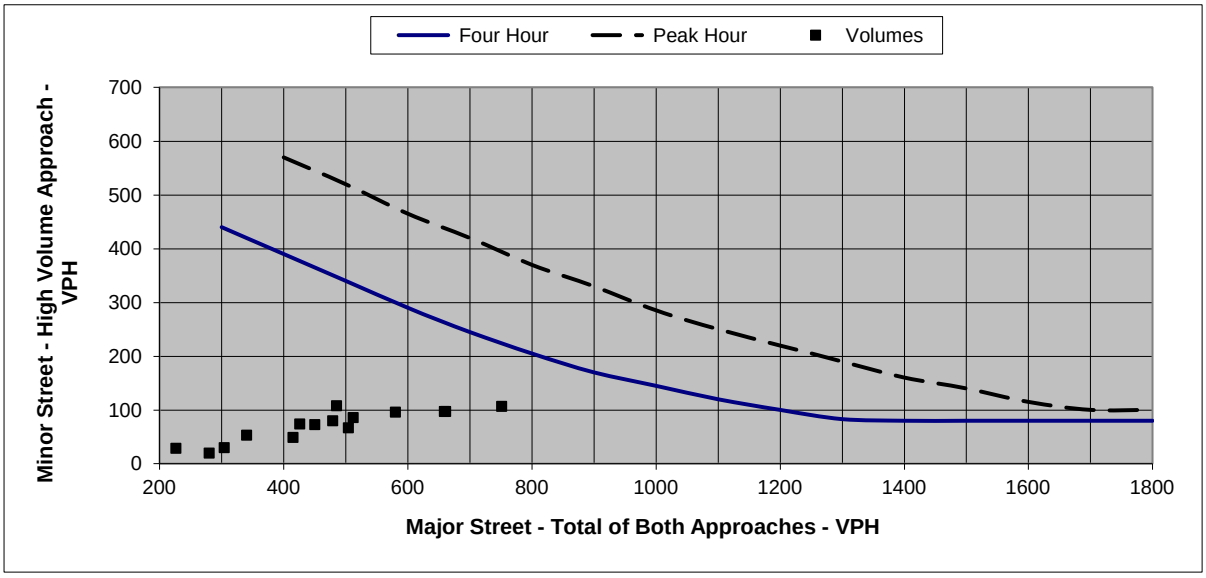


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	24	0	NO	NO
1:00 - 2:00	12	1	NO	NO
2:00 - 3:00	28	0	NO	NO
3:00 - 4:00	24	1	NO	NO
4:00 - 5:00	97	0	NO	NO
5:00 - 6:00	160	3	NO	NO
6:00 - 7:00	280	20	NO	NO
7:00 - 8:00	504	67	NO	NO
8:00 - 9:00	415	49	NO	NO
9:00 - 10:00	340	53	NO	NO
10:00 - 11:00	450	73	NO	NO
11:00 - 12:00	479	80	NO	NO
12:00 - 13:00	485	108	NO	NO
13:00 - 14:00	512	86	NO	NO
14:00 - 15:00	661	97	NO	NO
15:00 - 16:00	659	97	NO	NO
16:00 - 17:00	751	107	NO	NO
17:00 - 18:00	580	96	NO	NO
18:00 - 19:00	426	74	NO	NO
19:00 - 20:00	304	30	NO	NO
20:00 - 21:00	226	29	NO	NO
21:00 - 22:00	156	12	NO	NO
22:00 - 23:00	84	4	NO	NO
23:00 - 24:00	55	6	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A2d

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2021 Existing - CSAH 48 at W Park Square
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 80% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	4106
30	Major App3:	CSAH 48 WB	2	3606
30	Minor App2:	W Park Square SB	1	1093
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

80%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	480	720	576
Minor Approach	120	60	96

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	17	7	0	0	24	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	11	1	1	0	12	1	NO / NO	NO / NO	NO / NO
2:00 - 3:00	17	11	0	0	28	0	NO / NO	NO / NO	NO / NO
3:00 - 4:00	6	18	1	0	24	1	NO / NO	NO / NO	NO / NO
4:00 - 5:00	20	77	0	0	97	0	NO / NO	NO / NO	NO / NO
5:00 - 6:00	36	124	3	0	160	3	NO / NO	NO / NO	NO / NO
6:00 - 7:00	118	162	20	0	280	20	NO / NO	NO / NO	NO / NO
7:00 - 8:00	253	251	67	0	504	67	YES / NO	NO / YES	NO / NO
8:00 - 9:00	178	237	49	0	415	49	NO / NO	NO / NO	NO / NO
9:00 - 10:00	161	179	53	0	340	53	NO / NO	NO / NO	NO / NO
10:00 - 11:00	236	214	73	0	450	73	NO / NO	NO / YES	NO / NO
11:00 - 12:00	263	216	80	0	479	80	NO / NO	NO / YES	NO / NO
12:00 - 13:00	259	226	108	0	485	108	YES / NO	NO / YES	NO / YES
13:00 - 14:00	288	224	86	0	512	86	YES / NO	NO / YES	NO / NO
14:00 - 15:00	333	328	97	0	661	97	YES / NO	NO / YES	**YES / YES**
15:00 - 16:00	385	274	97	0	659	97	YES / NO	NO / YES	**YES / YES**
16:00 - 17:00	431	320	107	0	751	107	YES / NO	**YES / YES**	**YES / YES**
17:00 - 18:00	365	215	96	0	580	96	YES / NO	NO / YES	**YES / YES**
18:00 - 19:00	254	172	74	0	426	74	NO / NO	NO / YES	NO / NO
19:00 - 20:00	184	120	30	0	304	30	NO / NO	NO / NO	NO / NO
20:00 - 21:00	123	103	29	0	226	29	NO / NO	NO / NO	NO / NO
21:00 - 22:00	91	65	12	0	156	12	NO / NO	NO / NO	NO / NO
22:00 - 23:00	45	39	4	0	84	4	NO / NO	NO / NO	NO / NO
23:00 - 24:00	32	23	6	0	55	6	NO / NO	NO / NO	NO / NO
Daily	**4106**	**3606**	**1093**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	4	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	1	8	Not satisfied
1A & 1B	Combination of Warrants	4	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A2e

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2021 Existing - CSAH 48 at W Park Square
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 60% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	4106
30	Major App3:	CSAH 48 WB	2	3606
30	Minor App2:	W Park Square SB	1	1093
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

60%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	360	540	432
Minor Approach	90	45	72

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	17	7	0	0	24	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	11	1	1	0	12	1	NO / NO	NO / NO	NO / NO
2:00 - 3:00	17	11	0	0	28	0	NO / NO	NO / NO	NO / NO
3:00 - 4:00	6	18	1	0	24	1	NO / NO	NO / NO	NO / NO
4:00 - 5:00	20	77	0	0	97	0	NO / NO	NO / NO	NO / NO
5:00 - 6:00	36	124	3	0	160	3	NO / NO	NO / NO	NO / NO
6:00 - 7:00	118	162	20	0	280	20	NO / NO	NO / NO	NO / NO
7:00 - 8:00	253	251	67	0	504	67	YES / NO	NO / YES	YES / NO
8:00 - 9:00	178	237	49	0	415	49	YES / NO	NO / YES	NO / NO
9:00 - 10:00	161	179	53	0	340	53	NO / NO	NO / YES	NO / NO
10:00 - 11:00	236	214	73	0	450	73	YES / NO	NO / YES	**YES / YES**
11:00 - 12:00	263	216	80	0	479	80	YES / NO	NO / YES	**YES / YES**
12:00 - 13:00	259	226	108	0	485	108	**YES / YES**	NO / YES	**YES / YES**
13:00 - 14:00	288	224	86	0	512	86	YES / NO	NO / YES	**YES / YES**
14:00 - 15:00	333	328	97	0	661	97	**YES / YES**	**YES / YES**	**YES / YES**
15:00 - 16:00	385	274	97	0	659	97	**YES / YES**	**YES / YES**	**YES / YES**
16:00 - 17:00	431	320	107	0	751	107	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	365	215	96	0	580	96	**YES / YES**	**YES / YES**	**YES / YES**
18:00 - 19:00	254	172	74	0	426	74	YES / NO	NO / YES	NO / YES
19:00 - 20:00	184	120	30	0	304	30	NO / NO	NO / NO	NO / NO
20:00 - 21:00	123	103	29	0	226	29	NO / NO	NO / NO	NO / NO
21:00 - 22:00	91	65	12	0	156	12	NO / NO	NO / NO	NO / NO
22:00 - 23:00	45	39	4	0	84	4	NO / NO	NO / NO	NO / NO
23:00 - 24:00	32	23	6	0	55	6	NO / NO	NO / NO	NO / NO
Daily	**4106**	**3606**	**1093**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	**8**	8	**Satisfied**
Warrant 1A	Minimum Vehicular Volume	5	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	4	8	Not satisfied
1A & 1B	Combination of Warrants	**8**	8	**Satisfied**

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A2f

2045 Future - CSAH 48 at W Park Square
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	2	5085
30	Major App3:	CSAH 48 WB	2	4465
30	Minor App2:	W Park Square SB	2	2564
30	Minor App4:	N/A	0	0

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement	
300	**200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	20	8	2	0	28	2	NO / NO
1:00 - 2:00	13	1	1	0	14	1	NO / NO
2:00 - 3:00	20	14	1	0	34	1	NO / NO
3:00 - 4:00	7	21	1	0	28	1	NO / NO
4:00 - 5:00	25	96	1	0	121	1	NO / NO
5:00 - 6:00	44	153	6	0	197	6	NO / NO
6:00 - 7:00	146	201	46	0	347	46	YES / NO
7:00 - 8:00	314	311	145	0	625	145	YES / NO
8:00 - 9:00	221	294	115	0	515	115	YES / NO
9:00 - 10:00	200	222	125	0	422	125	YES / NO
10:00 - 11:00	292	264	163	0	556	163	YES / NO
11:00 - 12:00	325	267	216	0	592	216	**YES / YES**
12:00 - 13:00	321	280	256	0	601	256	**YES / YES**
13:00 - 14:00	358	277	209	0	635	209	**YES / YES**
14:00 - 15:00	413	406	221	0	819	221	**YES / YES**
15:00 - 16:00	478	339	227	0	817	227	**YES / YES**
16:00 - 17:00	534	397	257	0	931	257	**YES / YES**
17:00 - 18:00	452	266	224	0	718	224	**YES / YES**
18:00 - 19:00	315	214	145	0	529	145	YES / NO
19:00 - 20:00	228	149	98	0	377	98	YES / NO
20:00 - 21:00	152	128	60	0	280	60	NO / NO
21:00 - 22:00	112	80	30	0	192	30	NO / NO
22:00 - 23:00	56	48	6	0	104	6	NO / NO
23:00 - 24:00	39	29	9	0	68	9	NO / NO
Daily	**5085**	**4465**	**2564**	**0**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**7**	**8**

All-way Stop Warrant: **Not satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A2g

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2045 Future - CSAH 48 at W Park Square
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	5085
30	Major App3:	CSAH 48 WB	2	4465
30	Minor App2:	W Park Square SB	1	1354
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	20	8	0	0	28	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	13	1	1	0	14	1	NO / NO	NO / NO	NO / NO
2:00 - 3:00	20	14	0	0	34	0	NO / NO	NO / NO	NO / NO
3:00 - 4:00	7	21	1	0	28	1	NO / NO	NO / NO	NO / NO
4:00 - 5:00	25	96	0	0	121	0	NO / NO	NO / NO	NO / NO
5:00 - 6:00	44	153	3	0	197	3	NO / NO	NO / NO	NO / NO
6:00 - 7:00	146	201	24	0	347	24	NO / NO	NO / NO	NO / NO
7:00 - 8:00	314	311	83	0	625	83	YES / NO	NO / YES	NO / NO
8:00 - 9:00	221	294	61	0	515	61	NO / NO	NO / NO	NO / NO
9:00 - 10:00	200	222	66	0	422	66	NO / NO	NO / NO	NO / NO
10:00 - 11:00	292	264	92	0	556	92	NO / NO	NO / YES	NO / NO
11:00 - 12:00	325	267	100	0	592	100	NO / NO	NO / YES	NO / NO
12:00 - 13:00	321	280	134	0	601	134	YES / NO	NO / YES	NO / YES
13:00 - 14:00	358	277	107	0	635	107	YES / NO	NO / YES	NO / NO
14:00 - 15:00	413	406	120	0	819	120	YES / NO	NO / YES	**YES / YES**
15:00 - 16:00	478	339	121	0	817	121	YES / NO	NO / YES	**YES / YES**
16:00 - 17:00	534	397	133	0	931	133	YES / NO	**YES / YES**	**YES / YES**
17:00 - 18:00	452	266	120	0	718	120	YES / NO	NO / YES	NO / YES
18:00 - 19:00	315	214	92	0	529	92	NO / NO	NO / YES	NO / NO
19:00 - 20:00	228	149	36	0	377	36	NO / NO	NO / NO	NO / NO
20:00 - 21:00	152	128	36	0	280	36	NO / NO	NO / NO	NO / NO
21:00 - 22:00	112	80	14	0	192	14	NO / NO	NO / NO	NO / NO
22:00 - 23:00	56	48	4	0	104	4	NO / NO	NO / NO	NO / NO
23:00 - 24:00	39	29	6	0	68	6	NO / NO	NO / NO	NO / NO
Daily	**5085**	**4465**	**1354**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	3	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	1	8	Not satisfied
1A & 1B	Combination of Warrants	3	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	5	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A2h

2045 Future - CSAH 48 at W Park Square
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	5085
30	Major App3:	CSAH 48 WB	2	4465
30	Minor App2:	W Park Square SB	1	1354
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

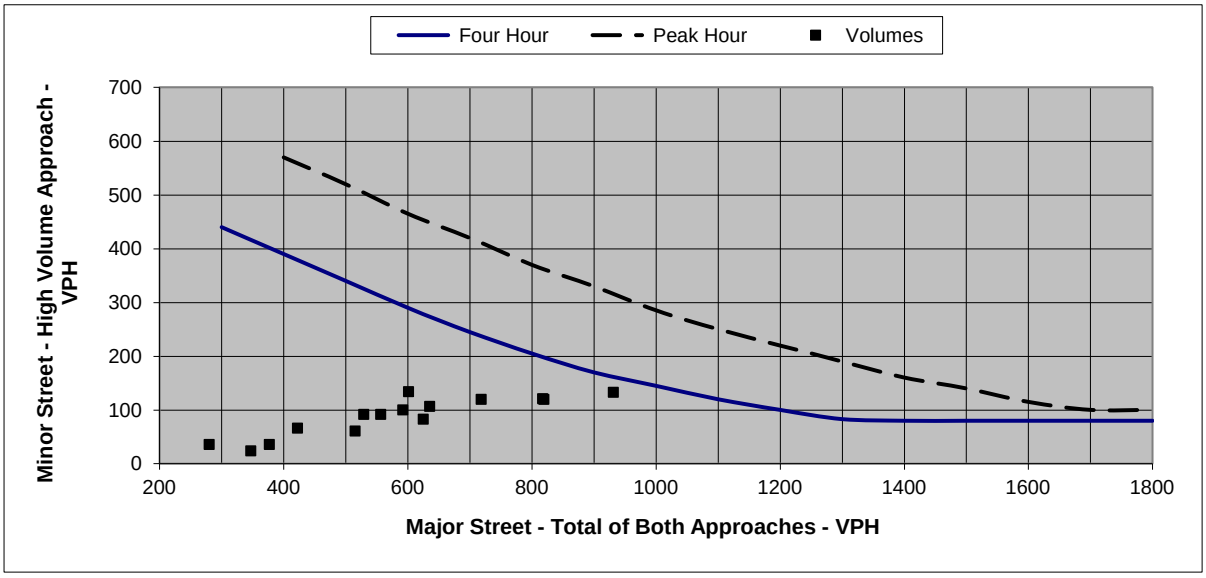


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	28	0	NO	NO
1:00 - 2:00	14	1	NO	NO
2:00 - 3:00	34	0	NO	NO
3:00 - 4:00	28	1	NO	NO
4:00 - 5:00	121	0	NO	NO
5:00 - 6:00	197	3	NO	NO
6:00 - 7:00	347	24	NO	NO
7:00 - 8:00	625	83	NO	NO
8:00 - 9:00	515	61	NO	NO
9:00 - 10:00	422	66	NO	NO
10:00 - 11:00	556	92	NO	NO
11:00 - 12:00	592	100	NO	NO
12:00 - 13:00	601	134	NO	NO
13:00 - 14:00	635	107	NO	NO
14:00 - 15:00	819	120	NO	NO
15:00 - 16:00	817	121	NO	NO
16:00 - 17:00	931	133	NO	NO
17:00 - 18:00	718	120	NO	NO
18:00 - 19:00	529	92	NO	NO
19:00 - 20:00	377	36	NO	NO
20:00 - 21:00	280	36	NO	NO
21:00 - 22:00	192	14	NO	NO
22:00 - 23:00	104	4	NO	NO
23:00 - 24:00	68	6	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A2i

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2045 Future - CSAH 48 at W Park Square
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 80% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	5085
30	Major App3:	CSAH 48 WB	2	4465
30	Minor App2:	W Park Square SB	1	1354
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

80%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	480	720	576
Minor Approach	120	60	96

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	20	8	0	0	28	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	13	1	1	0	14	1	NO / NO	NO / NO	NO / NO
2:00 - 3:00	20	14	0	0	34	0	NO / NO	NO / NO	NO / NO
3:00 - 4:00	7	21	1	0	28	1	NO / NO	NO / NO	NO / NO
4:00 - 5:00	25	96	0	0	121	0	NO / NO	NO / NO	NO / NO
5:00 - 6:00	44	153	3	0	197	3	NO / NO	NO / NO	NO / NO
6:00 - 7:00	146	201	24	0	347	24	NO / NO	NO / NO	NO / NO
7:00 - 8:00	314	311	83	0	625	83	YES / NO	NO / YES	YES / NO
8:00 - 9:00	221	294	61	0	515	61	YES / NO	NO / YES	NO / NO
9:00 - 10:00	200	222	66	0	422	66	NO / NO	NO / YES	NO / NO
10:00 - 11:00	292	264	92	0	556	92	YES / NO	NO / YES	NO / NO
11:00 - 12:00	325	267	100	0	592	100	YES / NO	NO / YES	**YES / YES**
12:00 - 13:00	321	280	134	0	601	134	**YES / YES**	NO / YES	**YES / YES**
13:00 - 14:00	358	277	107	0	635	107	YES / NO	NO / YES	**YES / YES**
14:00 - 15:00	413	406	120	0	819	120	**YES / YES**	**YES / YES**	**YES / YES**
15:00 - 16:00	478	339	121	0	817	121	**YES / YES**	**YES / YES**	**YES / YES**
16:00 - 17:00	534	397	133	0	931	133	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	452	266	120	0	718	120	**YES / YES**	NO / YES	**YES / YES**
18:00 - 19:00	315	214	92	0	529	92	YES / NO	NO / YES	NO / NO
19:00 - 20:00	228	149	36	0	377	36	NO / NO	NO / NO	NO / NO
20:00 - 21:00	152	128	36	0	280	36	NO / NO	NO / NO	NO / NO
21:00 - 22:00	112	80	14	0	192	14	NO / NO	NO / NO	NO / NO
22:00 - 23:00	56	48	4	0	104	4	NO / NO	NO / NO	NO / NO
23:00 - 24:00	39	29	6	0	68	6	NO / NO	NO / NO	NO / NO
Daily	**5085**	**4465**	**1354**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	7	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	5	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	3	8	Not satisfied
1A & 1B	Combination of Warrants	7	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A2j

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2045 Future - CSAH 48 at W Park Square
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 60% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at W Park Square
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	5085
30	Major App3:	CSAH 48 WB	2	4465
30	Minor App2:	W Park Square SB	1	1354
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

60%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	360	540	432
Minor Approach	90	45	72

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	20	8	0	0	28	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	13	1	1	0	14	1	NO / NO	NO / NO	NO / NO
2:00 - 3:00	20	14	0	0	34	0	NO / NO	NO / NO	NO / NO
3:00 - 4:00	7	21	1	0	28	1	NO / NO	NO / NO	NO / NO
4:00 - 5:00	25	96	0	0	121	0	NO / NO	NO / NO	NO / NO
5:00 - 6:00	44	153	3	0	197	3	NO / NO	NO / NO	NO / NO
6:00 - 7:00	146	201	24	0	347	24	NO / NO	NO / NO	NO / NO
7:00 - 8:00	314	311	83	0	625	83	YES / NO	**YES / YES**	**YES / YES**
8:00 - 9:00	221	294	61	0	515	61	YES / NO	NO / YES	YES / NO
9:00 - 10:00	200	222	66	0	422	66	YES / NO	NO / YES	NO / NO
10:00 - 11:00	292	264	92	0	556	92	**YES / YES**	**YES / YES**	**YES / YES**
11:00 - 12:00	325	267	100	0	592	100	**YES / YES**	**YES / YES**	**YES / YES**
12:00 - 13:00	321	280	134	0	601	134	**YES / YES**	**YES / YES**	**YES / YES**
13:00 - 14:00	358	277	107	0	635	107	**YES / YES**	**YES / YES**	**YES / YES**
14:00 - 15:00	413	406	120	0	819	120	**YES / YES**	**YES / YES**	**YES / YES**
15:00 - 16:00	478	339	121	0	817	121	**YES / YES**	**YES / YES**	**YES / YES**
16:00 - 17:00	534	397	133	0	931	133	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	452	266	120	0	718	120	**YES / YES**	**YES / YES**	**YES / YES**
18:00 - 19:00	315	214	92	0	529	92	**YES / YES**	NO / YES	**YES / YES**
19:00 - 20:00	228	149	36	0	377	36	YES / NO	NO / NO	NO / NO
20:00 - 21:00	152	128	36	0	280	36	NO / NO	NO / NO	NO / NO
21:00 - 22:00	112	80	14	0	192	14	NO / NO	NO / NO	NO / NO
22:00 - 23:00	56	48	4	0	104	4	NO / NO	NO / NO	NO / NO
23:00 - 24:00	39	29	6	0	68	6	NO / NO	NO / NO	NO / NO
Daily	**5085**	**4465**	**1354**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	**10**	8	**Satisfied**
Warrant 1A	Minimum Vehicular Volume	**9**	8	**Satisfied**
Warrant 1B	Interruption of Continuous Flow	**9**	8	**Satisfied**
1A & 1B	Combination of Warrants	**10**	8	**Satisfied**

COMMENTS:

Page 4 of 4

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A3a

2021 Existing - CSAH 48 at Cedar Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Cedar Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	2	5199
30	Major App3:	CSAH 48 WB	2	3765
30	Minor App2:	Cedar Ave NB	1	1266
30	Minor App4:	N/A	0	0

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement
300 **200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	17	7	5	0	24	5	NO / NO
1:00 - 2:00	12	2	3	0	14	3	NO / NO
2:00 - 3:00	17	9	5	0	26	5	NO / NO
3:00 - 4:00	7	18	1	0	25	1	NO / NO
4:00 - 5:00	20	73	8	0	93	8	NO / NO
5:00 - 6:00	39	128	6	0	167	6	NO / NO
6:00 - 7:00	138	165	40	0	303	40	YES / NO
7:00 - 8:00	320	309	72	0	629	72	YES / NO
8:00 - 9:00	227	245	54	0	472	54	YES / NO
9:00 - 10:00	214	181	60	0	395	60	YES / NO
10:00 - 11:00	309	215	69	0	524	69	YES / NO
11:00 - 12:00	343	225	92	0	568	92	YES / NO
12:00 - 13:00	367	224	98	0	591	98	YES / NO
13:00 - 14:00	374	230	86	0	604	86	YES / NO
14:00 - 15:00	430	336	117	0	766	117	YES / NO
15:00 - 16:00	482	285	126	0	767	126	YES / NO
16:00 - 17:00	538	343	138	0	881	138	YES / NO
17:00 - 18:00	461	230	79	0	691	79	YES / NO
18:00 - 19:00	328	184	84	0	512	84	YES / NO
19:00 - 20:00	214	117	39	0	331	39	YES / NO
20:00 - 21:00	152	104	42	0	256	42	NO / NO
21:00 - 22:00	103	68	24	0	171	24	NO / NO
22:00 - 23:00	49	44	11	0	93	11	NO / NO
23:00 - 24:00	38	23	7	0	61	7	NO / NO
Daily	**5199**	**3765**	**1266**	**0**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**0**	**8**

All-way Stop Warrant: **Not satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A3b

2021 Existing - CSAH 48 at Cedar Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Cedar Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	5199
30	Major App3:	CSAH 48 WB	2	3765
30	Minor App2:	Cedar Ave NB	1	225
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	17	7	1	0	24	1	NO / NO	NO / NO	NO / NO
1:00 - 2:00	12	2	0	0	14	0	NO / NO	NO / NO	NO / NO
2:00 - 3:00	17	9	2	0	26	2	NO / NO	NO / NO	NO / NO
3:00 - 4:00	7	18	1	0	25	1	NO / NO	NO / NO	NO / NO
4:00 - 5:00	20	73	5	0	93	5	NO / NO	NO / NO	NO / NO
5:00 - 6:00	39	128	2	0	167	2	NO / NO	NO / NO	NO / NO
6:00 - 7:00	138	165	6	0	303	6	NO / NO	NO / NO	NO / NO
7:00 - 8:00	320	309	12	0	629	12	YES / NO	NO / NO	NO / NO
8:00 - 9:00	227	245	7	0	472	7	NO / NO	NO / NO	NO / NO
9:00 - 10:00	214	181	13	0	395	13	NO / NO	NO / NO	NO / NO
10:00 - 11:00	309	215	14	0	524	14	NO / NO	NO / NO	NO / NO
11:00 - 12:00	343	225	11	0	568	11	NO / NO	NO / NO	NO / NO
12:00 - 13:00	367	224	17	0	591	17	NO / NO	NO / NO	NO / NO
13:00 - 14:00	374	230	10	0	604	10	YES / NO	NO / NO	NO / NO
14:00 - 15:00	430	336	25	0	766	25	YES / NO	NO / NO	YES / NO
15:00 - 16:00	482	285	14	0	767	14	YES / NO	NO / NO	YES / NO
16:00 - 17:00	538	343	23	0	881	23	YES / NO	NO / NO	YES / NO
17:00 - 18:00	461	230	11	0	691	11	YES / NO	NO / NO	NO / NO
18:00 - 19:00	328	184	12	0	512	12	NO / NO	NO / NO	NO / NO
19:00 - 20:00	214	117	16	0	331	16	NO / NO	NO / NO	NO / NO
20:00 - 21:00	152	104	11	0	256	11	NO / NO	NO / NO	NO / NO
21:00 - 22:00	103	68	5	0	171	5	NO / NO	NO / NO	NO / NO
22:00 - 23:00	49	44	2	0	93	2	NO / NO	NO / NO	NO / NO
23:00 - 24:00	38	23	5	0	61	5	NO / NO	NO / NO	NO / NO
Daily	**5199**	**3765**	**225**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	0	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A3c

2021 Existing - CSAH 48 at Cedar Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Cedar Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	5199
30	Major App3:	CSAH 48 WB	2	3765
30	Minor App2:	Cedar Ave NB	1	225
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

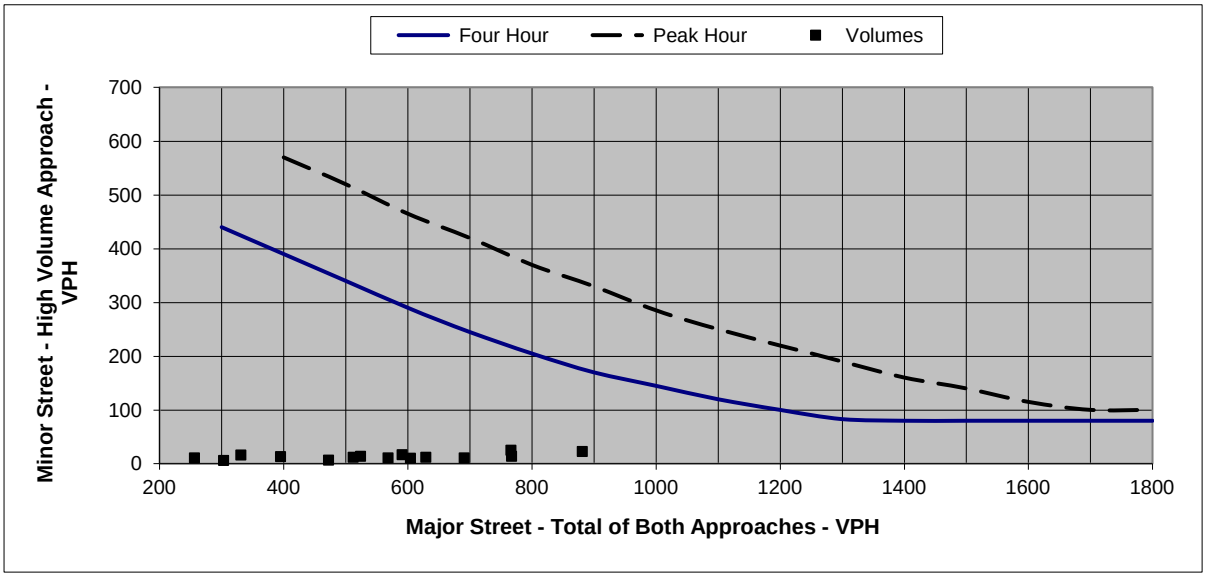


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	24	1	NO	NO
1:00 - 2:00	14	0	NO	NO
2:00 - 3:00	26	2	NO	NO
3:00 - 4:00	25	1	NO	NO
4:00 - 5:00	93	5	NO	NO
5:00 - 6:00	167	2	NO	NO
6:00 - 7:00	303	6	NO	NO
7:00 - 8:00	629	12	NO	NO
8:00 - 9:00	472	7	NO	NO
9:00 - 10:00	395	13	NO	NO
10:00 - 11:00	524	14	NO	NO
11:00 - 12:00	568	11	NO	NO
12:00 - 13:00	591	17	NO	NO
13:00 - 14:00	604	10	NO	NO
14:00 - 15:00	766	25	NO	NO
15:00 - 16:00	767	14	NO	NO
16:00 - 17:00	881	23	NO	NO
17:00 - 18:00	691	11	NO	NO
18:00 - 19:00	512	12	NO	NO
19:00 - 20:00	331	16	NO	NO
20:00 - 21:00	256	11	NO	NO
21:00 - 22:00	171	5	NO	NO
22:00 - 23:00	93	2	NO	NO
23:00 - 24:00	61	5	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A3d

2024 Future - CSAH 48 at Cedar Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Cedar Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	2	6437
30	Major App3:	CSAH 48 WB	2	4667
30	Minor App2:	Cedar Ave NB	1	1564
30	Minor App4:	N/A	0	0

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement	
300	**200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	20	8	5	0	28	5	NO / NO
1:00 - 2:00	14	2	3	0	16	3	NO / NO
2:00 - 3:00	20	11	5	0	31	5	NO / NO
3:00 - 4:00	9	22	1	0	31	1	NO / NO
4:00 - 5:00	25	91	9	0	116	9	NO / NO
5:00 - 6:00	47	158	7	0	205	7	NO / NO
6:00 - 7:00	171	204	50	0	375	50	YES / NO
7:00 - 8:00	396	383	90	0	779	90	YES / NO
8:00 - 9:00	281	304	67	0	585	67	YES / NO
9:00 - 10:00	265	224	74	0	489	74	YES / NO
10:00 - 11:00	383	267	85	0	650	85	YES / NO
11:00 - 12:00	425	279	114	0	704	114	YES / NO
12:00 - 13:00	455	277	121	0	732	121	YES / NO
13:00 - 14:00	464	286	107	0	750	107	YES / NO
14:00 - 15:00	534	416	146	0	950	146	YES / NO
15:00 - 16:00	597	354	156	0	951	156	YES / NO
16:00 - 17:00	666	425	172	0	1091	172	YES / NO
17:00 - 18:00	571	285	97	0	856	97	YES / NO
18:00 - 19:00	406	229	104	0	635	104	YES / NO
19:00 - 20:00	266	145	48	0	411	48	YES / NO
20:00 - 21:00	187	129	52	0	316	52	YES / NO
21:00 - 22:00	128	85	29	0	213	29	NO / NO
22:00 - 23:00	61	54	14	0	115	14	NO / NO
23:00 - 24:00	46	29	8	0	75	8	NO / NO
Daily	**6437**	**4667**	**1564**	**0**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**0**	**8**

All-way Stop Warrant: **Not satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A3e

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2024 Future - CSAH 48 at Cedar Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Cedar Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	6437
30	Major App3:	CSAH 48 WB	2	4667
30	Minor App2:	Cedar Ave NB	1	272
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	20	8	1	0	28	1	NO / NO	NO / NO	NO / NO
1:00 - 2:00	14	2	0	0	16	0	NO / NO	NO / NO	NO / NO
2:00 - 3:00	20	11	2	0	31	2	NO / NO	NO / NO	NO / NO
3:00 - 4:00	9	22	1	0	31	1	NO / NO	NO / NO	NO / NO
4:00 - 5:00	25	91	5	0	116	5	NO / NO	NO / NO	NO / NO
5:00 - 6:00	47	158	2	0	205	2	NO / NO	NO / NO	NO / NO
6:00 - 7:00	171	204	7	0	375	7	NO / NO	NO / NO	NO / NO
7:00 - 8:00	396	383	14	0	779	14	YES / NO	NO / NO	YES / NO
8:00 - 9:00	281	304	8	0	585	8	NO / NO	NO / NO	NO / NO
9:00 - 10:00	265	224	16	0	489	16	NO / NO	NO / NO	NO / NO
10:00 - 11:00	383	267	17	0	650	17	YES / NO	NO / NO	NO / NO
11:00 - 12:00	425	279	14	0	704	14	YES / NO	NO / NO	NO / NO
12:00 - 13:00	455	277	21	0	732	21	YES / NO	NO / NO	YES / NO
13:00 - 14:00	464	286	12	0	750	12	YES / NO	NO / NO	YES / NO
14:00 - 15:00	534	416	31	0	950	31	YES / NO	YES / NO	YES / NO
15:00 - 16:00	597	354	18	0	951	18	YES / NO	YES / NO	YES / NO
16:00 - 17:00	666	425	29	0	1091	29	YES / NO	YES / NO	YES / NO
17:00 - 18:00	571	285	14	0	856	14	YES / NO	NO / NO	YES / NO
18:00 - 19:00	406	229	15	0	635	15	YES / NO	NO / NO	NO / NO
19:00 - 20:00	266	145	19	0	411	19	NO / NO	NO / NO	NO / NO
20:00 - 21:00	187	129	13	0	316	13	NO / NO	NO / NO	NO / NO
21:00 - 22:00	128	85	6	0	213	6	NO / NO	NO / NO	NO / NO
22:00 - 23:00	61	54	2	0	115	2	NO / NO	NO / NO	NO / NO
23:00 - 24:00	46	29	5	0	75	5	NO / NO	NO / NO	NO / NO
Daily	**6437**	**4667**	**272**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	0	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A3f

2024 Future - CSAH 48 at Cedar Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Cedar Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	6437
30	Major App3:	CSAH 48 WB	2	4667
30	Minor App2:	Cedar Ave NB	1	272
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

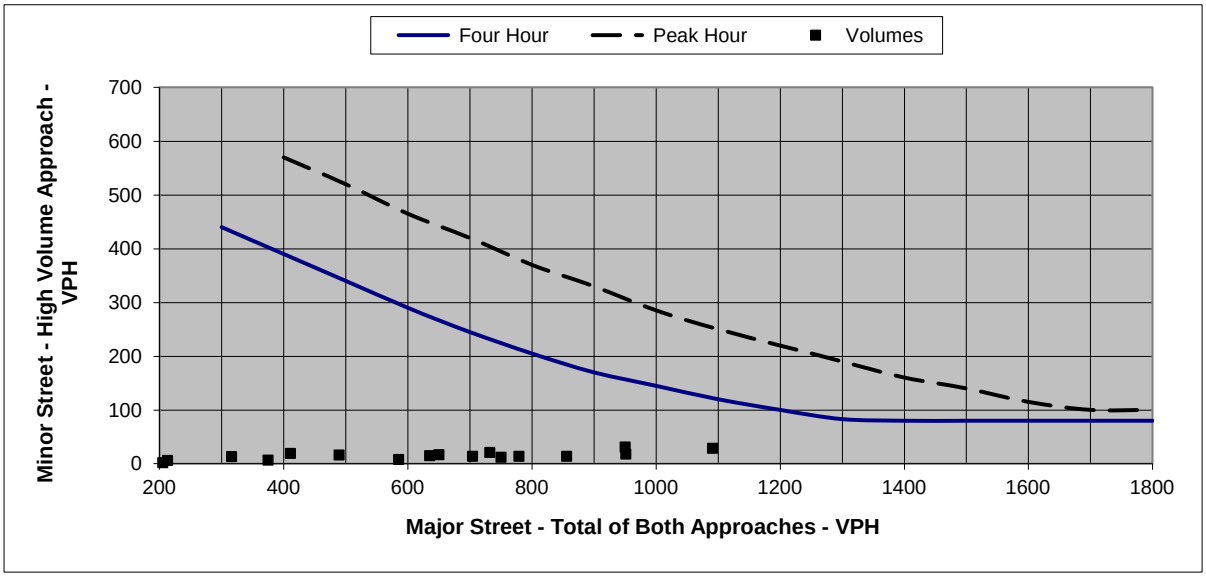


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	28	1	NO	NO
1:00 - 2:00	16	0	NO	NO
2:00 - 3:00	31	2	NO	NO
3:00 - 4:00	31	1	NO	NO
4:00 - 5:00	116	5	NO	NO
5:00 - 6:00	205	2	NO	NO
6:00 - 7:00	375	7	NO	NO
7:00 - 8:00	779	14	NO	NO
8:00 - 9:00	585	8	NO	NO
9:00 - 10:00	489	16	NO	NO
10:00 - 11:00	650	17	NO	NO
11:00 - 12:00	704	14	NO	NO
12:00 - 13:00	732	21	NO	NO
13:00 - 14:00	750	12	NO	NO
14:00 - 15:00	950	31	NO	NO
15:00 - 16:00	951	18	NO	NO
16:00 - 17:00	1091	29	NO	NO
17:00 - 18:00	856	14	NO	NO
18:00 - 19:00	635	15	NO	NO
19:00 - 20:00	411	19	NO	NO
20:00 - 21:00	316	13	NO	NO
21:00 - 22:00	213	6	NO	NO
22:00 - 23:00	115	2	NO	NO
23:00 - 24:00	75	5	NO	NO

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A4a

2021 Existing - CSAH 48 at E Park Square (Major Left Turn)
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at E Park Square (Major Lef
COUNTY: Steele
REF. POINT: 0
DATE: 6/9/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 WBT+WBR	2	4289
30	Major App3:	N/A	0	0
30	Minor App2:	CSAH 48 EBL	1	1151
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	7	0	1	0	7	1	NO / NO	NO / NO	NO / NO
1:00 - 2:00	2	0	2	0	2	2	NO / NO	NO / NO	NO / NO
2:00 - 3:00	9	0	2	0	9	2	NO / NO	NO / NO	NO / NO
3:00 - 4:00	19	0	0	0	19	0	NO / NO	NO / NO	NO / NO
4:00 - 5:00	74	0	5	0	74	5	NO / NO	NO / NO	NO / NO
5:00 - 6:00	131	0	12	0	131	12	NO / NO	NO / NO	NO / NO
6:00 - 7:00	184	0	32	0	184	32	NO / NO	NO / NO	NO / NO
7:00 - 8:00	332	0	68	0	332	68	NO / NO	NO / NO	NO / NO
8:00 - 9:00	268	0	53	0	268	53	NO / NO	NO / NO	NO / NO
9:00 - 10:00	207	0	66	0	207	66	NO / NO	NO / NO	NO / NO
10:00 - 11:00	253	0	94	0	253	94	NO / NO	NO / YES	NO / NO
11:00 - 12:00	287	0	97	0	287	97	NO / NO	NO / YES	NO / NO
12:00 - 13:00	284	0	121	0	284	121	NO / NO	NO / YES	NO / YES
13:00 - 14:00	282	0	96	0	282	96	NO / NO	NO / YES	NO / NO
14:00 - 15:00	379	0	89	0	379	89	NO / NO	NO / YES	NO / NO
15:00 - 16:00	324	0	96	0	324	96	NO / NO	NO / YES	NO / NO
16:00 - 17:00	392	0	101	0	392	101	NO / NO	NO / YES	NO / NO
17:00 - 18:00	257	0	77	0	257	77	NO / NO	NO / YES	NO / NO
18:00 - 19:00	215	0	65	0	215	65	NO / NO	NO / NO	NO / NO
19:00 - 20:00	129	0	28	0	129	28	NO / NO	NO / NO	NO / NO
20:00 - 21:00	114	0	21	0	114	21	NO / NO	NO / NO	NO / NO
21:00 - 22:00	70	0	14	0	70	14	NO / NO	NO / NO	NO / NO
22:00 - 23:00	47	0	10	0	47	10	NO / NO	NO / NO	NO / NO
23:00 - 24:00	23	0	1	0	23	1	NO / NO	NO / NO	NO / NO
Daily	**4289**	**0**	**1151**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	0	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A4b

2021 Existing - CSAH 48 at E Park Square (Major Left Turn)
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at E Park Square (Major Left Turn)
COUNTY: Steele
REF. POINT: 0
DATE: 6/9/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 WBT+WBR	2	4289
30	Major App3:	N/A	0	0
30	Minor App2:	CSAH 48 EBL	1	1151
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

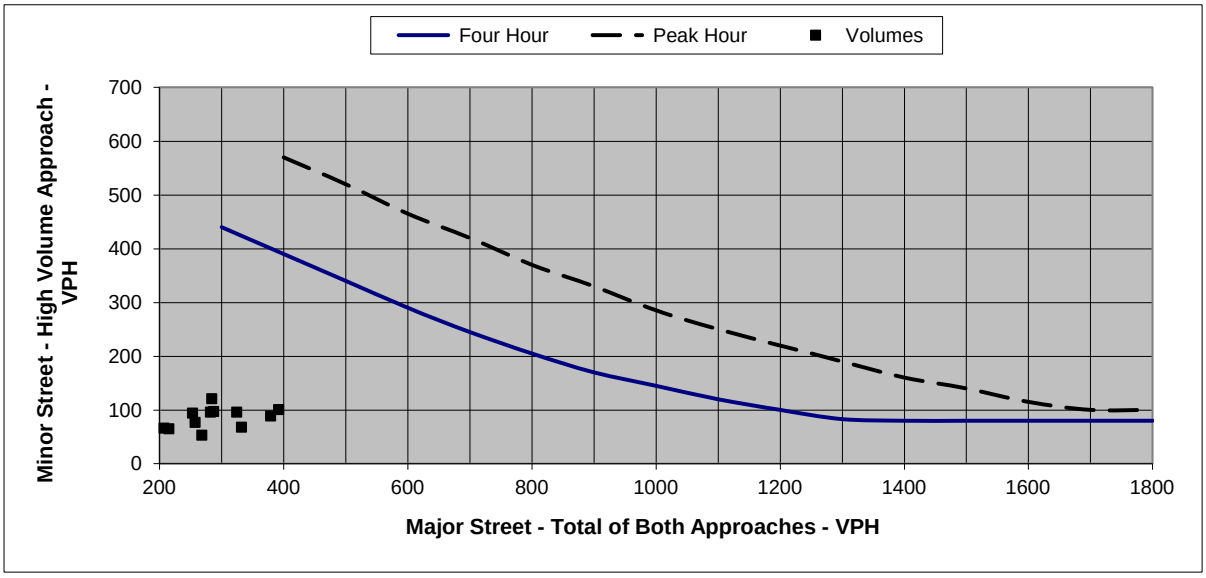


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	7	1	NO	NO
1:00 - 2:00	2	2	NO	NO
2:00 - 3:00	9	2	NO	NO
3:00 - 4:00	19	0	NO	NO
4:00 - 5:00	74	5	NO	NO
5:00 - 6:00	131	12	NO	NO
6:00 - 7:00	184	32	NO	NO
7:00 - 8:00	332	68	NO	NO
8:00 - 9:00	268	53	NO	NO
9:00 - 10:00	207	66	NO	NO
10:00 - 11:00	253	94	NO	NO
11:00 - 12:00	287	97	NO	NO
12:00 - 13:00	284	121	NO	NO
13:00 - 14:00	282	96	NO	NO
14:00 - 15:00	379	89	NO	NO
15:00 - 16:00	324	96	NO	NO
16:00 - 17:00	392	101	NO	NO
17:00 - 18:00	257	77	NO	NO
18:00 - 19:00	215	65	NO	NO
19:00 - 20:00	129	28	NO	NO
20:00 - 21:00	114	21	NO	NO
21:00 - 22:00	70	14	NO	NO
22:00 - 23:00	47	10	NO	NO
23:00 - 24:00	23	1	NO	NO

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A4c

2045 Future - CSAH 48 at E Park Square (Major Left Turn)
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at E Park Square (Major Lef
COUNTY: Steele
REF. POINT: 0
DATE: 6/9/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 WBT+WBR	2	5321
30	Major App3:	N/A	0	0
30	Minor App2:	CSAH 48 EBL	1	1423
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	8	0	1	0	8	1	NO / NO	NO / NO	NO / NO
1:00 - 2:00	2	0	2	0	2	2	NO / NO	NO / NO	NO / NO
2:00 - 3:00	11	0	2	0	11	2	NO / NO	NO / NO	NO / NO
3:00 - 4:00	24	0	0	0	24	0	NO / NO	NO / NO	NO / NO
4:00 - 5:00	92	0	5	0	92	5	NO / NO	NO / NO	NO / NO
5:00 - 6:00	163	0	14	0	163	14	NO / NO	NO / NO	NO / NO
6:00 - 7:00	229	0	39	0	229	39	NO / NO	NO / NO	NO / NO
7:00 - 8:00	412	0	84	0	412	84	NO / NO	NO / YES	NO / NO
8:00 - 9:00	333	0	65	0	333	65	NO / NO	NO / NO	NO / NO
9:00 - 10:00	256	0	82	0	256	82	NO / NO	NO / YES	NO / NO
10:00 - 11:00	314	0	116	0	314	116	NO / NO	NO / YES	NO / NO
11:00 - 12:00	356	0	121	0	356	121	NO / NO	NO / YES	NO / YES
12:00 - 13:00	352	0	150	0	352	150	NO / YES	NO / YES	NO / YES
13:00 - 14:00	350	0	120	0	350	120	NO / NO	NO / YES	NO / YES
14:00 - 15:00	470	0	110	0	470	110	NO / NO	NO / YES	NO / NO
15:00 - 16:00	401	0	120	0	401	120	NO / NO	NO / YES	NO / YES
16:00 - 17:00	487	0	126	0	487	126	NO / NO	NO / YES	NO / YES
17:00 - 18:00	319	0	95	0	319	95	NO / NO	NO / YES	NO / NO
18:00 - 19:00	266	0	81	0	266	81	NO / NO	NO / YES	NO / NO
19:00 - 20:00	160	0	35	0	160	35	NO / NO	NO / NO	NO / NO
20:00 - 21:00	142	0	26	0	142	26	NO / NO	NO / NO	NO / NO
21:00 - 22:00	87	0	17	0	87	17	NO / NO	NO / NO	NO / NO
22:00 - 23:00	58	0	11	0	58	11	NO / NO	NO / NO	NO / NO
23:00 - 24:00	29	0	1	0	29	1	NO / NO	NO / NO	NO / NO
Daily	**5321**	**0**	**1423**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	1	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A4d

2045 Future - CSAH 48 at E Park Square (Major Left Turn)
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at E Park Square (Major Left Turn)
COUNTY: Steele
REF. POINT: 0
DATE: 6/9/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 WBT+WBR	2	5321
30	Major App3:	N/A	0	0
30	Minor App2:	CSAH 48 EBL	1	1423
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

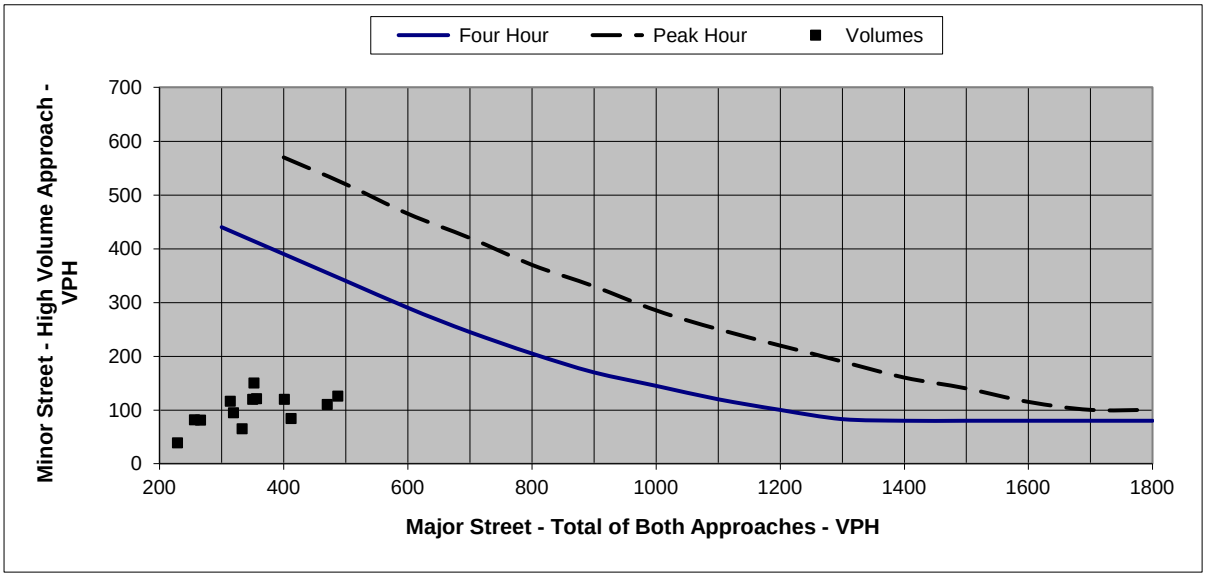


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	8	1	NO	NO
1:00 - 2:00	2	2	NO	NO
2:00 - 3:00	11	2	NO	NO
3:00 - 4:00	24	0	NO	NO
4:00 - 5:00	92	5	NO	NO
5:00 - 6:00	163	14	NO	NO
6:00 - 7:00	229	39	NO	NO
7:00 - 8:00	412	84	NO	NO
8:00 - 9:00	333	65	NO	NO
9:00 - 10:00	256	82	NO	NO
10:00 - 11:00	314	116	NO	NO
11:00 - 12:00	356	121	NO	NO
12:00 - 13:00	352	150	NO	NO
13:00 - 14:00	350	120	NO	NO
14:00 - 15:00	470	110	NO	NO
15:00 - 16:00	401	120	NO	NO
16:00 - 17:00	487	126	NO	NO
17:00 - 18:00	319	95	NO	NO
18:00 - 19:00	266	81	NO	NO
19:00 - 20:00	160	35	NO	NO
20:00 - 21:00	142	26	NO	NO
21:00 - 22:00	87	17	NO	NO
22:00 - 23:00	58	11	NO	NO
23:00 - 24:00	29	1	NO	NO

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A5a

2021 Existing - CSAH 48 at Court Ave (Major Left Turn)
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Court Ave (Major Left Tur
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EBT+EBR	2	4475
30	Major App3:	N/A	0	0
30	Minor App2:	CSAH 48 WBL	1	25
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	17	0	0	0	17	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	13	0	0	0	13	0	NO / NO	NO / NO	NO / NO
2:00 - 3:00	18	0	0	0	18	0	NO / NO	NO / NO	NO / NO
3:00 - 4:00	6	0	0	0	6	0	NO / NO	NO / NO	NO / NO
4:00 - 5:00	18	0	1	0	18	1	NO / NO	NO / NO	NO / NO
5:00 - 6:00	28	0	0	0	28	0	NO / NO	NO / NO	NO / NO
6:00 - 7:00	120	0	3	0	120	3	NO / NO	NO / NO	NO / NO
7:00 - 8:00	257	0	2	0	257	2	NO / NO	NO / NO	NO / NO
8:00 - 9:00	188	0	2	0	188	2	NO / NO	NO / NO	NO / NO
9:00 - 10:00	169	0	3	0	169	3	NO / NO	NO / NO	NO / NO
10:00 - 11:00	225	0	1	0	225	1	NO / NO	NO / NO	NO / NO
11:00 - 12:00	296	0	2	0	296	2	NO / NO	NO / NO	NO / NO
12:00 - 13:00	268	0	3	0	268	3	NO / NO	NO / NO	NO / NO
13:00 - 14:00	312	0	1	0	312	1	NO / NO	NO / NO	NO / NO
14:00 - 15:00	376	0	0	0	376	0	NO / NO	NO / NO	NO / NO
15:00 - 16:00	437	0	2	0	437	2	NO / NO	NO / NO	NO / NO
16:00 - 17:00	497	0	3	0	497	3	NO / NO	NO / NO	NO / NO
17:00 - 18:00	411	0	2	0	411	2	NO / NO	NO / NO	NO / NO
18:00 - 19:00	287	0	0	0	287	0	NO / NO	NO / NO	NO / NO
19:00 - 20:00	191	0	0	0	191	0	NO / NO	NO / NO	NO / NO
20:00 - 21:00	154	0	0	0	154	0	NO / NO	NO / NO	NO / NO
21:00 - 22:00	103	0	0	0	103	0	NO / NO	NO / NO	NO / NO
22:00 - 23:00	46	0	0	0	46	0	NO / NO	NO / NO	NO / NO
23:00 - 24:00	38	0	0	0	38	0	NO / NO	NO / NO	NO / NO
Daily	**4475**	**0**	**25**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	0	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A5b

2021 Existing - CSAH 48 at Court Ave (Major Left Turn)
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Court Ave (Major Left Turn)
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EBT+EBR	2	4475
30	Major App3:	N/A	0	0
30	Minor App2:	CSAH 48 WBL	1	25
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

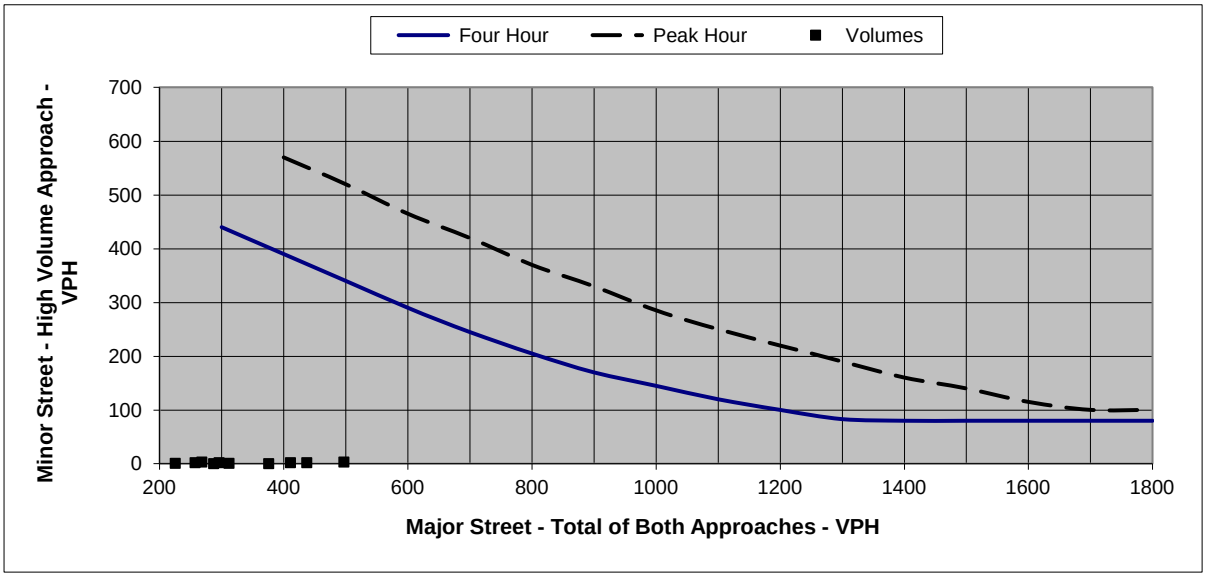


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	17	0	NO	NO
1:00 - 2:00	13	0	NO	NO
2:00 - 3:00	18	0	NO	NO
3:00 - 4:00	6	0	NO	NO
4:00 - 5:00	18	1	NO	NO
5:00 - 6:00	28	0	NO	NO
6:00 - 7:00	120	3	NO	NO
7:00 - 8:00	257	2	NO	NO
8:00 - 9:00	188	2	NO	NO
9:00 - 10:00	169	3	NO	NO
10:00 - 11:00	225	1	NO	NO
11:00 - 12:00	296	2	NO	NO
12:00 - 13:00	268	3	NO	NO
13:00 - 14:00	312	1	NO	NO
14:00 - 15:00	376	0	NO	NO
15:00 - 16:00	437	2	NO	NO
16:00 - 17:00	497	3	NO	NO
17:00 - 18:00	411	2	NO	NO
18:00 - 19:00	287	0	NO	NO
19:00 - 20:00	191	0	NO	NO
20:00 - 21:00	154	0	NO	NO
21:00 - 22:00	103	0	NO	NO
22:00 - 23:00	46	0	NO	NO
23:00 - 24:00	38	0	NO	NO

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A5c

2045 Future - CSAH 48 at Court Ave (Major Left Turn)
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Court Ave (Major Left Tur
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EBT+EBR	2	5552
30	Major App3:	N/A	0	0
30	Minor App2:	CSAH 48 WBL	1	25
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	21	0	0	0	21	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	16	0	0	0	16	0	NO / NO	NO / NO	NO / NO
2:00 - 3:00	21	0	0	0	21	0	NO / NO	NO / NO	NO / NO
3:00 - 4:00	8	0	0	0	8	0	NO / NO	NO / NO	NO / NO
4:00 - 5:00	22	0	1	0	22	1	NO / NO	NO / NO	NO / NO
5:00 - 6:00	35	0	0	0	35	0	NO / NO	NO / NO	NO / NO
6:00 - 7:00	149	0	3	0	149	3	NO / NO	NO / NO	NO / NO
7:00 - 8:00	319	0	2	0	319	2	NO / NO	NO / NO	NO / NO
8:00 - 9:00	234	0	2	0	234	2	NO / NO	NO / NO	NO / NO
9:00 - 10:00	210	0	3	0	210	3	NO / NO	NO / NO	NO / NO
10:00 - 11:00	279	0	1	0	279	1	NO / NO	NO / NO	NO / NO
11:00 - 12:00	367	0	2	0	367	2	NO / NO	NO / NO	NO / NO
12:00 - 13:00	332	0	3	0	332	3	NO / NO	NO / NO	NO / NO
13:00 - 14:00	388	0	1	0	388	1	NO / NO	NO / NO	NO / NO
14:00 - 15:00	467	0	0	0	467	0	NO / NO	NO / NO	NO / NO
15:00 - 16:00	542	0	2	0	542	2	NO / NO	NO / NO	NO / NO
16:00 - 17:00	616	0	3	0	616	3	YES / NO	NO / NO	NO / NO
17:00 - 18:00	510	0	2	0	510	2	NO / NO	NO / NO	NO / NO
18:00 - 19:00	356	0	0	0	356	0	NO / NO	NO / NO	NO / NO
19:00 - 20:00	238	0	0	0	238	0	NO / NO	NO / NO	NO / NO
20:00 - 21:00	191	0	0	0	191	0	NO / NO	NO / NO	NO / NO
21:00 - 22:00	127	0	0	0	127	0	NO / NO	NO / NO	NO / NO
22:00 - 23:00	57	0	0	0	57	0	NO / NO	NO / NO	NO / NO
23:00 - 24:00	47	0	0	0	47	0	NO / NO	NO / NO	NO / NO
Daily	**5552**	**0**	**25**	**0**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	0	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A5d

2045 Future - CSAH 48 at Court Ave (Major Left Turn)
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Court Ave (Major Left Turn)
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EBT+EBR	2	5552
30	Major App3:	N/A	0	0
30	Minor App2:	CSAH 48 WBL	1	25
30	Minor App4:	N/A	0	0

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

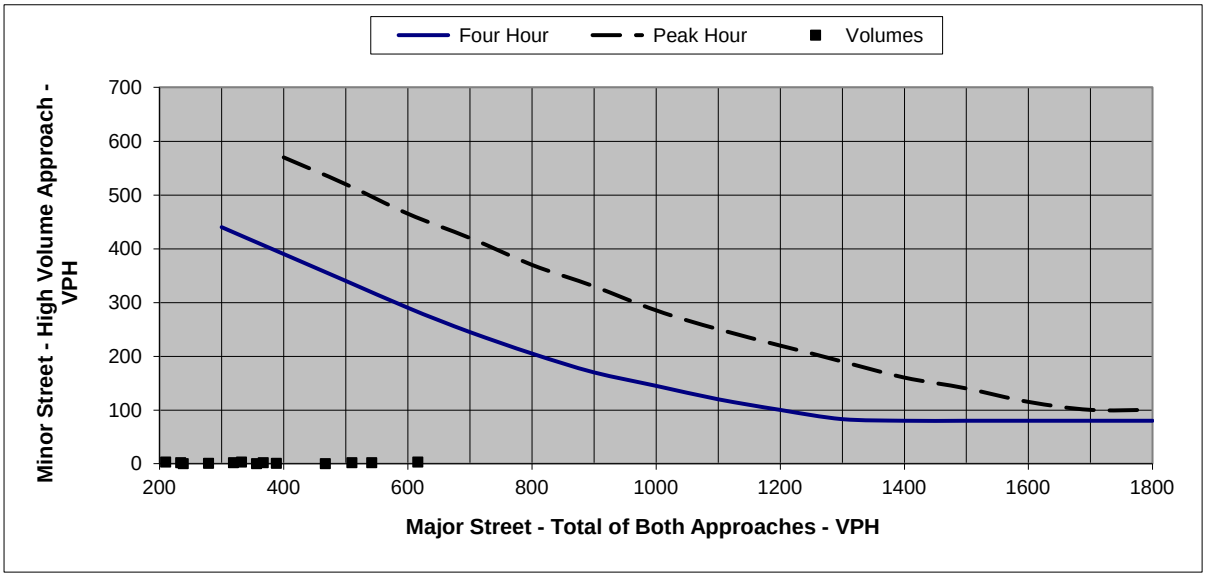


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	21	0	NO	NO
1:00 - 2:00	16	0	NO	NO
2:00 - 3:00	21	0	NO	NO
3:00 - 4:00	8	0	NO	NO
4:00 - 5:00	22	1	NO	NO
5:00 - 6:00	35	0	NO	NO
6:00 - 7:00	149	3	NO	NO
7:00 - 8:00	319	2	NO	NO
8:00 - 9:00	234	2	NO	NO
9:00 - 10:00	210	3	NO	NO
10:00 - 11:00	279	1	NO	NO
11:00 - 12:00	367	2	NO	NO
12:00 - 13:00	332	3	NO	NO
13:00 - 14:00	388	1	NO	NO
14:00 - 15:00	467	0	NO	NO
15:00 - 16:00	542	2	NO	NO
16:00 - 17:00	616	3	NO	NO
17:00 - 18:00	510	2	NO	NO
18:00 - 19:00	356	0	NO	NO
19:00 - 20:00	238	0	NO	NO
20:00 - 21:00	191	0	NO	NO
21:00 - 22:00	127	0	NO	NO
22:00 - 23:00	57	0	NO	NO
23:00 - 24:00	47	0	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A6a

2021 Existing - CSAH 48 at Elm Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	3	4431
30	Major App3:	CSAH 48 WB	3	3887
30	Minor App2:	Elm Ave NB	2	1837
30	Minor App4:	Elm Ave SB	2	1896

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement	
300	**200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	17	7	2	5	24	7	NO / NO
1:00 - 2:00	13	2	0	4	15	4	NO / NO
2:00 - 3:00	18	8	3	0	26	3	NO / NO
3:00 - 4:00	6	18	4	7	24	11	NO / NO
4:00 - 5:00	18	72	12	9	90	21	NO / NO
5:00 - 6:00	27	124	23	20	151	43	NO / NO
6:00 - 7:00	112	201	39	62	313	101	YES / NO
7:00 - 8:00	254	317	158	150	571	308	**YES / YES**
8:00 - 9:00	187	245	130	135	432	265	**YES / YES**
9:00 - 10:00	164	166	80	127	330	207	**YES / YES**
10:00 - 11:00	223	245	87	119	468	206	**YES / YES**
11:00 - 12:00	294	263	135	118	557	253	**YES / YES**
12:00 - 13:00	264	254	115	152	518	267	**YES / YES**
13:00 - 14:00	308	246	102	123	554	225	**YES / YES**
14:00 - 15:00	374	329	181	177	703	358	**YES / YES**
15:00 - 16:00	434	282	154	169	716	323	**YES / YES**
16:00 - 17:00	495	342	201	164	837	365	**YES / YES**
17:00 - 18:00	405	239	108	143	644	251	**YES / YES**
18:00 - 19:00	287	187	103	80	474	183	YES / NO
19:00 - 20:00	190	115	80	48	305	128	YES / NO
20:00 - 21:00	154	93	61	39	247	100	NO / NO
21:00 - 22:00	103	61	41	24	164	65	NO / NO
22:00 - 23:00	46	46	11	14	92	25	NO / NO
23:00 - 24:00	38	25	7	7	63	14	NO / NO
Daily	**4431**	**3887**	**1837**	**1896**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**11**	**8**

All-way Stop Warrant: **Satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A6b

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2021 Existing - CSAH 48 at Elm Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	4431
30	Major App3:	CSAH 48 WB	3	3887
30	Minor App2:	Elm Ave NB	2	1473
30	Minor App4:	Elm Ave SB	2	1312

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	200	100	160

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	17	7	2	5	24	5	NO / NO	NO / NO	NO / NO
1:00 - 2:00	13	2	0	3	15	3	NO / NO	NO / NO	NO / NO
2:00 - 3:00	18	8	3	0	26	3	NO / NO	NO / NO	NO / NO
3:00 - 4:00	6	18	3	6	24	6	NO / NO	NO / NO	NO / NO
4:00 - 5:00	18	72	10	4	90	10	NO / NO	NO / NO	NO / NO
5:00 - 6:00	27	124	20	10	151	20	NO / NO	NO / NO	NO / NO
6:00 - 7:00	112	201	37	46	313	46	NO / NO	NO / NO	NO / NO
7:00 - 8:00	254	317	117	108	571	117	NO / NO	NO / YES	NO / NO
8:00 - 9:00	187	245	115	109	432	115	NO / NO	NO / YES	NO / NO
9:00 - 10:00	164	166	77	75	330	77	NO / NO	NO / NO	NO / NO
10:00 - 11:00	223	245	78	77	468	78	NO / NO	NO / NO	NO / NO
11:00 - 12:00	294	263	114	76	557	114	NO / NO	NO / YES	NO / NO
12:00 - 13:00	264	254	98	97	518	98	NO / NO	NO / NO	NO / NO
13:00 - 14:00	308	246	96	72	554	96	NO / NO	NO / NO	NO / NO
14:00 - 15:00	374	329	150	131	703	150	YES / NO	NO / YES	NO / NO
15:00 - 16:00	434	282	129	124	716	129	YES / NO	NO / YES	NO / NO
16:00 - 17:00	495	342	142	107	837	142	YES / NO	NO / YES	YES / NO
17:00 - 18:00	405	239	76	111	644	111	YES / NO	NO / YES	NO / NO
18:00 - 19:00	287	187	71	56	474	71	NO / NO	NO / NO	NO / NO
19:00 - 20:00	190	115	56	42	305	56	NO / NO	NO / NO	NO / NO
20:00 - 21:00	154	93	43	19	247	43	NO / NO	NO / NO	NO / NO
21:00 - 22:00	103	61	26	18	164	26	NO / NO	NO / NO	NO / NO
22:00 - 23:00	46	46	6	10	92	10	NO / NO	NO / NO	NO / NO
23:00 - 24:00	38	25	4	6	63	6	NO / NO	NO / NO	NO / NO
Daily	**4431**	**3887**	**1473**	**1312**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	1	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A6c

2021 Existing - CSAH 48 at Elm Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	4431
30	Major App3:	CSAH 48 WB	3	3887
30	Minor App2:	Elm Ave NB	2	1473
30	Minor App4:	Elm Ave SB	2	1312

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

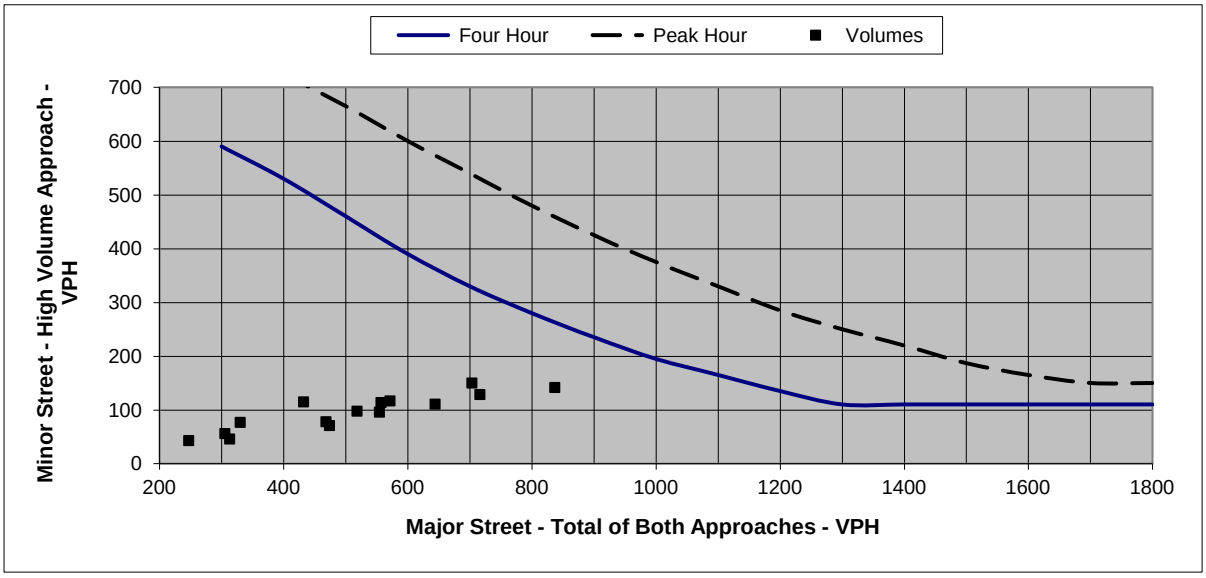


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	590	
400	530	725
500	460	665
600	390	600
700	330	540
800	280	480
900	235	425
1000	195	375
1100	165	330
1200	135	285
1300	110	250
1400	110	220
1500	110	187
1600	110	165
1700	110	150
1800	110	150

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	24	5	NO	NO
1:00 - 2:00	15	3	NO	NO
2:00 - 3:00	26	3	NO	NO
3:00 - 4:00	24	6	NO	NO
4:00 - 5:00	90	10	NO	NO
5:00 - 6:00	151	20	NO	NO
6:00 - 7:00	313	46	NO	NO
7:00 - 8:00	571	117	NO	NO
8:00 - 9:00	432	115	NO	NO
9:00 - 10:00	330	77	NO	NO
10:00 - 11:00	468	78	NO	NO
11:00 - 12:00	557	114	NO	NO
12:00 - 13:00	518	98	NO	NO
13:00 - 14:00	554	96	NO	NO
14:00 - 15:00	703	150	NO	NO
15:00 - 16:00	716	129	NO	NO
16:00 - 17:00	837	142	NO	NO
17:00 - 18:00	644	111	NO	NO
18:00 - 19:00	474	71	NO	NO
19:00 - 20:00	305	56	NO	NO
20:00 - 21:00	247	43	NO	NO
21:00 - 22:00	164	26	NO	NO
22:00 - 23:00	92	10	NO	NO
23:00 - 24:00	63	6	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A6d

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2021 Existing - CSAH 48 at Elm Ave
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 80% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	4431
30	Major App3:	CSAH 48 WB	3	3887
30	Minor App2:	Elm Ave NB	2	1473
30	Minor App4:	Elm Ave SB	2	1312

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

80%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	480	720	576
Minor Approach	160	80	128

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	17	7	2	5	24	5	NO / NO	NO / NO	NO / NO
1:00 - 2:00	13	2	0	3	15	3	NO / NO	NO / NO	NO / NO
2:00 - 3:00	18	8	3	0	26	3	NO / NO	NO / NO	NO / NO
3:00 - 4:00	6	18	3	6	24	6	NO / NO	NO / NO	NO / NO
4:00 - 5:00	18	72	10	4	90	10	NO / NO	NO / NO	NO / NO
5:00 - 6:00	27	124	20	10	151	20	NO / NO	NO / NO	NO / NO
6:00 - 7:00	112	201	37	46	313	46	NO / NO	NO / NO	NO / NO
7:00 - 8:00	254	317	117	108	571	117	YES / NO	NO / YES	NO / NO
8:00 - 9:00	187	245	115	109	432	115	NO / NO	NO / YES	NO / NO
9:00 - 10:00	164	166	77	75	330	77	NO / NO	NO / NO	NO / NO
10:00 - 11:00	223	245	78	77	468	78	NO / NO	NO / NO	NO / NO
11:00 - 12:00	294	263	114	76	557	114	YES / NO	NO / YES	NO / NO
12:00 - 13:00	264	254	98	97	518	98	YES / NO	NO / YES	NO / NO
13:00 - 14:00	308	246	96	72	554	96	YES / NO	NO / YES	NO / NO
14:00 - 15:00	374	329	150	131	703	150	YES / NO	NO / YES	**YES / YES**
15:00 - 16:00	434	282	129	124	716	129	YES / NO	NO / YES	**YES / YES**
16:00 - 17:00	495	342	142	107	837	142	YES / NO	**YES / YES**	**YES / YES**
17:00 - 18:00	405	239	76	111	644	111	YES / NO	NO / YES	YES / NO
18:00 - 19:00	287	187	71	56	474	71	NO / NO	NO / NO	NO / NO
19:00 - 20:00	190	115	56	42	305	56	NO / NO	NO / NO	NO / NO
20:00 - 21:00	154	93	43	19	247	43	NO / NO	NO / NO	NO / NO
21:00 - 22:00	103	61	26	18	164	26	NO / NO	NO / NO	NO / NO
22:00 - 23:00	46	46	6	10	92	10	NO / NO	NO / NO	NO / NO
23:00 - 24:00	38	25	4	6	63	6	NO / NO	NO / NO	NO / NO
Daily	**4431**	**3887**	**1473**	**1312**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	3	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	1	8	Not satisfied
1A & 1B	Combination of Warrants	3	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A6e

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2021 Existing - CSAH 48 at Elm Ave
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 60% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	4431
30	Major App3:	CSAH 48 WB	3	3887
30	Minor App2:	Elm Ave NB	2	1473
30	Minor App4:	Elm Ave SB	2	1312

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

60%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	360	540	432
Minor Approach	120	60	96

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	17	7	2	5	24	5	NO / NO	NO / NO	NO / NO
1:00 - 2:00	13	2	0	3	15	3	NO / NO	NO / NO	NO / NO
2:00 - 3:00	18	8	3	0	26	3	NO / NO	NO / NO	NO / NO
3:00 - 4:00	6	18	3	6	24	6	NO / NO	NO / NO	NO / NO
4:00 - 5:00	18	72	10	4	90	10	NO / NO	NO / NO	NO / NO
5:00 - 6:00	27	124	20	10	151	20	NO / NO	NO / NO	NO / NO
6:00 - 7:00	112	201	37	46	313	46	NO / NO	NO / NO	NO / NO
7:00 - 8:00	254	317	117	108	571	117	YES / NO	**YES / YES**	**YES / YES**
8:00 - 9:00	187	245	115	109	432	115	YES / NO	NO / YES	**YES / YES**
9:00 - 10:00	164	166	77	75	330	77	NO / NO	NO / YES	NO / NO
10:00 - 11:00	223	245	78	77	468	78	YES / NO	NO / YES	YES / NO
11:00 - 12:00	294	263	114	76	557	114	YES / NO	**YES / YES**	**YES / YES**
12:00 - 13:00	264	254	98	97	518	98	YES / NO	NO / YES	**YES / YES**
13:00 - 14:00	308	246	96	72	554	96	YES / NO	**YES / YES**	**YES / YES**
14:00 - 15:00	374	329	150	131	703	150	**YES / YES**	**YES / YES**	**YES / YES**
15:00 - 16:00	434	282	129	124	716	129	**YES / YES**	**YES / YES**	**YES / YES**
16:00 - 17:00	495	342	142	107	837	142	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	405	239	76	111	644	111	YES / NO	**YES / YES**	**YES / YES**
18:00 - 19:00	287	187	71	56	474	71	YES / NO	NO / YES	YES / NO
19:00 - 20:00	190	115	56	42	305	56	NO / NO	NO / NO	NO / NO
20:00 - 21:00	154	93	43	19	247	43	NO / NO	NO / NO	NO / NO
21:00 - 22:00	103	61	26	18	164	26	NO / NO	NO / NO	NO / NO
22:00 - 23:00	46	46	6	10	92	10	NO / NO	NO / NO	NO / NO
23:00 - 24:00	38	25	4	6	63	6	NO / NO	NO / NO	NO / NO
Daily	**4431**	**3887**	**1473**	**1312**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	**9**	8	**Satisfied**
Warrant 1A	Minimum Vehicular Volume	3	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	7	8	Not satisfied
1A & 1B	Combination of Warrants	**9**	8	**Satisfied**

COMMENTS:

Page 4 of 4

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A6f

2045 Future - CSAH 48 at Elm Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	3	5496
30	Major App3:	CSAH 48 WB	3	4818
30	Minor App2:	Elm Ave NB	2	2273
30	Minor App4:	Elm Ave SB	2	2349

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement	
300	**200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	21	8	2	5	29	7	NO / NO
1:00 - 2:00	16	2	0	4	18	4	NO / NO
2:00 - 3:00	21	10	3	0	31	3	NO / NO
3:00 - 4:00	8	22	4	8	30	12	NO / NO
4:00 - 5:00	22	89	16	10	111	26	NO / NO
5:00 - 6:00	34	155	28	24	189	52	NO / NO
6:00 - 7:00	139	249	48	77	388	125	YES / NO
7:00 - 8:00	314	393	196	187	707	383	**YES / YES**
8:00 - 9:00	233	304	160	167	537	327	**YES / YES**
9:00 - 10:00	204	205	99	158	409	257	**YES / YES**
10:00 - 11:00	276	304	109	147	580	256	**YES / YES**
11:00 - 12:00	365	327	167	147	692	314	**YES / YES**
12:00 - 13:00	328	315	142	189	643	331	**YES / YES**
13:00 - 14:00	381	305	125	153	686	278	**YES / YES**
14:00 - 15:00	465	408	225	220	873	445	**YES / YES**
15:00 - 16:00	538	349	192	209	887	401	**YES / YES**
16:00 - 17:00	614	423	249	204	1037	453	**YES / YES**
17:00 - 18:00	502	297	133	178	799	311	**YES / YES**
18:00 - 19:00	356	232	127	99	588	226	**YES / YES**
19:00 - 20:00	237	142	100	59	379	159	YES / NO
20:00 - 21:00	191	115	75	49	306	124	YES / NO
21:00 - 22:00	127	76	51	29	203	80	NO / NO
22:00 - 23:00	57	58	14	17	115	31	NO / NO
23:00 - 24:00	47	30	8	9	77	17	NO / NO
Daily	**5496**	**4818**	**2273**	**2349**			

	Met (Hr)	**Required (Hr)**
Hours met for warrant:	**12**	**8**

All-way Stop Warrant: **Satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A6g

2045 Future - CSAH 48 at Elm Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	5496
30	Major App3:	CSAH 48 WB	3	4818
30	Minor App2:	Elm Ave NB	2	1820
30	Minor App4:	Elm Ave SB	2	1623

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	200	100	160

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	21	8	2	5	29	5	NO / NO	NO / NO	NO / NO
1:00 - 2:00	16	2	0	3	18	3	NO / NO	NO / NO	NO / NO
2:00 - 3:00	21	10	3	0	31	3	NO / NO	NO / NO	NO / NO
3:00 - 4:00	8	22	3	7	30	7	NO / NO	NO / NO	NO / NO
4:00 - 5:00	22	89	12	4	111	12	NO / NO	NO / NO	NO / NO
5:00 - 6:00	34	155	24	12	189	24	NO / NO	NO / NO	NO / NO
6:00 - 7:00	139	249	46	57	388	57	NO / NO	NO / NO	NO / NO
7:00 - 8:00	314	393	144	134	707	144	YES / NO	NO / YES	NO / NO
8:00 - 9:00	233	304	143	135	537	143	NO / NO	NO / YES	NO / NO
9:00 - 10:00	204	205	95	93	409	95	NO / NO	NO / NO	NO / NO
10:00 - 11:00	276	304	97	96	580	97	NO / NO	NO / NO	NO / NO
11:00 - 12:00	365	327	141	94	692	141	YES / NO	NO / YES	NO / NO
12:00 - 13:00	328	315	121	120	643	121	YES / NO	NO / YES	NO / NO
13:00 - 14:00	381	305	119	90	686	119	YES / NO	NO / YES	NO / NO
14:00 - 15:00	465	408	185	163	873	185	YES / NO	NO / YES	**YES / YES**
15:00 - 16:00	538	349	159	154	887	159	YES / NO	NO / YES	YES / NO
16:00 - 17:00	614	423	176	133	1037	176	YES / NO	**YES / YES**	**YES / YES**
17:00 - 18:00	502	297	94	138	799	138	YES / NO	NO / YES	YES / NO
18:00 - 19:00	356	232	89	69	588	89	NO / NO	NO / NO	NO / NO
19:00 - 20:00	237	142	70	52	379	70	NO / NO	NO / NO	NO / NO
20:00 - 21:00	191	115	53	23	306	53	NO / NO	NO / NO	NO / NO
21:00 - 22:00	127	76	33	22	203	33	NO / NO	NO / NO	NO / NO
22:00 - 23:00	57	58	7	12	115	12	NO / NO	NO / NO	NO / NO
23:00 - 24:00	47	30	4	7	77	7	NO / NO	NO / NO	NO / NO
Daily	**5496**	**4818**	**1820**	**1623**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	2	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	1	8	Not satisfied
1A & 1B	Combination of Warrants	2	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	4	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A6h

2045 Future - CSAH 48 at Elm Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	5496
30	Major App3:	CSAH 48 WB	3	4818
30	Minor App2:	Elm Ave NB	2	1820
30	Minor App4:	Elm Ave SB	2	1623

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

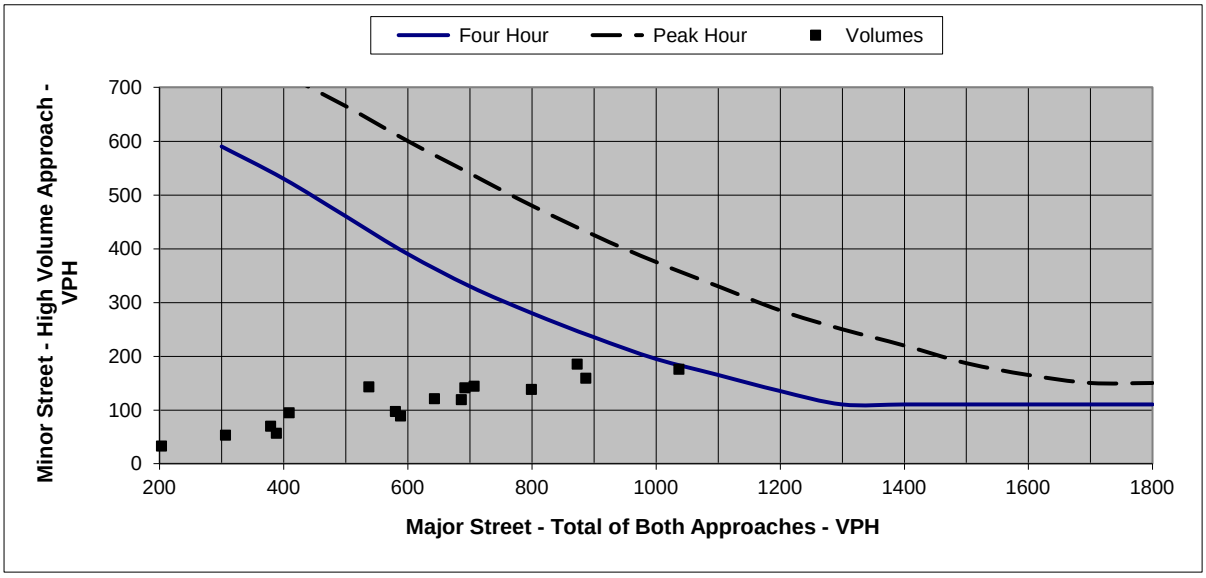


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	590	
400	530	725
500	460	665
600	390	600
700	330	540
800	280	480
900	235	425
1000	195	375
1100	165	330
1200	135	285
1300	110	250
1400	110	220
1500	110	187
1600	110	165
1700	110	150
1800	110	150

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	29	5	NO	NO
1:00 - 2:00	18	3	NO	NO
2:00 - 3:00	31	3	NO	NO
3:00 - 4:00	30	7	NO	NO
4:00 - 5:00	111	12	NO	NO
5:00 - 6:00	189	24	NO	NO
6:00 - 7:00	388	57	NO	NO
7:00 - 8:00	707	144	NO	NO
8:00 - 9:00	537	143	NO	NO
9:00 - 10:00	409	95	NO	NO
10:00 - 11:00	580	97	NO	NO
11:00 - 12:00	692	141	NO	NO
12:00 - 13:00	643	121	NO	NO
13:00 - 14:00	686	119	NO	NO
14:00 - 15:00	873	185	NO	NO
15:00 - 16:00	887	159	NO	NO
16:00 - 17:00	1037	176	NO	NO
17:00 - 18:00	799	138	NO	NO
18:00 - 19:00	588	89	NO	NO
19:00 - 20:00	379	70	NO	NO
20:00 - 21:00	306	53	NO	NO
21:00 - 22:00	203	33	NO	NO
22:00 - 23:00	115	12	NO	NO
23:00 - 24:00	77	7	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A6i

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2045 Future - CSAH 48 at Elm Ave
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 80% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	5496
30	Major App3:	CSAH 48 WB	3	4818
30	Minor App2:	Elm Ave NB	2	1820
30	Minor App4:	Elm Ave SB	2	1623

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

80%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	480	720	576
Minor Approach	160	80	128

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	21	8	2	5	29	5	NO / NO	NO / NO	NO / NO
1:00 - 2:00	16	2	0	3	18	3	NO / NO	NO / NO	NO / NO
2:00 - 3:00	21	10	3	0	31	3	NO / NO	NO / NO	NO / NO
3:00 - 4:00	8	22	3	7	30	7	NO / NO	NO / NO	NO / NO
4:00 - 5:00	22	89	12	4	111	12	NO / NO	NO / NO	NO / NO
5:00 - 6:00	34	155	24	12	189	24	NO / NO	NO / NO	NO / NO
6:00 - 7:00	139	249	46	57	388	57	NO / NO	NO / NO	NO / NO
7:00 - 8:00	314	393	144	134	707	144	YES / NO	NO / YES	**YES / YES**
8:00 - 9:00	233	304	143	135	537	143	YES / NO	NO / YES	NO / YES
9:00 - 10:00	204	205	95	93	409	95	NO / NO	NO / YES	NO / NO
10:00 - 11:00	276	304	97	96	580	97	YES / NO	NO / YES	YES / NO
11:00 - 12:00	365	327	141	94	692	141	YES / NO	NO / YES	**YES / YES**
12:00 - 13:00	328	315	121	120	643	121	YES / NO	NO / YES	YES / NO
13:00 - 14:00	381	305	119	90	686	119	YES / NO	NO / YES	YES / NO
14:00 - 15:00	465	408	185	163	873	185	**YES / YES**	**YES / YES**	**YES / YES**
15:00 - 16:00	538	349	159	154	887	159	YES / NO	**YES / YES**	**YES / YES**
16:00 - 17:00	614	423	176	133	1037	176	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	502	297	94	138	799	138	YES / NO	**YES / YES**	**YES / YES**
18:00 - 19:00	356	232	89	69	588	89	YES / NO	NO / YES	YES / NO
19:00 - 20:00	237	142	70	52	379	70	NO / NO	NO / NO	NO / NO
20:00 - 21:00	191	115	53	23	306	53	NO / NO	NO / NO	NO / NO
21:00 - 22:00	127	76	33	22	203	33	NO / NO	NO / NO	NO / NO
22:00 - 23:00	57	58	7	12	115	12	NO / NO	NO / NO	NO / NO
23:00 - 24:00	47	30	4	7	77	7	NO / NO	NO / NO	NO / NO
Daily	**5496**	**4818**	**1820**	**1623**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	6	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	2	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	4	8	Not satisfied
1A & 1B	Combination of Warrants	6	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A6j

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2045 Future - CSAH 48 at Elm Ave
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 60% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at Elm Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	3	5496
30	Major App3:	CSAH 48 WB	3	4818
30	Minor App2:	Elm Ave NB	2	1820
30	Minor App4:	Elm Ave SB	2	1623

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

60%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	360	540	432
Minor Approach	120	60	96

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	21	8	2	5	29	5	NO / NO	NO / NO	NO / NO
1:00 - 2:00	16	2	0	3	18	3	NO / NO	NO / NO	NO / NO
2:00 - 3:00	21	10	3	0	31	3	NO / NO	NO / NO	NO / NO
3:00 - 4:00	8	22	3	7	30	7	NO / NO	NO / NO	NO / NO
4:00 - 5:00	22	89	12	4	111	12	NO / NO	NO / NO	NO / NO
5:00 - 6:00	34	155	24	12	189	24	NO / NO	NO / NO	NO / NO
6:00 - 7:00	139	249	46	57	388	57	YES / NO	NO / NO	NO / NO
7:00 - 8:00	314	393	144	134	707	144	**YES / YES**	**YES / YES**	**YES / YES**
8:00 - 9:00	233	304	143	135	537	143	**YES / YES**	NO / YES	**YES / YES**
9:00 - 10:00	204	205	95	93	409	95	YES / NO	NO / YES	NO / NO
10:00 - 11:00	276	304	97	96	580	97	YES / NO	**YES / YES**	**YES / YES**
11:00 - 12:00	365	327	141	94	692	141	**YES / YES**	**YES / YES**	**YES / YES**
12:00 - 13:00	328	315	121	120	643	121	**YES / YES**	**YES / YES**	**YES / YES**
13:00 - 14:00	381	305	119	90	686	119	YES / NO	**YES / YES**	**YES / YES**
14:00 - 15:00	465	408	185	163	873	185	**YES / YES**	**YES / YES**	**YES / YES**
15:00 - 16:00	538	349	159	154	887	159	**YES / YES**	**YES / YES**	**YES / YES**
16:00 - 17:00	614	423	176	133	1037	176	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	502	297	94	138	799	138	**YES / YES**	**YES / YES**	**YES / YES**
18:00 - 19:00	356	232	89	69	588	89	YES / NO	**YES / YES**	YES / NO
19:00 - 20:00	237	142	70	52	379	70	YES / NO	NO / YES	NO / NO
20:00 - 21:00	191	115	53	23	306	53	NO / NO	NO / NO	NO / NO
21:00 - 22:00	127	76	33	22	203	33	NO / NO	NO / NO	NO / NO
22:00 - 23:00	57	58	7	12	115	12	NO / NO	NO / NO	NO / NO
23:00 - 24:00	47	30	4	7	77	7	NO / NO	NO / NO	NO / NO
Daily	**5496**	**4818**	**1820**	**1623**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	**10**	8	**Satisfied**
Warrant 1A	Minimum Vehicular Volume	**8**	8	**Satisfied**
Warrant 1B	Interruption of Continuous Flow	**10**	8	**Satisfied**
1A & 1B	Combination of Warrants	**10**	8	**Satisfied**

COMMENTS:

Page 4 of 4

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A7a

2021 Existing - CSAH 48 at Grove Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Grove Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	2	3711
30	Major App3:	CSAH 48 WB	1	3195
30	Minor App2:	Grove Ave NB	1	2000
30	Minor App4:	Grove Ave SB	1	3258

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement
300 **200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	8	4	6	9	12	15	NO / NO
1:00 - 2:00	10	2	5	8	12	13	NO / NO
2:00 - 3:00	13	4	3	8	17	11	NO / NO
3:00 - 4:00	3	16	0	7	19	7	NO / NO
4:00 - 5:00	11	56	14	16	67	30	NO / NO
5:00 - 6:00	26	121	17	42	147	59	NO / NO
6:00 - 7:00	81	158	40	155	239	195	NO / NO
7:00 - 8:00	231	281	154	359	512	513	**YES / YES**
8:00 - 9:00	161	204	120	208	365	328	**YES / YES**
9:00 - 10:00	108	144	89	129	252	218	NO / YES
10:00 - 11:00	173	233	69	156	406	225	**YES / YES**
11:00 - 12:00	236	232	109	169	468	278	**YES / YES**
12:00 - 13:00	205	203	102	172	408	274	**YES / YES**
13:00 - 14:00	219	208	91	173	427	264	**YES / YES**
14:00 - 15:00	302	254	198	313	556	511	**YES / YES**
15:00 - 16:00	344	236	148	251	580	399	**YES / YES**
16:00 - 17:00	422	263	177	278	685	455	**YES / YES**
17:00 - 18:00	371	191	159	270	562	429	**YES / YES**
18:00 - 19:00	266	155	135	196	421	331	**YES / YES**
19:00 - 20:00	186	76	133	140	262	273	NO / YES
20:00 - 21:00	157	69	98	95	226	193	NO / NO
21:00 - 22:00	102	40	89	56	142	145	NO / NO
22:00 - 23:00	40	25	29	32	65	61	NO / NO
23:00 - 24:00	36	20	15	16	56	31	NO / NO
Daily	**3711**	**3195**	**2000**	**3258**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	11	8

All-way Stop Warrant: **Satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A7b

2021 Existing - CSAH 48 at Grove Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Grove Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	3711
30	Major App3:	CSAH 48 WB	1	3195
30	Minor App2:	Grove Ave NB	1	1865
30	Minor App4:	Grove Ave SB	1	2216

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	8	4	6	6	12	6	NO / NO	NO / NO	NO / NO
1:00 - 2:00	10	2	5	6	12	6	NO / NO	NO / NO	NO / NO
2:00 - 3:00	13	4	3	6	17	6	NO / NO	NO / NO	NO / NO
3:00 - 4:00	3	16	0	4	19	4	NO / NO	NO / NO	NO / NO
4:00 - 5:00	11	56	14	4	67	14	NO / NO	NO / NO	NO / NO
5:00 - 6:00	26	121	15	27	147	27	NO / NO	NO / NO	NO / NO
6:00 - 7:00	81	158	40	83	239	83	NO / NO	NO / YES	NO / NO
7:00 - 8:00	231	281	139	250	512	250	NO / YES	NO / YES	NO / YES
8:00 - 9:00	161	204	113	140	365	140	NO / NO	NO / YES	NO / YES
9:00 - 10:00	108	144	85	95	252	95	NO / NO	NO / YES	NO / NO
10:00 - 11:00	173	233	66	100	406	100	NO / NO	NO / YES	NO / NO
11:00 - 12:00	236	232	98	103	468	103	NO / NO	NO / YES	NO / NO
12:00 - 13:00	205	203	90	98	408	98	NO / NO	NO / YES	NO / NO
13:00 - 14:00	219	208	88	104	427	104	NO / NO	NO / YES	NO / NO
14:00 - 15:00	302	254	186	219	556	219	NO / YES	NO / YES	NO / YES
15:00 - 16:00	344	236	138	172	580	172	NO / YES	NO / YES	NO / YES
16:00 - 17:00	422	263	162	187	685	187	**YES / YES**	NO / YES	NO / YES
17:00 - 18:00	371	191	149	212	562	212	NO / YES	NO / YES	NO / YES
18:00 - 19:00	266	155	127	152	421	152	NO / YES	NO / YES	NO / YES
19:00 - 20:00	186	76	126	107	262	126	NO / NO	NO / YES	NO / YES
20:00 - 21:00	157	69	94	77	226	94	NO / NO	NO / YES	NO / NO
21:00 - 22:00	102	40	78	39	142	78	NO / NO	NO / YES	NO / NO
22:00 - 23:00	40	25	28	14	65	28	NO / NO	NO / NO	NO / NO
23:00 - 24:00	36	20	15	11	56	15	NO / NO	NO / NO	NO / NO
Daily	**3711**	**3195**	**1865**	**2216**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	1	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	1	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	5	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A7c

2021 Existing - CSAH 48 at Grove Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Grove Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	3711
30	Major App3:	CSAH 48 WB	1	3195
30	Minor App2:	Grove Ave NB	1	1865
30	Minor App4:	Grove Ave SB	1	2216

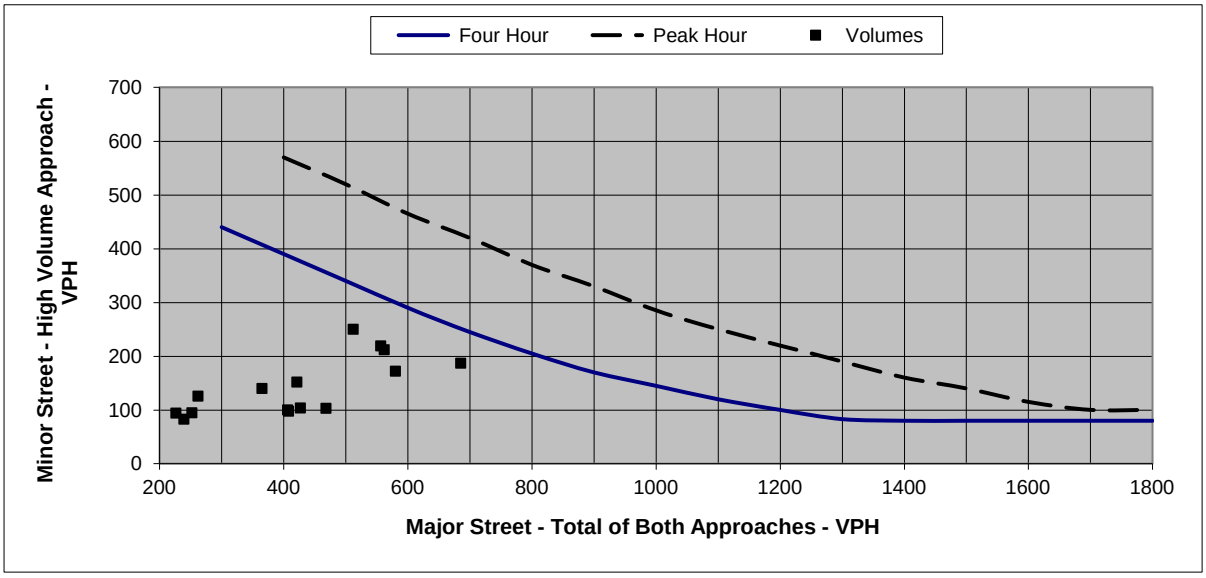


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	12	6	NO	NO
1:00 - 2:00	12	6	NO	NO
2:00 - 3:00	17	6	NO	NO
3:00 - 4:00	19	4	NO	NO
4:00 - 5:00	67	14	NO	NO
5:00 - 6:00	147	27	NO	NO
6:00 - 7:00	239	83	NO	NO
7:00 - 8:00	512	250	NO	NO
8:00 - 9:00	365	140	NO	NO
9:00 - 10:00	252	95	NO	NO
10:00 - 11:00	406	100	NO	NO
11:00 - 12:00	468	103	NO	NO
12:00 - 13:00	408	98	NO	NO
13:00 - 14:00	427	104	NO	NO
14:00 - 15:00	556	219	NO	NO
15:00 - 16:00	580	172	NO	NO
16:00 - 17:00	685	187	NO	NO
17:00 - 18:00	562	212	NO	NO
18:00 - 19:00	421	152	NO	NO
19:00 - 20:00	262	126	NO	NO
20:00 - 21:00	226	94	NO	NO
21:00 - 22:00	142	78	NO	NO
22:00 - 23:00	65	28	NO	NO
23:00 - 24:00	56	15	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A7d

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2021 Existing - CSAH 48 at Grove Ave
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 80% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at Grove Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	3711
30	Major App3:	CSAH 48 WB	1	3195
30	Minor App2:	Grove Ave NB	1	1865
30	Minor App4:	Grove Ave SB	1	2216

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

80%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	480	720	576
Minor Approach	120	60	96

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	8	4	6	6	12	6	NO / NO	NO / NO	NO / NO
1:00 - 2:00	10	2	5	6	12	6	NO / NO	NO / NO	NO / NO
2:00 - 3:00	13	4	3	6	17	6	NO / NO	NO / NO	NO / NO
3:00 - 4:00	3	16	0	4	19	4	NO / NO	NO / NO	NO / NO
4:00 - 5:00	11	56	14	4	67	14	NO / NO	NO / NO	NO / NO
5:00 - 6:00	26	121	15	27	147	27	NO / NO	NO / NO	NO / NO
6:00 - 7:00	81	158	40	83	239	83	NO / NO	NO / YES	NO / NO
7:00 - 8:00	231	281	139	250	512	250	**YES / YES**	NO / YES	NO / YES
8:00 - 9:00	161	204	113	140	365	140	NO / YES	NO / YES	NO / YES
9:00 - 10:00	108	144	85	95	252	95	NO / NO	NO / YES	NO / NO
10:00 - 11:00	173	233	66	100	406	100	NO / NO	NO / YES	NO / YES
11:00 - 12:00	236	232	98	103	468	103	NO / NO	NO / YES	NO / YES
12:00 - 13:00	205	203	90	98	408	98	NO / NO	NO / YES	NO / YES
13:00 - 14:00	219	208	88	104	427	104	NO / NO	NO / YES	NO / YES
14:00 - 15:00	302	254	186	219	556	219	**YES / YES**	NO / YES	NO / YES
15:00 - 16:00	344	236	138	172	580	172	**YES / YES**	NO / YES	**YES / YES**
16:00 - 17:00	422	263	162	187	685	187	**YES / YES**	NO / YES	**YES / YES**
17:00 - 18:00	371	191	149	212	562	212	**YES / YES**	NO / YES	NO / YES
18:00 - 19:00	266	155	127	152	421	152	NO / YES	NO / YES	NO / YES
19:00 - 20:00	186	76	126	107	262	126	NO / YES	NO / YES	NO / YES
20:00 - 21:00	157	69	94	77	226	94	NO / NO	NO / YES	NO / NO
21:00 - 22:00	102	40	78	39	142	78	NO / NO	NO / YES	NO / NO
22:00 - 23:00	40	25	28	14	65	28	NO / NO	NO / NO	NO / NO
23:00 - 24:00	36	20	15	11	56	15	NO / NO	NO / NO	NO / NO
Daily	**3711**	**3195**	**1865**	**2216**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	5	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	5	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	2	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A7e

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2021 Existing - CSAH 48 at Grove Ave
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 60% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at Grove Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	3711
30	Major App3:	CSAH 48 WB	1	3195
30	Minor App2:	Grove Ave NB	1	1865
30	Minor App4:	Grove Ave SB	1	2216

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

60%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	360	540	432
Minor Approach	90	45	72

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	8	4	6	6	12	6	NO / NO	NO / NO	NO / NO
1:00 - 2:00	10	2	5	6	12	6	NO / NO	NO / NO	NO / NO
2:00 - 3:00	13	4	3	6	17	6	NO / NO	NO / NO	NO / NO
3:00 - 4:00	3	16	0	4	19	4	NO / NO	NO / NO	NO / NO
4:00 - 5:00	11	56	14	4	67	14	NO / NO	NO / NO	NO / NO
5:00 - 6:00	26	121	15	27	147	27	NO / NO	NO / NO	NO / NO
6:00 - 7:00	81	158	40	83	239	83	NO / NO	NO / YES	NO / YES
7:00 - 8:00	231	281	139	250	512	250	**YES / YES**	NO / YES	**YES / YES**
8:00 - 9:00	161	204	113	140	365	140	**YES / YES**	NO / YES	NO / YES
9:00 - 10:00	108	144	85	95	252	95	NO / YES	NO / YES	NO / YES
10:00 - 11:00	173	233	66	100	406	100	**YES / YES**	NO / YES	NO / YES
11:00 - 12:00	236	232	98	103	468	103	**YES / YES**	NO / YES	**YES / YES**
12:00 - 13:00	205	203	90	98	408	98	**YES / YES**	NO / YES	NO / YES
13:00 - 14:00	219	208	88	104	427	104	**YES / YES**	NO / YES	NO / YES
14:00 - 15:00	302	254	186	219	556	219	**YES / YES**	**YES / YES**	**YES / YES**
15:00 - 16:00	344	236	138	172	580	172	**YES / YES**	**YES / YES**	**YES / YES**
16:00 - 17:00	422	263	162	187	685	187	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	371	191	149	212	562	212	**YES / YES**	**YES / YES**	**YES / YES**
18:00 - 19:00	266	155	127	152	421	152	**YES / YES**	NO / YES	NO / YES
19:00 - 20:00	186	76	126	107	262	126	NO / YES	NO / YES	NO / YES
20:00 - 21:00	157	69	94	77	226	94	NO / YES	NO / YES	NO / YES
21:00 - 22:00	102	40	78	39	142	78	NO / NO	NO / YES	NO / YES
22:00 - 23:00	40	25	28	14	65	28	NO / NO	NO / NO	NO / NO
23:00 - 24:00	36	20	15	11	56	15	NO / NO	NO / NO	NO / NO
Daily	**3711**	**3195**	**1865**	**2216**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	**11**	8	**Satisfied**
Warrant 1A	Minimum Vehicular Volume	**11**	8	**Satisfied**
Warrant 1B	Interruption of Continuous Flow	4	8	Not satisfied
1A & 1B	Combination of Warrants	6	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A7f

2045 Future - CSAH 48 at Grove Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Grove Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	2	4597
30	Major App3:	CSAH 48 WB	1	3958
30	Minor App2:	Grove Ave NB	1	2474
30	Minor App4:	Grove Ave SB	1	4033

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement
300 **200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	9	4	7	11	13	18	NO / NO
1:00 - 2:00	12	2	5	9	14	14	NO / NO
2:00 - 3:00	15	4	3	10	19	13	NO / NO
3:00 - 4:00	3	20	0	8	23	8	NO / NO
4:00 - 5:00	13	70	16	20	83	36	NO / NO
5:00 - 6:00	32	150	21	51	182	72	NO / NO
6:00 - 7:00	101	196	50	192	297	242	NO / YES
7:00 - 8:00	287	349	190	445	636	635	**YES / YES**
8:00 - 9:00	200	253	149	257	453	406	**YES / YES**
9:00 - 10:00	134	179	111	160	313	271	**YES / YES**
10:00 - 11:00	214	289	86	192	503	278	**YES / YES**
11:00 - 12:00	292	288	134	210	580	344	**YES / YES**
12:00 - 13:00	254	251	126	214	505	340	**YES / YES**
13:00 - 14:00	271	258	113	214	529	327	**YES / YES**
14:00 - 15:00	374	314	244	387	688	631	**YES / YES**
15:00 - 16:00	427	292	184	311	719	495	**YES / YES**
16:00 - 17:00	524	326	219	344	850	563	**YES / YES**
17:00 - 18:00	460	238	197	335	698	532	**YES / YES**
18:00 - 19:00	330	192	168	243	522	411	**YES / YES**
19:00 - 20:00	232	95	166	173	327	339	**YES / YES**
20:00 - 21:00	194	85	122	118	279	240	NO / YES
21:00 - 22:00	126	49	110	70	175	180	NO / NO
22:00 - 23:00	49	30	35	39	79	74	NO / NO
23:00 - 24:00	44	24	18	20	68	38	NO / NO
Daily	**4597**	**3958**	**2474**	**4033**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**13**	**8**

All-way Stop Warrant: **Satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A7g

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2045 Future - CSAH 48 at Grove Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Grove Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	4597
30	Major App3:	CSAH 48 WB	1	3958
30	Minor App2:	Grove Ave NB	1	2310
30	Minor App4:	Grove Ave SB	1	2743

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	600	900	720
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	9	4	7	6	13	7	NO / NO	NO / NO	NO / NO
1:00 - 2:00	12	2	5	7	14	7	NO / NO	NO / NO	NO / NO
2:00 - 3:00	15	4	3	7	19	7	NO / NO	NO / NO	NO / NO
3:00 - 4:00	3	20	0	5	23	5	NO / NO	NO / NO	NO / NO
4:00 - 5:00	13	70	16	5	83	16	NO / NO	NO / NO	NO / NO
5:00 - 6:00	32	150	18	33	182	33	NO / NO	NO / NO	NO / NO
6:00 - 7:00	101	196	50	104	297	104	NO / NO	NO / YES	NO / NO
7:00 - 8:00	287	349	172	310	636	310	**YES / YES**	NO / YES	NO / YES
8:00 - 9:00	200	253	141	173	453	173	NO / YES	NO / YES	NO / YES
9:00 - 10:00	134	179	105	117	313	117	NO / NO	NO / YES	NO / NO
10:00 - 11:00	214	289	82	125	503	125	NO / NO	NO / YES	NO / YES
11:00 - 12:00	292	288	122	128	580	128	NO / NO	NO / YES	NO / YES
12:00 - 13:00	254	251	112	120	505	120	NO / NO	NO / YES	NO / YES
13:00 - 14:00	271	258	110	129	529	129	NO / NO	NO / YES	NO / YES
14:00 - 15:00	374	314	231	271	688	271	**YES / YES**	NO / YES	NO / YES
15:00 - 16:00	427	292	171	213	719	213	**YES / YES**	NO / YES	NO / YES
16:00 - 17:00	524	326	200	232	850	232	**YES / YES**	NO / YES	**YES / YES**
17:00 - 18:00	460	238	185	263	698	263	**YES / YES**	NO / YES	NO / YES
18:00 - 19:00	330	192	158	188	522	188	NO / YES	NO / YES	NO / YES
19:00 - 20:00	232	95	156	132	327	156	NO / YES	NO / YES	NO / YES
20:00 - 21:00	194	85	117	96	279	117	NO / NO	NO / YES	NO / NO
21:00 - 22:00	126	49	97	49	175	97	NO / NO	NO / YES	NO / NO
22:00 - 23:00	49	30	34	18	79	34	NO / NO	NO / NO	NO / NO
23:00 - 24:00	44	24	18	12	68	18	NO / NO	NO / NO	NO / NO
Daily	**4597**	**3958**	**2310**	**2743**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	5	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	5	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	1	8	Not satisfied
Warrant 2	**Four Hour Volumes**	**4**	4	**Satisfied**
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	**10**	8	Crashes Insufficient

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A7h

2045 Future - CSAH 48 at Grove Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Grove Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	4597
30	Major App3:	CSAH 48 WB	1	3958
30	Minor App2:	Grove Ave NB	1	2310
30	Minor App4:	Grove Ave SB	1	2743

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

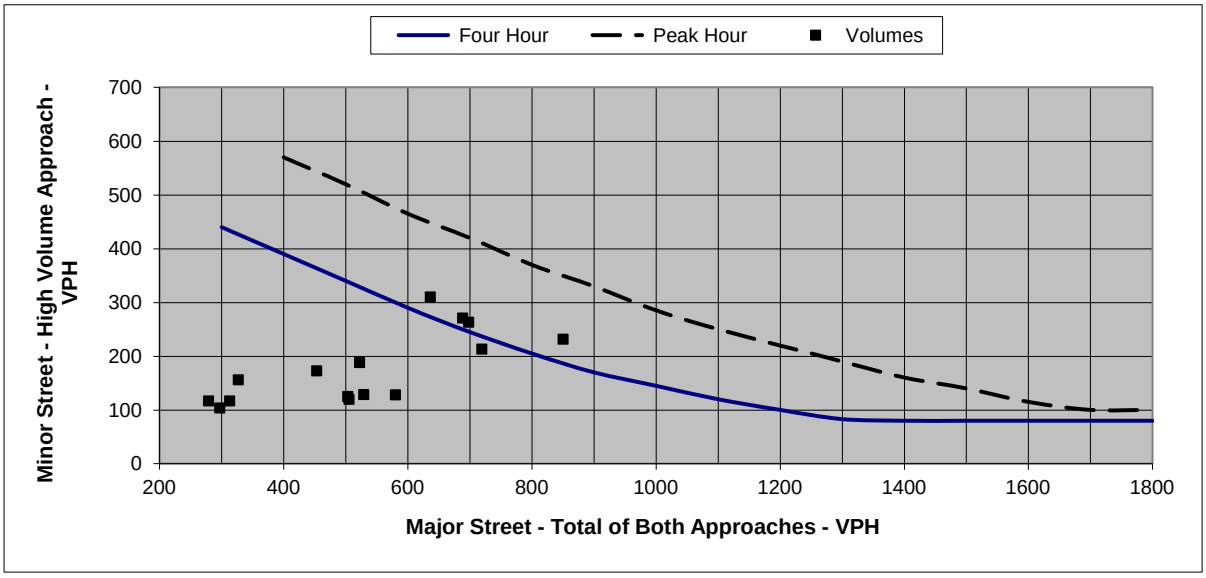


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	440	
400	390	570
500	340	520
600	290	465
700	245	420
800	205	370
900	170	330
1000	145	285
1100	120	250
1200	100	220
1300	83	190
1400	80	160
1500	80	140
1600	80	115
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	13	7	NO	NO
1:00 - 2:00	14	7	NO	NO
2:00 - 3:00	19	7	NO	NO
3:00 - 4:00	23	5	NO	NO
4:00 - 5:00	83	16	NO	NO
5:00 - 6:00	182	33	NO	NO
6:00 - 7:00	297	104	NO	NO
7:00 - 8:00	636	310	**YES**	NO
8:00 - 9:00	453	173	NO	NO
9:00 - 10:00	313	117	NO	NO
10:00 - 11:00	503	125	NO	NO
11:00 - 12:00	580	128	NO	NO
12:00 - 13:00	505	120	NO	NO
13:00 - 14:00	529	129	NO	NO
14:00 - 15:00	688	271	**YES**	NO
15:00 - 16:00	719	213	NO	NO
16:00 - 17:00	850	232	**YES**	NO
17:00 - 18:00	698	263	**YES**	NO
18:00 - 19:00	522	188	NO	NO
19:00 - 20:00	327	156	NO	NO
20:00 - 21:00	279	117	NO	NO
21:00 - 22:00	175	97	NO	NO
22:00 - 23:00	79	34	NO	NO
23:00 - 24:00	68	18	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A7i

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2045 Future - CSAH 48 at Grove Ave
SIGNAL WARRANT
ANALYSIS

Volume Threshold Reduced to 80% of Full Volume Warrant Thresholds

LOCATION: CSAH 48 at Grove Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	2	4597
30	Major App3:	CSAH 48 WB	1	3958
30	Minor App2:	Grove Ave NB	1	2310
30	Minor App4:	Grove Ave SB	1	2743

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

80%

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	480	720	576
Minor Approach	120	60	96

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	9	4	7	6	13	7	NO / NO	NO / NO	NO / NO
1:00 - 2:00	12	2	5	7	14	7	NO / NO	NO / NO	NO / NO
2:00 - 3:00	15	4	3	7	19	7	NO / NO	NO / NO	NO / NO
3:00 - 4:00	3	20	0	5	23	5	NO / NO	NO / NO	NO / NO
4:00 - 5:00	13	70	16	5	83	16	NO / NO	NO / NO	NO / NO
5:00 - 6:00	32	150	18	33	182	33	NO / NO	NO / NO	NO / NO
6:00 - 7:00	101	196	50	104	297	104	NO / NO	NO / YES	NO / YES
7:00 - 8:00	287	349	172	310	636	310	**YES / YES**	NO / YES	**YES / YES**
8:00 - 9:00	200	253	141	173	453	173	NO / YES	NO / YES	NO / YES
9:00 - 10:00	134	179	105	117	313	117	NO / NO	NO / YES	NO / YES
10:00 - 11:00	214	289	82	125	503	125	**YES / YES**	NO / YES	NO / YES
11:00 - 12:00	292	288	122	128	580	128	**YES / YES**	NO / YES	**YES / YES**
12:00 - 13:00	254	251	112	120	505	120	**YES / YES**	NO / YES	NO / YES
13:00 - 14:00	271	258	110	129	529	129	**YES / YES**	NO / YES	NO / YES
14:00 - 15:00	374	314	231	271	688	271	**YES / YES**	NO / YES	**YES / YES**
15:00 - 16:00	427	292	171	213	719	213	**YES / YES**	NO / YES	**YES / YES**
16:00 - 17:00	524	326	200	232	850	232	**YES / YES**	**YES / YES**	**YES / YES**
17:00 - 18:00	460	238	185	263	698	263	**YES / YES**	NO / YES	**YES / YES**
18:00 - 19:00	330	192	158	188	522	188	**YES / YES**	NO / YES	NO / YES
19:00 - 20:00	232	95	156	132	327	156	NO / YES	NO / YES	NO / YES
20:00 - 21:00	194	85	117	96	279	117	NO / NO	NO / YES	NO / YES
21:00 - 22:00	126	49	97	49	175	97	NO / NO	NO / YES	NO / YES
22:00 - 23:00	49	30	34	18	79	34	NO / NO	NO / NO	NO / NO
23:00 - 24:00	44	24	18	12	68	18	NO / NO	NO / NO	NO / NO
Daily	**4597**	**3958**	**2310**	**2743**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	**10**	8	**Satisfied**
Warrant 1A	Minimum Vehicular Volume	**10**	8	**Satisfied**
Warrant 1B	Interruption of Continuous Flow	1	8	Not satisfied
1A & 1B	Combination of Warrants	6	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A8a

2021 Existing - CSAH 48 at Lincoln Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Lincoln Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	1	2739
30	Major App3:	CSAH 48 WB	1	2920
30	Minor App2:	Lincoln Ave NB	1	2258
30	Minor App4:	Lincoln Ave SB	1	1868

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement
300 **200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	4	6	2	2	10	4	NO / NO
1:00 - 2:00	10	3	1	7	13	8	NO / NO
2:00 - 3:00	12	6	0	3	18	3	NO / NO
3:00 - 4:00	4	9	11	2	13	13	NO / NO
4:00 - 5:00	9	35	22	9	44	31	NO / NO
5:00 - 6:00	24	101	39	25	125	64	NO / NO
6:00 - 7:00	64	162	90	63	226	153	NO / NO
7:00 - 8:00	129	336	222	209	465	431	**YES / YES**
8:00 - 9:00	126	188	130	139	314	269	**YES / YES**
9:00 - 10:00	87	148	94	84	235	178	NO / NO
10:00 - 11:00	155	178	126	95	333	221	**YES / YES**
11:00 - 12:00	163	195	149	112	358	261	**YES / YES**
12:00 - 13:00	157	163	106	89	320	195	YES / NO
13:00 - 14:00	169	167	126	89	336	215	**YES / YES**
14:00 - 15:00	214	212	260	146	426	406	**YES / YES**
15:00 - 16:00	280	203	187	207	483	394	**YES / YES**
16:00 - 17:00	338	239	186	166	577	352	**YES / YES**
17:00 - 18:00	256	216	151	151	472	302	**YES / YES**
18:00 - 19:00	172	144	113	112	316	225	**YES / YES**
19:00 - 20:00	134	77	83	62	211	145	NO / NO
20:00 - 21:00	103	55	68	47	158	115	NO / NO
21:00 - 22:00	69	32	59	26	101	85	NO / NO
22:00 - 23:00	37	30	28	18	67	46	NO / NO
23:00 - 24:00	23	15	5	5	38	10	NO / NO
Daily	**2739**	**2920**	**2258**	**1868**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**10**	**8**

All-way Stop Warrant: **Satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A8b

2021 Existing - CSAH 48 at Lincoln Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Lincoln Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	1	2739
30	Major App3:	CSAH 48 WB	1	2920
30	Minor App2:	Lincoln Ave NB	1	1930
30	Minor App4:	Lincoln Ave SB	1	1753

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	500	750	600
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	4	6	2	2	10	2	NO / NO	NO / NO	NO / NO
1:00 - 2:00	10	3	1	7	13	7	NO / NO	NO / NO	NO / NO
2:00 - 3:00	12	6	0	2	18	2	NO / NO	NO / NO	NO / NO
3:00 - 4:00	4	9	10	1	13	10	NO / NO	NO / NO	NO / NO
4:00 - 5:00	9	35	21	8	44	21	NO / NO	NO / NO	NO / NO
5:00 - 6:00	24	101	36	20	125	36	NO / NO	NO / NO	NO / NO
6:00 - 7:00	64	162	84	61	226	84	NO / NO	NO / YES	NO / NO
7:00 - 8:00	129	336	205	198	465	205	NO / YES	NO / YES	NO / YES
8:00 - 9:00	126	188	117	125	314	125	NO / NO	NO / YES	NO / YES
9:00 - 10:00	87	148	84	82	235	84	NO / NO	NO / YES	NO / NO
10:00 - 11:00	155	178	111	77	333	111	NO / NO	NO / YES	NO / NO
11:00 - 12:00	163	195	123	108	358	123	NO / NO	NO / YES	NO / YES
12:00 - 13:00	157	163	88	84	320	88	NO / NO	NO / YES	NO / NO
13:00 - 14:00	169	167	111	82	336	111	NO / NO	NO / YES	NO / NO
14:00 - 15:00	214	212	236	132	426	236	NO / YES	NO / YES	NO / YES
15:00 - 16:00	280	203	150	194	483	194	NO / YES	NO / YES	NO / YES
16:00 - 17:00	338	239	150	157	577	157	**YES / YES**	NO / YES	NO / YES
17:00 - 18:00	256	216	121	148	472	148	NO / NO	NO / YES	NO / YES
18:00 - 19:00	172	144	98	111	316	111	NO / NO	NO / YES	NO / NO
19:00 - 20:00	134	77	63	59	211	63	NO / NO	NO / NO	NO / NO
20:00 - 21:00	103	55	55	47	158	55	NO / NO	NO / NO	NO / NO
21:00 - 22:00	69	32	41	25	101	41	NO / NO	NO / NO	NO / NO
22:00 - 23:00	37	30	19	18	67	19	NO / NO	NO / NO	NO / NO
23:00 - 24:00	23	15	4	5	38	5	NO / NO	NO / NO	NO / NO
Daily	**2739**	**2920**	**1930**	**1753**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	1	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	1	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	5	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A8c

2021 Existing - CSAH 48 at Lincoln Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Lincoln Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	1	2739
30	Major App3:	CSAH 48 WB	1	2920
30	Minor App2:	Lincoln Ave NB	1	1930
30	Minor App4:	Lincoln Ave SB	1	1753

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

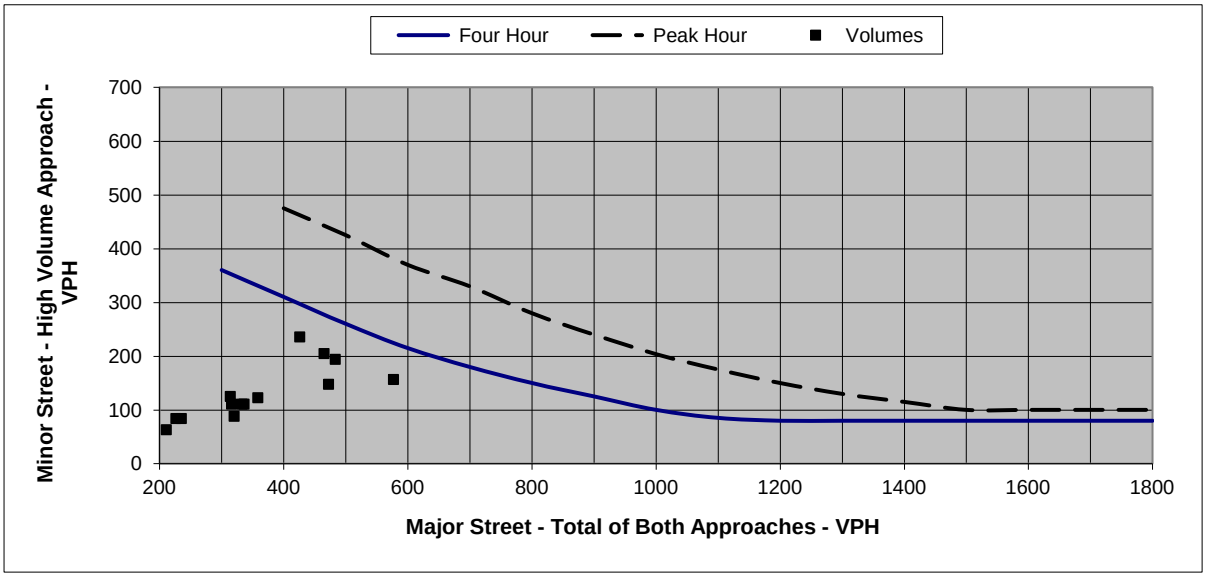


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major	Minor App.	Minor App.
Approach	Four Hour	Peak Hour
200		
300	360	
400	310	475
500	260	425
600	215	370
700	180	330
800	150	280
900	125	240
1000	100	204
1100	85	175
1200	80	150
1300	80	130
1400	80	115
1500	80	100
1600	80	100
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrants Met: Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	10	2	NO	NO
1:00 - 2:00	13	7	NO	NO
2:00 - 3:00	18	2	NO	NO
3:00 - 4:00	13	10	NO	NO
4:00 - 5:00	44	21	NO	NO
5:00 - 6:00	125	36	NO	NO
6:00 - 7:00	226	84	NO	NO
7:00 - 8:00	465	205	NO	NO
8:00 - 9:00	314	125	NO	NO
9:00 - 10:00	235	84	NO	NO
10:00 - 11:00	333	111	NO	NO
11:00 - 12:00	358	123	NO	NO
12:00 - 13:00	320	88	NO	NO
13:00 - 14:00	336	111	NO	NO
14:00 - 15:00	426	236	NO	NO
15:00 - 16:00	483	194	NO	NO
16:00 - 17:00	577	157	NO	NO
17:00 - 18:00	472	148	NO	NO
18:00 - 19:00	316	111	NO	NO
19:00 - 20:00	211	63	NO	NO
20:00 - 21:00	158	55	NO	NO
21:00 - 22:00	101	41	NO	NO
22:00 - 23:00	67	19	NO	NO
23:00 - 24:00	38	5	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A8d

2045 Future - CSAH 48 at Lincoln Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Lincoln Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	1	3396
30	Major App3:	CSAH 48 WB	1	3619
30	Minor App2:	Lincoln Ave NB	1	2800
30	Minor App4:	Lincoln Ave SB	1	2315

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement
300 **200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	5	7	2	2	12	4	NO / NO
1:00 - 2:00	13	3	1	8	16	9	NO / NO
2:00 - 3:00	15	6	0	3	21	3	NO / NO
3:00 - 4:00	5	11	13	2	16	15	NO / NO
4:00 - 5:00	11	44	27	11	55	38	NO / NO
5:00 - 6:00	30	125	48	31	155	79	NO / NO
6:00 - 7:00	78	201	111	78	279	189	NO / NO
7:00 - 8:00	159	418	276	259	577	535	**YES / YES**
8:00 - 9:00	156	232	161	172	388	333	**YES / YES**
9:00 - 10:00	108	184	117	106	292	223	NO / YES
10:00 - 11:00	192	221	157	119	413	276	**YES / YES**
11:00 - 12:00	203	242	185	139	445	324	**YES / YES**
12:00 - 13:00	195	203	132	111	398	243	**YES / YES**
13:00 - 14:00	210	207	156	110	417	266	**YES / YES**
14:00 - 15:00	266	263	322	180	529	502	**YES / YES**
15:00 - 16:00	346	251	232	257	597	489	**YES / YES**
16:00 - 17:00	420	295	232	206	715	438	**YES / YES**
17:00 - 18:00	317	268	187	187	585	374	**YES / YES**
18:00 - 19:00	213	179	140	138	392	278	**YES / YES**
19:00 - 20:00	167	95	103	78	262	181	NO / NO
20:00 - 21:00	128	69	84	58	197	142	NO / NO
21:00 - 22:00	85	40	74	32	125	106	NO / NO
22:00 - 23:00	45	37	34	22	82	56	NO / NO
23:00 - 24:00	29	18	6	6	47	12	NO / NO
Daily	**3396**	**3619**	**2800**	**2315**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**11**	**8**

All-way Stop Warrant: **Satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.

Exhibit A8e

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2045 Future - CSAH 48 at Lincoln Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Lincoln Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	1	3396
30	Major App3:	CSAH 48 WB	1	3619
30	Minor App2:	Lincoln Ave NB	1	2391
30	Minor App4:	Lincoln Ave SB	1	2171

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	500	750	600
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	5	7	2	2	12	2	NO / NO	NO / NO	NO / NO
1:00 - 2:00	13	3	1	8	16	8	NO / NO	NO / NO	NO / NO
2:00 - 3:00	15	6	0	2	21	2	NO / NO	NO / NO	NO / NO
3:00 - 4:00	5	11	12	1	16	12	NO / NO	NO / NO	NO / NO
4:00 - 5:00	11	44	25	10	55	25	NO / NO	NO / NO	NO / NO
5:00 - 6:00	30	125	45	25	155	45	NO / NO	NO / NO	NO / NO
6:00 - 7:00	78	201	104	76	279	104	NO / NO	NO / YES	NO / NO
7:00 - 8:00	159	418	253	246	577	253	**YES / YES**	NO / YES	NO / YES
8:00 - 9:00	156	232	145	155	388	155	NO / YES	NO / YES	NO / YES
9:00 - 10:00	108	184	105	102	292	105	NO / NO	NO / YES	NO / NO
10:00 - 11:00	192	221	137	96	413	137	NO / NO	NO / YES	NO / YES
11:00 - 12:00	203	242	152	134	445	152	NO / YES	NO / YES	NO / YES
12:00 - 13:00	195	203	109	104	398	109	NO / NO	NO / YES	NO / NO
13:00 - 14:00	210	207	138	101	417	138	NO / NO	NO / YES	NO / YES
14:00 - 15:00	266	263	294	164	529	294	**YES / YES**	NO / YES	NO / YES
15:00 - 16:00	346	251	185	240	597	240	**YES / YES**	NO / YES	NO / YES
16:00 - 17:00	420	295	186	195	715	195	**YES / YES**	NO / YES	**YES / YES**
17:00 - 18:00	317	268	150	183	585	183	**YES / YES**	NO / YES	NO / YES
18:00 - 19:00	213	179	123	137	392	137	NO / NO	NO / YES	NO / YES
19:00 - 20:00	167	95	79	74	262	79	NO / NO	NO / YES	NO / NO
20:00 - 21:00	128	69	68	58	197	68	NO / NO	NO / NO	NO / NO
21:00 - 22:00	85	40	51	30	125	51	NO / NO	NO / NO	NO / NO
22:00 - 23:00	45	37	23	22	82	23	NO / NO	NO / NO	NO / NO
23:00 - 24:00	29	18	4	6	47	6	NO / NO	NO / NO	NO / NO
Daily	**3396**	**3619**	**2391**	**2171**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	5	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	5	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	1	8	Not satisfied
Warrant 2	**Four Hour Volumes**	**4**	4	**Satisfied**
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	**8**	8	Crashes Insufficient

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A8f

2045 Future - CSAH 48 at Lincoln Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Lincoln Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	1	3396
30	Major App3:	CSAH 48 WB	1	3619
30	Minor App2:	Lincoln Ave NB	1	2391
30	Minor App4:	Lincoln Ave SB	1	2171

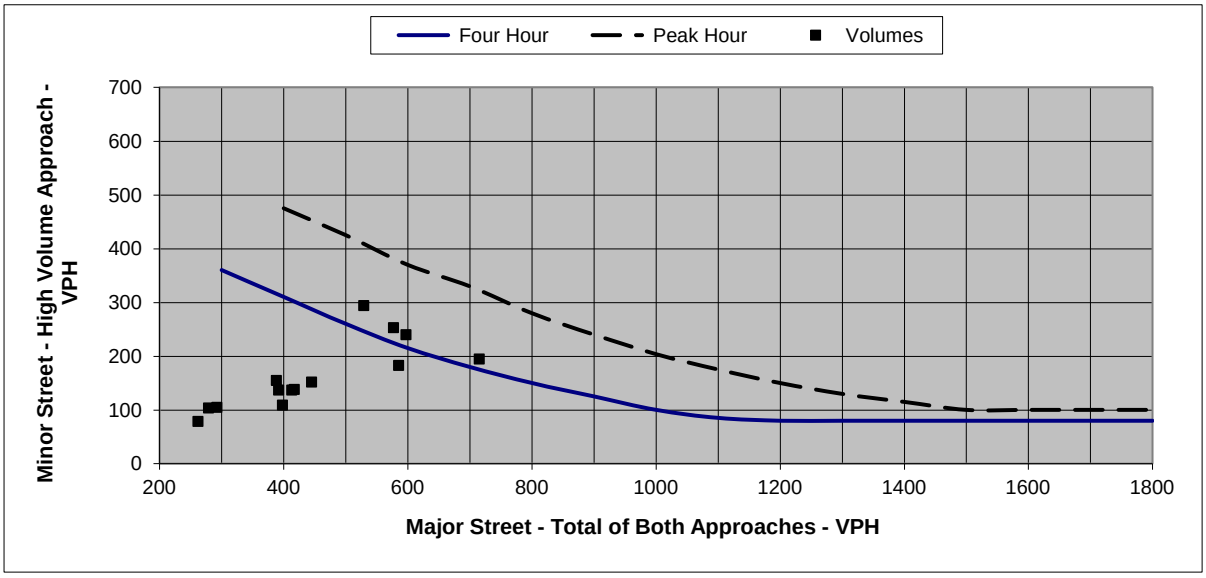


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	360	
400	310	475
500	260	425
600	215	370
700	180	330
800	150	280
900	125	240
1000	100	204
1100	85	175
1200	80	150
1300	80	130
1400	80	115
1500	80	100
1600	80	100
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	12	2	NO	NO
1:00 - 2:00	16	8	NO	NO
2:00 - 3:00	21	2	NO	NO
3:00 - 4:00	16	12	NO	NO
4:00 - 5:00	55	25	NO	NO
5:00 - 6:00	155	45	NO	NO
6:00 - 7:00	279	104	NO	NO
7:00 - 8:00	577	253	**YES**	NO
8:00 - 9:00	388	155	NO	NO
9:00 - 10:00	292	105	NO	NO
10:00 - 11:00	413	137	NO	NO
11:00 - 12:00	445	152	NO	NO
12:00 - 13:00	398	109	NO	NO
13:00 - 14:00	417	138	NO	NO
14:00 - 15:00	529	294	**YES**	NO
15:00 - 16:00	597	240	**YES**	NO
16:00 - 17:00	715	195	**YES**	NO
17:00 - 18:00	585	183	NO	NO
18:00 - 19:00	392	137	NO	NO
19:00 - 20:00	262	79	NO	NO
20:00 - 21:00	197	68	NO	NO
21:00 - 22:00	125	51	NO	NO
22:00 - 23:00	82	23	NO	NO
23:00 - 24:00	47	6	NO	NO

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A9a

2021 Existing - CSAH 48 at Chambers Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Chambers Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	1	2746
30	Major App3:	CSAH 48 WB	1	2393
30	Minor App2:	Chambers Ave NB	1	149
30	Minor App4:	Chambers Ave SB	1	973

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement
300 **200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	3	7	0	0	10	0	NO / NO
1:00 - 2:00	8	4	1	1	12	2	NO / NO
2:00 - 3:00	10	6	0	3	16	3	NO / NO
3:00 - 4:00	5	7	0	2	12	2	NO / NO
4:00 - 5:00	13	30	2	5	43	7	NO / NO
5:00 - 6:00	37	78	8	24	115	32	NO / NO
6:00 - 7:00	89	124	3	54	213	57	NO / NO
7:00 - 8:00	134	259	11	145	393	156	YES / NO
8:00 - 9:00	118	139	6	66	257	72	NO / NO
9:00 - 10:00	94	115	7	50	209	57	NO / NO
10:00 - 11:00	138	142	11	53	280	64	NO / NO
11:00 - 12:00	173	156	4	69	329	73	YES / NO
12:00 - 13:00	144	137	7	42	281	49	NO / NO
13:00 - 14:00	147	141	9	46	288	55	NO / NO
14:00 - 15:00	197	187	23	61	384	84	YES / NO
15:00 - 16:00	287	181	14	60	468	74	YES / NO
16:00 - 17:00	331	209	10	99	540	109	YES / NO
17:00 - 18:00	275	166	10	81	441	91	YES / NO
18:00 - 19:00	161	119	7	39	280	46	NO / NO
19:00 - 20:00	137	65	5	27	202	32	NO / NO
20:00 - 21:00	105	47	4	19	152	23	NO / NO
21:00 - 22:00	82	35	5	8	117	13	NO / NO
22:00 - 23:00	34	25	1	14	59	15	NO / NO
23:00 - 24:00	24	14	1	5	38	6	NO / NO
Daily	**2746**	**2393**	**149**	**973**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**0**	**8**

All-way Stop Warrant: **Not satisfied**

REMARKS:

Exhibit A9b

SHORT ELLIOTT HENDRICKSON INC.

10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

2021 Existing - CSAH 48 at Chambers Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Chambers Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	1	2746
30	Major App3:	CSAH 48 WB	1	2393
30	Minor App2:	Chambers Ave NB	1	139
30	Minor App4:	Chambers Ave SB	1	288

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	500	750	600
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	3	7	0	0	10	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	8	4	1	1	12	1	NO / NO	NO / NO	NO / NO
2:00 - 3:00	10	6	0	3	16	3	NO / NO	NO / NO	NO / NO
3:00 - 4:00	5	7	0	0	12	0	NO / NO	NO / NO	NO / NO
4:00 - 5:00	13	30	2	2	43	2	NO / NO	NO / NO	NO / NO
5:00 - 6:00	37	78	7	4	115	7	NO / NO	NO / NO	NO / NO
6:00 - 7:00	89	124	2	12	213	12	NO / NO	NO / NO	NO / NO
7:00 - 8:00	134	259	10	46	393	46	NO / NO	NO / NO	NO / NO
8:00 - 9:00	118	139	5	12	257	12	NO / NO	NO / NO	NO / NO
9:00 - 10:00	94	115	7	15	209	15	NO / NO	NO / NO	NO / NO
10:00 - 11:00	138	142	9	11	280	11	NO / NO	NO / NO	NO / NO
11:00 - 12:00	173	156	4	20	329	20	NO / NO	NO / NO	NO / NO
12:00 - 13:00	144	137	7	10	281	10	NO / NO	NO / NO	NO / NO
13:00 - 14:00	147	141	9	15	288	15	NO / NO	NO / NO	NO / NO
14:00 - 15:00	197	187	23	19	384	23	NO / NO	NO / NO	NO / NO
15:00 - 16:00	287	181	11	19	468	19	NO / NO	NO / NO	NO / NO
16:00 - 17:00	331	209	9	38	540	38	YES / NO	NO / NO	NO / NO
17:00 - 18:00	275	166	10	22	441	22	NO / NO	NO / NO	NO / NO
18:00 - 19:00	161	119	7	9	280	9	NO / NO	NO / NO	NO / NO
19:00 - 20:00	137	65	5	10	202	10	NO / NO	NO / NO	NO / NO
20:00 - 21:00	105	47	4	9	152	9	NO / NO	NO / NO	NO / NO
21:00 - 22:00	82	35	5	4	117	5	NO / NO	NO / NO	NO / NO
22:00 - 23:00	34	25	1	6	59	6	NO / NO	NO / NO	NO / NO
23:00 - 24:00	24	14	1	1	38	1	NO / NO	NO / NO	NO / NO
Daily	**2746**	**2393**	**139**	**288**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	0	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A9c

2021 Existing - CSAH 48 at Chambers Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Chambers Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	1	2746
30	Major App3:	CSAH 48 WB	1	2393
30	Minor App2:	Chambers Ave NB	1	139
30	Minor App4:	Chambers Ave SB	1	288

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

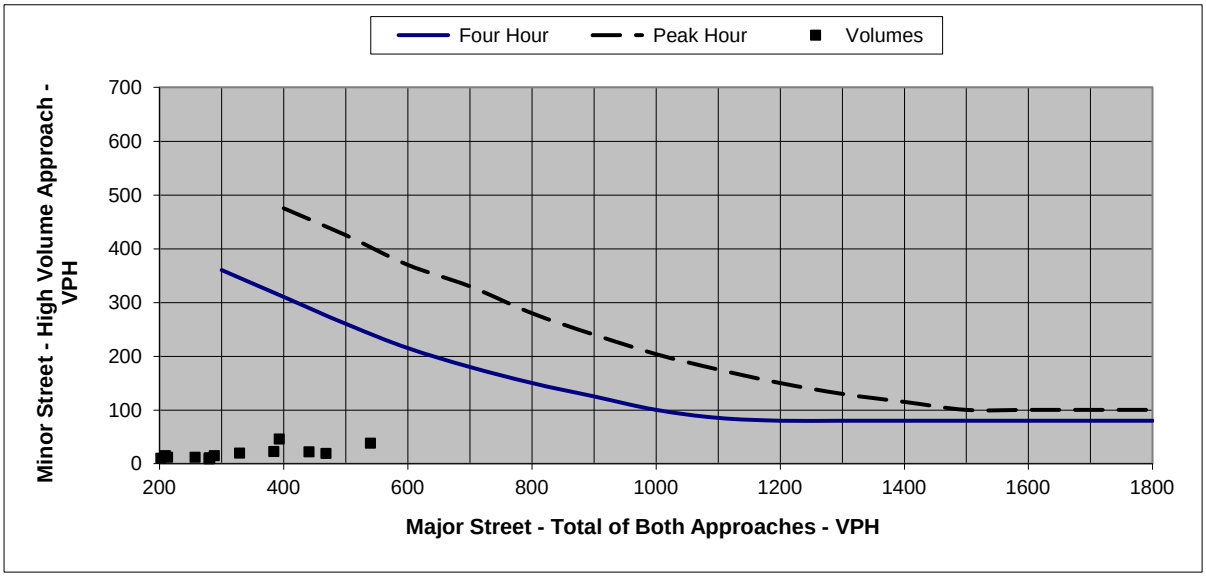


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	360	
400	310	475
500	260	425
600	215	370
700	180	330
800	150	280
900	125	240
1000	100	204
1100	85	175
1200	80	150
1300	80	130
1400	80	115
1500	80	100
1600	80	100
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	10	0	NO	NO
1:00 - 2:00	12	1	NO	NO
2:00 - 3:00	16	3	NO	NO
3:00 - 4:00	12	0	NO	NO
4:00 - 5:00	43	2	NO	NO
5:00 - 6:00	115	7	NO	NO
6:00 - 7:00	213	12	NO	NO
7:00 - 8:00	393	46	NO	NO
8:00 - 9:00	257	12	NO	NO
9:00 - 10:00	209	15	NO	NO
10:00 - 11:00	280	11	NO	NO
11:00 - 12:00	329	20	NO	NO
12:00 - 13:00	281	10	NO	NO
13:00 - 14:00	288	15	NO	NO
14:00 - 15:00	384	23	NO	NO
15:00 - 16:00	468	19	NO	NO
16:00 - 17:00	540	38	NO	NO
17:00 - 18:00	441	22	NO	NO
18:00 - 19:00	280	9	NO	NO
19:00 - 20:00	202	10	NO	NO
20:00 - 21:00	152	9	NO	NO
21:00 - 22:00	117	5	NO	NO
22:00 - 23:00	59	6	NO	NO
23:00 - 24:00	38	1	NO	NO

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A9d

2045 Future - CSAH 48 at Chambers Ave
ALL WAY STOP
WARRANT ANALYSIS

LOCATION: CSAH 48 at Chambers Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach Description		Lanes	Approach Total
30	Major App1:	CSAH 48 EB	1	3403
30	Major App3:	CSAH 48 WB	1	2963
30	Minor App2:	Chambers Ave NB	1	177
30	Minor App4:	Chambers Ave SB	1	1198

0.70 SPEED FACTOR USED? **No**

Minimum Volume Requirement
300 **200**

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MINOR APPROACH TOTAL Σ (APP.2 + APP. 4)	WARRANT MET MAJOR / MINOR
0:00 - 1:00	3	8	0	0	11	0	NO / NO
1:00 - 2:00	10	4	1	1	14	2	NO / NO
2:00 - 3:00	11	6	0	3	17	3	NO / NO
3:00 - 4:00	6	7	0	2	13	2	NO / NO
4:00 - 5:00	16	37	2	5	53	7	NO / NO
5:00 - 6:00	46	96	10	29	142	39	NO / NO
6:00 - 7:00	110	153	3	67	263	70	NO / NO
7:00 - 8:00	166	321	13	180	487	193	YES / NO
8:00 - 9:00	147	173	8	81	320	89	YES / NO
9:00 - 10:00	117	143	8	62	260	70	NO / NO
10:00 - 11:00	171	176	14	65	347	79	YES / NO
11:00 - 12:00	214	194	4	86	408	90	YES / NO
12:00 - 13:00	178	170	8	52	348	60	YES / NO
13:00 - 14:00	182	174	10	57	356	67	YES / NO
14:00 - 15:00	244	232	28	75	476	103	YES / NO
15:00 - 16:00	356	225	18	74	581	92	YES / NO
16:00 - 17:00	411	260	12	122	671	134	YES / NO
17:00 - 18:00	341	206	12	100	547	112	YES / NO
18:00 - 19:00	200	147	8	48	347	56	YES / NO
19:00 - 20:00	170	81	6	34	251	40	NO / NO
20:00 - 21:00	130	59	4	24	189	28	NO / NO
21:00 - 22:00	102	43	6	9	145	15	NO / NO
22:00 - 23:00	42	31	1	16	73	17	NO / NO
23:00 - 24:00	30	17	1	6	47	7	NO / NO
Daily	**3403**	**2963**	**177**	**1198**			

	Met (Hr)	Required (Hr)
Hours met for warrant:	**0**	**8**

All-way Stop Warrant: **Not satisfied**

REMARKS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A9e

2045 Future - CSAH 48 at Chambers Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Chambers Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022
OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	1	3403
30	Major App3:	CSAH 48 WB	1	2963
30	Minor App2:	Chambers Ave NB	1	162
30	Minor App4:	Chambers Ave SB	1	349

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**
CORRECTABLE CRASHES: (12-month period)	0

	Minimum Volume Requirement		
	1A	1B	1A&B (80%)
Major Total	500	750	600
Minor Approach	150	75	120

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	MAJOR APPROACH TOTAL Σ (APP.1 + APP. 3)	MAX MINOR APPROACH (APP. 2 or 4)	WARRANT 1A - 8 hr MAJOR/MINOR	WARRANT 1B - 8 hr MAJOR/MINOR	WARRANT 1A & B MAJOR/MINOR
0:00 - 1:00	3	8	0	0	11	0	NO / NO	NO / NO	NO / NO
1:00 - 2:00	10	4	1	1	14	1	NO / NO	NO / NO	NO / NO
2:00 - 3:00	11	6	0	3	17	3	NO / NO	NO / NO	NO / NO
3:00 - 4:00	6	7	0	0	13	0	NO / NO	NO / NO	NO / NO
4:00 - 5:00	16	37	2	2	53	2	NO / NO	NO / NO	NO / NO
5:00 - 6:00	46	96	8	5	142	8	NO / NO	NO / NO	NO / NO
6:00 - 7:00	110	153	2	14	263	14	NO / NO	NO / NO	NO / NO
7:00 - 8:00	166	321	12	57	487	57	NO / NO	NO / NO	NO / NO
8:00 - 9:00	147	173	6	14	320	14	NO / NO	NO / NO	NO / NO
9:00 - 10:00	117	143	8	18	260	18	NO / NO	NO / NO	NO / NO
10:00 - 11:00	171	176	10	13	347	13	NO / NO	NO / NO	NO / NO
11:00 - 12:00	214	194	4	24	408	24	NO / NO	NO / NO	NO / NO
12:00 - 13:00	178	170	8	13	348	13	NO / NO	NO / NO	NO / NO
13:00 - 14:00	182	174	10	19	356	19	NO / NO	NO / NO	NO / NO
14:00 - 15:00	244	232	28	24	476	28	NO / NO	NO / NO	NO / NO
15:00 - 16:00	356	225	14	22	581	22	YES / NO	NO / NO	NO / NO
16:00 - 17:00	411	260	11	48	671	48	YES / NO	NO / NO	YES / NO
17:00 - 18:00	341	206	12	27	547	27	YES / NO	NO / NO	NO / NO
18:00 - 19:00	200	147	8	10	347	10	NO / NO	NO / NO	NO / NO
19:00 - 20:00	170	81	6	11	251	11	NO / NO	NO / NO	NO / NO
20:00 - 21:00	130	59	4	11	189	11	NO / NO	NO / NO	NO / NO
21:00 - 22:00	102	43	6	5	145	6	NO / NO	NO / NO	NO / NO
22:00 - 23:00	42	31	1	7	73	7	NO / NO	NO / NO	NO / NO
23:00 - 24:00	30	17	1	1	47	1	NO / NO	NO / NO	NO / NO
Daily	**3403**	**2963**	**162**	**349**					

		Met (Hr)	Required (Hr)	WARRANT MET:
Warrant 1	**Eight Hour Volumes**	0	8	Not satisfied
Warrant 1A	Minimum Vehicular Volume	0	8	Not satisfied
Warrant 1B	Interruption of Continuous Flow	0	8	Not satisfied
1A & 1B	Combination of Warrants	0	8	Not satisfied
Warrant 2	**Four Hour Volumes**	0	4	Not satisfied
Warrant 3	**Peak Hour Volumes**	0	1	Not satisfied
Warrant 7	**Crash Experience**	0	8	Not satisfied

COMMENTS:

SHORT ELLIOTT HENDRICKSON INC.
10901 Red Circle Drive, Suite 200
Minnetonka, MN 55343

Exhibit A9f

2045 Future - CSAH 48 at Chambers Ave
SIGNAL WARRANT
ANALYSIS

LOCATION: CSAH 48 at Chambers Ave
COUNTY: Steele
REF. POINT: 0
DATE: 1/17/2022

OPERATOR: JDA

85th% Speed	Approach	Description	Lanes	Approach
30	Major App1:	CSAH 48 EB	1	3403
30	Major App3:	CSAH 48 WB	1	2963
30	Minor App2:	Chambers Ave NB	1	162
30	Minor App4:	Chambers Ave SB	1	349

40 MPH OR FASTER?	NO
POPULATION < 10,000?	NO
VOLUME REQ. AT 70%?	**NO**

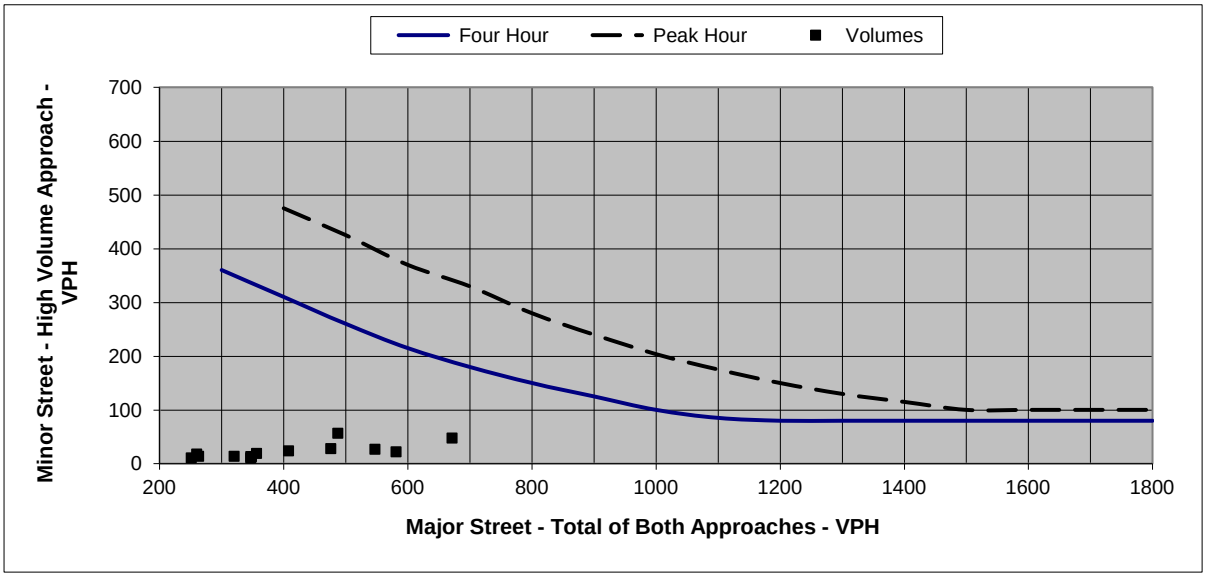


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Warrant Criteria (Graph)		
Major Approach	Minor App. Four Hour	Minor App. Peak Hour
200		
300	360	
400	310	475
500	260	425
600	215	370
700	180	330
800	150	280
900	125	240
1000	100	204
1100	85	175
1200	80	150
1300	80	130
1400	80	115
1500	80	100
1600	80	100
1700	80	100
1800	80	100

Actual Hourly Count			Warrants Met: Warrant 2	Warrant 3
HOUR	Sum Major App.	Max Minor App.	Four Hour	Peak Hour
0:00 - 1:00	11	0	NO	NO
1:00 - 2:00	14	1	NO	NO
2:00 - 3:00	17	3	NO	NO
3:00 - 4:00	13	0	NO	NO
4:00 - 5:00	53	2	NO	NO
5:00 - 6:00	142	8	NO	NO
6:00 - 7:00	263	14	NO	NO
7:00 - 8:00	487	57	NO	NO
8:00 - 9:00	320	14	NO	NO
9:00 - 10:00	260	18	NO	NO
10:00 - 11:00	347	13	NO	NO
11:00 - 12:00	408	24	NO	NO
12:00 - 13:00	348	13	NO	NO
13:00 - 14:00	356	19	NO	NO
14:00 - 15:00	476	28	NO	NO
15:00 - 16:00	581	22	NO	NO
16:00 - 17:00	671	48	NO	NO
17:00 - 18:00	547	27	NO	NO
18:00 - 19:00	347	10	NO	NO
19:00 - 20:00	251	11	NO	NO
20:00 - 21:00	189	11	NO	NO
21:00 - 22:00	145	6	NO	NO
22:00 - 23:00	73	7	NO	NO
23:00 - 24:00	47	1	NO	NO

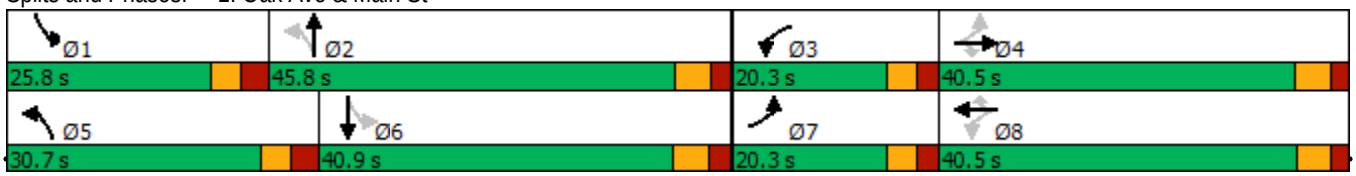
Appendix B

Traffic Operations Analysis Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	178	164	41	245	65	191	208	34	42	181	17
Future Volume (vph)	46	178	164	41	245	65	191	208	34	42	181	17
Satd. Flow (prot)	1770	1827	1599	1687	1863	1538	1770	1821	0	1641	1783	0
Flt Permitted	0.366			0.459			0.358			0.556		
Satd. Flow (perm)	682	1827	1599	815	1863	1538	667	1821	0	960	1783	0
Satd. Flow (RTOR)			256			115		8			4	
Peak Hour Factor	0.64	0.70	0.64	0.73	0.91	0.90	0.71	0.74	0.57	0.66	0.75	0.71
Heavy Vehicles (%)	2%	4%	1%	7%	2%	5%	2%	2%	0%	10%	5%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	254	256	56	269	72	269	341	0	64	265	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Total Split (s)	20.3	40.5	40.5	20.3	40.5	40.5	30.7	45.8		25.8	40.9	
Total Lost Time (s)	5.3	5.5	5.5	5.3	5.4	5.4	5.7	5.8		5.8	5.9	
Act Effct Green (s)	23.9	17.6	17.6	22.1	16.8	16.8	40.1	30.2		25.3	18.2	
Actuated g/C Ratio	0.30	0.22	0.22	0.28	0.21	0.21	0.51	0.38		0.32	0.23	
v/c Ratio	0.23	0.62	0.46	0.19	0.68	0.17	0.48	0.49		0.17	0.64	
Control Delay	20.2	37.1	7.1	20.0	40.2	2.6	16.4	24.9		15.5	38.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	20.2	37.1	7.1	20.0	40.2	2.6	16.4	24.9		15.5	38.9	
LOS	C	D	A	B	D	A	B	C		B	D	
Approach Delay		21.8			30.5			21.2			34.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	22	109	0	17	118	0	76	133		16	118	
Queue Length 95th (ft)	43	176	2	41	256	12	121	207		33	205	
Internal Link Dist (ft)		987			459			665			1008	
Turn Bay Length (ft)	100			100			150			225		
Base Capacity (vph)	469	866	893	473	886	792	713	993		641	847	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.15	0.29	0.29	0.12	0.30	0.09	0.38	0.34		0.10	0.31	

Intersection Summary	
Cycle Length: 132.4	
Actuated Cycle Length: 78.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 25.6	Intersection LOS: C
Intersection Capacity Utilization 58.7%	ICU Level of Service B
Analysis Period (min) 15	

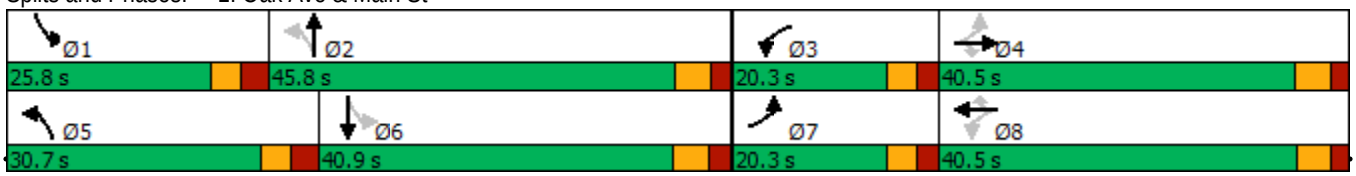
Splits and Phases: 1: Oak Ave & Main St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	285	247	78	241	102	200	283	31	115	322	31
Future Volume (vph)	88	285	247	78	241	102	200	283	31	115	322	31
Satd. Flow (prot)	1805	1881	1615	1805	1863	1583	1770	1870	0	1787	1835	0
Flt Permitted	0.394			0.361			0.224			0.361		
Satd. Flow (perm)	749	1881	1615	686	1863	1583	417	1870	0	679	1835	0
Satd. Flow (RTOR)			260			116		5			4	
Peak Hour Factor	0.85	0.81	0.95	0.81	0.93	0.88	0.98	0.85	0.78	0.76	0.93	0.86
Heavy Vehicles (%)	0%	1%	0%	0%	2%	2%	2%	0%	0%	1%	2%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	352	260	96	259	116	204	373	0	151	382	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Total Split (s)	20.3	40.5	40.5	20.3	40.5	40.5	30.7	45.8		25.8	40.9	
Total Lost Time (s)	5.3	5.5	5.5	5.3	5.4	5.4	5.7	5.8		5.8	5.9	
Act Effct Green (s)	32.6	25.1	25.1	29.1	21.1	21.1	39.8	26.5		33.3	23.2	
Actuated g/C Ratio	0.36	0.28	0.28	0.32	0.23	0.23	0.44	0.29		0.37	0.26	
v/c Ratio	0.28	0.67	0.41	0.30	0.60	0.25	0.53	0.68		0.40	0.80	
Control Delay	21.1	39.3	6.2	21.8	38.4	7.7	20.9	36.1		19.2	47.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	21.1	39.3	6.2	21.8	38.4	7.7	20.9	36.1		19.2	47.0	
LOS	C	D	A	C	D	A	C	D		B	D	
Approach Delay		24.6			27.5			30.7			39.1	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	36	179	0	33	127	0	65	179		46	198	
Queue Length 95th (ft)	82	307	63	73	257	43	142	327		89	387	
Internal Link Dist (ft)		987			459			665			1008	
Turn Bay Length (ft)	100			100			150			225		
Base Capacity (vph)	481	773	817	465	768	721	595	881		574	757	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.22	0.46	0.32	0.21	0.34	0.16	0.34	0.42		0.26	0.50	

Intersection Summary			
Cycle Length: 132.4			
Actuated Cycle Length: 90.2			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 30.1		Intersection LOS: C	
Intersection Capacity Utilization 67.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Oak Ave & Main St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	254	293	0	81	58
Future Volume (vph)	0	254	293	0	81	58
Satd. Flow (prot)	0	3298	3330	0	1787	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	3298	3330	0	1787	1583
Satd. Flow (RTOR)						64
Peak Hour Factor	1.00	0.67	0.94	1.00	0.63	0.91
Heavy Vehicles (%)	0%	4%	3%	0%	1%	2%
Parking (#/hr)		0	0			
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	379	312	0	129	64
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Total Split (s)		60.0	60.0		20.0	20.0
Total Lost Time (s)		5.5	5.6		5.2	5.2
Act Effct Green (s)		61.3	61.2		11.7	11.7
Actuated g/C Ratio		0.77	0.76		0.15	0.15
v/c Ratio		0.15	0.12		0.49	0.22
Control Delay		3.8	1.9		37.4	10.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		3.8	1.9		37.4	10.1
LOS		A	A		D	B
Approach Delay		3.8	1.9		28.3	
Approach LOS		A	A		C	
Queue Length 50th (ft)		26	4		60	0
Queue Length 95th (ft)		32	12		72	32
Internal Link Dist (ft)		459	42		556	
Turn Bay Length (ft)						
Base Capacity (vph)		2526	2547		330	345
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.15	0.12		0.39	0.19

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 23 (29%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 8.5 — Intersection LOS: A
Intersection Capacity Utilization 27.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Main St & W Park Square

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	431	320	0	107	101
Future Volume (vph)	0	431	320	0	107	101
Satd. Flow (prot)	0	3396	3396	0	1805	1615
Flt Permitted					0.950	
Satd. Flow (perm)	0	3396	3396	0	1805	1615
Satd. Flow (RTOR)						116
Peak Hour Factor	1.00	0.86	0.88	1.00	0.79	0.87
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Parking (#/hr)		0	0			
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	501	364	0	135	116
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Total Split (s)		75.0	75.0		25.0	25.0
Total Lost Time (s)		5.5	5.6		5.2	5.2
Act Effct Green (s)		75.6	75.5		13.7	13.7
Actuated g/C Ratio		0.76	0.76		0.14	0.14
v/c Ratio		0.20	0.14		0.55	0.36
Control Delay		4.0	8.7		48.1	10.3
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		4.0	8.7		48.1	10.3
LOS		A	A		D	B
Approach Delay		4.0	8.7		30.6	
Approach LOS		A	A		C	
Queue Length 50th (ft)		39	58		81	0
Queue Length 95th (ft)		64	116		117	43
Internal Link Dist (ft)		459	42		556	
Turn Bay Length (ft)						
Base Capacity (vph)		2568	2565		357	412
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.20	0.14		0.38	0.28

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 96 (96%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 27.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Main St & W Park Square

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	268	67	65	281	12	63
Future Vol, veh/h	268	67	65	281	12	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	62	71	91	50	68
Heavy Vehicles, %	4	3	3	3	8	5
Mvmt Flow	400	108	92	309	24	93

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	508	0	793	254
Stage 1	-	-	-	-	454	-
Stage 2	-	-	-	-	339	-
Critical Hdwy	-	-	4.16	-	6.96	7
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	-	-	2.23	-	3.58	3.35
Pot Cap-1 Maneuver	-	-	1046	-	314	736
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1046	-	281	736
Mov Cap-2 Maneuver	-	-	-	-	281	-
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	604	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	281	736	-	-	1046	-
HCM Lane V/C Ratio	0.085	0.126	-	-	0.088	-
HCM Control Delay (s)	19	10.6	-	-	8.8	0.3
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0.4	-	-	0.3	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	483	55	46	297	23	115
Future Vol, veh/h	483	55	46	297	23	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	76	82	85	64	78
Heavy Vehicles, %	1	0	2	1	0	0
Mvmt Flow	549	72	56	349	36	147

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	621	0	872	311
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	287	-
Critical Hdwy	-	-	4.14	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.22	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	956	-	294	691
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	742	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	956	-	273	691
Mov Cap-2 Maneuver	-	-	-	-	273	-
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	688	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	273	691	-	-	956	-
HCM Lane V/C Ratio	0.132	0.213	-	-	0.059	-
HCM Control Delay (s)	20.2	11.6	-	-	9	0.2
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	0.8	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	69	262	346	23	0	0
Future Vol, veh/h	69	262	346	23	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	58	70	96	64	100	100
Heavy Vehicles, %	1	5	3	4	0	0
Mvmt Flow	119	374	360	36	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	396	0	-	0	803	198
Stage 1	-	-	-	-	378	-
Stage 2	-	-	-	-	425	-
Critical Hdwy	4.12	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.21	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1166	-	-	-	325	816
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	633	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1166	-	-	-	283	816
Mov Cap-2 Maneuver	-	-	-	-	283	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	633	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1166	-	-	-	-
HCM Lane V/C Ratio	0.102	-	-	-	-
HCM Control Delay (s)	8.4	0.3	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	101	497	343	49	0	0
Future Vol, veh/h	101	497	343	49	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	92	86	82	100	100
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	112	540	399	60	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	459	0	-	0	923	230
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	494	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1113	-	-	-	273	779
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	584	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1113	-	-	-	234	779
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	584	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1113	-	-	-	-
HCM Lane V/C Ratio	0.101	-	-	-	-
HCM Control Delay (s)	8.6	0.4	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	261	1	2	369	0	0
Future Vol, veh/h	261	1	2	369	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	25	50	93	100	100
Heavy Vehicles, %	5	0	0	3	0	0
Mvmt Flow	373	4	4	397	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	377	0	582	189
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	207	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1193	-	449	827
Stage 1	-	-	-	-	671	-
Stage 2	-	-	-	-	814	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1193	-	447	827
Mov Cap-2 Maneuver	-	-	-	-	447	-
Stage 1	-	-	-	-	671	-
Stage 2	-	-	-	-	811	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1193	-
HCM Lane V/C Ratio	-	-	-	0.003	-
HCM Control Delay (s)	0	-	-	8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	495	2	3	392	0	0
Future Vol, veh/h	495	2	3	392	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	50	38	87	100	100
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	538	4	8	451	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	542	0	782	271
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	242	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1037	-	335	733
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	782	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1037	-	332	733
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

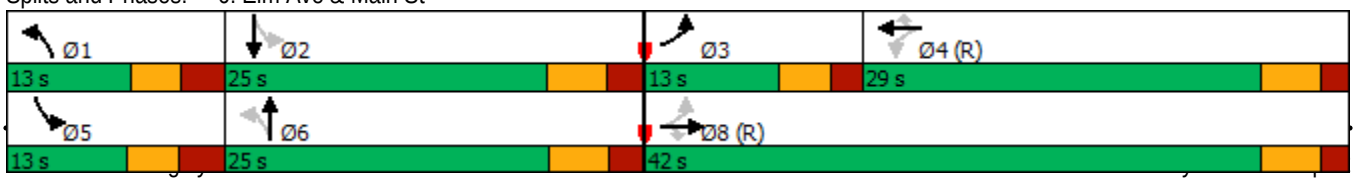
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1037	-
HCM Lane V/C Ratio	-	-	-	0.008	-
HCM Control Delay (s)	0	-	-	8.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	179	29	32	266	35	57	107	38	16	133	48
Future Volume (vph)	53	179	29	32	266	35	57	107	38	16	133	48
Satd. Flow (prot)	1736	1845	1468	1805	1845	1568	1805	1797	0	1805	1805	0
Flt Permitted	0.432			0.599			0.406			0.621		
Satd. Flow (perm)	789	1845	1468	1138	1845	1568	771	1797	0	1180	1805	0
Satd. Flow (RTOR)			117			185		18			15	
Peak Hour Factor	0.95	0.69	0.52	0.80	0.94	0.73	0.75	0.64	0.73	0.57	0.67	0.92
Heavy Vehicles (%)	4%	3%	10%	0%	3%	3%	0%	1%	5%	0%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	259	56	40	283	48	76	219	0	28	251	0
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		
Total Split (s)	13.0	42.0	42.0	29.0	29.0	29.0	13.0	25.0		13.0	25.0	
Total Lost Time (s)	5.0	5.3	5.3	5.3	5.3	5.3	5.6	5.7		5.8	5.8	
Act Effct Green (s)	42.5	42.2	42.2	35.0	35.0	35.0	24.9	21.8		21.2	16.4	
Actuated g/C Ratio	0.53	0.53	0.53	0.44	0.44	0.44	0.31	0.27		0.26	0.20	
v/c Ratio	0.11	0.27	0.07	0.08	0.35	0.06	0.23	0.44		0.08	0.66	
Control Delay	12.9	13.7	2.7	15.8	17.4	0.3	18.0	25.3		16.4	36.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	12.9	13.7	2.7	15.8	17.4	0.3	18.0	25.3		16.4	36.0	
LOS	B	B	A	B	B	A	B	C		B	D	
Approach Delay		11.9			15.0			23.4			34.1	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	14	72	0	9	118	1	25	72		9	111	
Queue Length 95th (ft)	37	97	0	23	178	0	40	98		15	121	
Internal Link Dist (ft)		301			581			629			535	
Turn Bay Length (ft)	115			65		65	65			60		
Base Capacity (vph)	514	973	830	498	807	790	335	524		383	444	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.11	0.27	0.07	0.08	0.35	0.06	0.23	0.42		0.07	0.57	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 73 (91%), Referenced to phase 4:WBTL and 8:EBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 20.1 — Intersection LOS: C
Intersection Capacity Utilization 54.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 6: Elm Ave & Main St



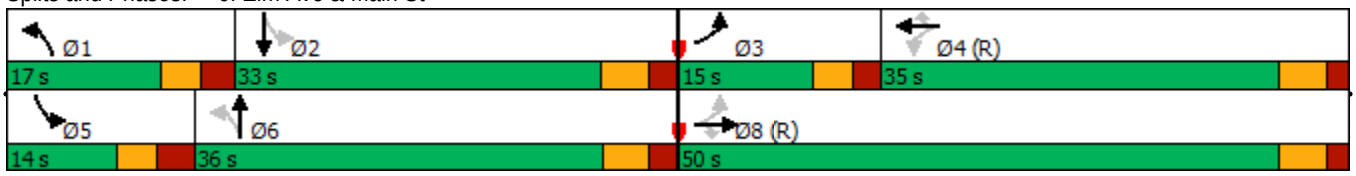
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	334	49	17	295	30	43	99	59	29	78	57
Future Volume (vph)	112	334	49	17	295	30	43	99	59	29	78	57
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615	1805	1796	0	1805	1768	0
Flt Permitted	0.427			0.541			0.560			0.482		
Satd. Flow (perm)	811	1881	1615	1028	1863	1615	1064	1796	0	916	1768	0
Satd. Flow (RTOR)			94			148		30			37	
Peak Hour Factor	0.88	0.90	0.72	0.71	0.83	0.63	0.90	0.83	0.87	0.66	0.85	0.84
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	371	68	24	355	48	48	187	0	44	160	0
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		
Total Split (s)	15.0	50.0	50.0	35.0	35.0	35.0	17.0	36.0		14.0	33.0	
Total Lost Time (s)	5.0	5.3	5.3	5.3	5.3	5.3	5.6	5.7		5.8	5.8	
Act Effct Green (s)	65.1	64.8	64.8	52.0	52.0	52.0	21.1	16.3		20.5	16.0	
Actuated g/C Ratio	0.65	0.65	0.65	0.52	0.52	0.52	0.21	0.16		0.20	0.16	
v/c Ratio	0.21	0.30	0.06	0.04	0.37	0.05	0.17	0.59		0.18	0.51	
Control Delay	11.6	12.9	3.6	13.8	15.3	0.5	27.5	40.3		27.8	35.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	11.6	12.9	3.6	13.8	15.3	0.5	27.5	40.3		27.8	35.1	
LOS	B	B	A	B	B	A	C	D		C	D	
Approach Delay		11.5			13.5			37.7			33.6	
Approach LOS		B			B			D			C	
Queue Length 50th (ft)	39	131	0	8	130	1	23	94		21	73	
Queue Length 95th (ft)	79	225	2	m18	183	0	46	142		31	122	
Internal Link Dist (ft)		301			581			629			535	
Turn Bay Length (ft)	115			65		65	65			60		
Base Capacity (vph)	628	1218	1079	534	968	910	331	565		264	507	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.30	0.06	0.04	0.37	0.05	0.15	0.33		0.17	0.32	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 47 (47%), Referenced to phase 4:WBTL and 8:EBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 19.5 — Intersection LOS: B
Intersection Capacity Utilization 60.1% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

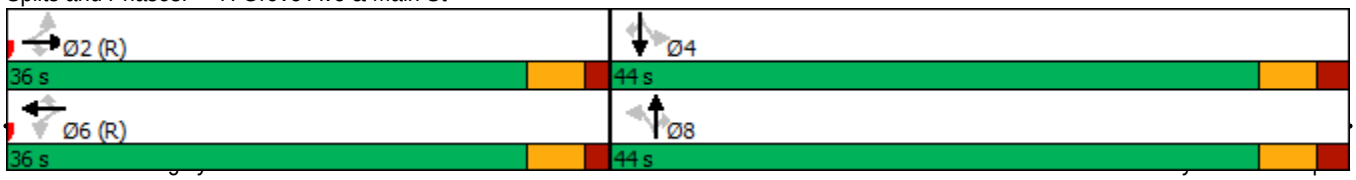
Splits and Phases: 6: Elm Ave & Main St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	136	25	14	195	93	29	131	16	28	265	109
Future Volume (vph)	72	136	25	14	195	93	29	131	16	28	265	109
Satd. Flow (prot)	0	1810	1615	0	1816	1524	0	1868	1615	0	1818	1568
Flt Permitted		0.803			0.972			0.768			0.945	
Satd. Flow (perm)	0	1481	1615	0	1772	1524	0	1447	1615	0	1726	1568
Satd. Flow (RTOR)			56			133			36			77
Peak Hour Factor	0.67	0.79	0.45	0.88	0.96	0.70	0.66	0.66	0.44	0.64	0.68	0.85
Heavy Vehicles (%)	3%	3%	0%	7%	4%	6%	0%	1%	0%	4%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	279	56	0	219	133	0	242	36	0	434	128
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Total Split (s)	36.0	36.0	36.0	36.0	36.0	36.0	44.0	44.0	44.0	44.0	44.0	44.0
Total Lost Time (s)		5.1	5.1		5.1	5.1		5.5	5.5		5.5	5.5
Act Effct Green (s)		40.1	40.1		40.1	40.1		29.3	29.3		29.3	29.3
Actuated g/C Ratio		0.50	0.50		0.50	0.50		0.37	0.37		0.37	0.37
v/c Ratio		0.38	0.07		0.25	0.16		0.46	0.06		0.69	0.21
Control Delay		11.4	2.1		14.4	3.6		20.8	4.6		26.4	7.1
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		11.4	2.1		14.4	3.6		20.8	4.6		26.4	7.1
LOS		B	A		B	A		C	A		C	A
Approach Delay		9.8			10.3			18.7			22.0	
Approach LOS		A			B			B			C	
Queue Length 50th (ft)		66	2		59	0		90	0		179	16
Queue Length 95th (ft)		84	1		128	15		83	2		151	37
Internal Link Dist (ft)		581			1203			622			478	
Turn Bay Length (ft)			100			185			50			50
Base Capacity (vph)		741	836		887	829		696	795		830	794
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.38	0.07		0.25	0.16		0.35	0.05		0.52	0.16

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 71 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 66.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Grove Ave & Main St



AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	272	39	6	207	50	44	118	15	35	152	91
Future Volume (vph)	111	272	39	6	207	50	44	118	15	35	152	91
Satd. Flow (prot)	0	1857	1568	0	1876	1615	0	1858	1615	0	1883	1599
Flt Permitted		0.813			0.977			0.619			0.835	
Satd. Flow (perm)	0	1534	1568	0	1839	1615	0	1169	1615	0	1586	1599
Satd. Flow (RTOR)			60			64			23			84
Peak Hour Factor	0.79	0.92	0.65	0.50	0.91	0.78	0.69	0.87	0.63	0.88	0.84	0.76
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	2%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	437	60	0	239	64	0	200	24	0	221	120
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Total Split (s)	64.0	64.0	64.0	64.0	64.0	64.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Lost Time (s)		5.1	5.1		5.1	5.1		5.5	5.5		5.5	5.5
Act Effct Green (s)		68.6	68.6		68.6	68.6		20.8	20.8		20.8	20.8
Actuated g/C Ratio		0.69	0.69		0.69	0.69		0.21	0.21		0.21	0.21
v/c Ratio		0.42	0.05		0.19	0.06		0.83	0.07		0.67	0.30
Control Delay		7.5	1.1		7.0	2.1		63.4	11.7		45.9	13.1
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		7.5	1.1		7.0	2.1		63.4	11.7		45.9	13.1
LOS		A	A		A	A		E	B		D	B
Approach Delay		6.7			6.0			57.9			34.4	
Approach LOS		A			A			E			C	
Queue Length 50th (ft)		67	1		48	0		123	1		131	19
Queue Length 95th (ft)		92	2		100	11		181	10		175	43
Internal Link Dist (ft)		581			1203			622			478	
Turn Bay Length (ft)			100			185			50			50
Base Capacity (vph)		1052	1094		1261	1128		356	508		483	546
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.42	0.05		0.19	0.06		0.56	0.05		0.46	0.22

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 49 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 21.9 — Intersection LOS: C
Intersection Capacity Utilization 69.2% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: Grove Ave & Main St

PM Peak Hour

Intersection	
Intersection Delay, s/veh	50.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	82	55	74	224	65	115	109	22	44	199	17
Future Vol, veh/h	8	82	55	74	224	65	115	109	22	44	199	17
Peak Hour Factor	0.67	0.73	0.92	0.60	0.79	0.86	0.64	0.65	0.55	0.69	0.68	0.53
Heavy Vehicles, %	13	5	0	1	3	2	8	10	9	2	1	0
Mvmt Flow	12	112	60	123	284	76	180	168	40	64	293	32
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	15.4	78.8	42.7	40.6
HCM LOS	C	F	E	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	47%	9%	0%	20%	17%
Vol Thru, %	44%	91%	0%	62%	77%
Vol Right, %	9%	0%	100%	18%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	246	90	55	363	260
LT Vol	115	8	0	74	44
Through Vol	109	82	0	224	199
RT Vol	22	0	55	65	17
Lane Flow Rate	387	124	60	482	388
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.849	0.319	0.14	1.034	0.837
Departure Headway (Hd)	8.195	9.565	8.647	7.716	8.065
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	445	378	417	473	451
Service Time	6.195	7.265	6.347	5.719	6.065
HCM Lane V/C Ratio	0.87	0.328	0.144	1.019	0.86
HCM Control Delay	42.7	16.7	12.7	78.8	40.6
HCM Lane LOS	E	C	B	F	E
HCM 95th-tile Q	8.4	1.3	0.5	14.5	8.1

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	233	98	25	163	51	60	90	36	66	91	9
Future Vol, veh/h	7	233	98	25	163	51	60	90	36	66	91	9
Peak Hour Factor	0.44	0.91	0.79	0.69	0.85	0.67	0.68	0.75	0.64	0.75	0.84	0.75
Heavy Vehicles, %	0	1	0	0	0	0	3	0	0	0	0	0
Mvmt Flow	16	256	124	36	192	76	88	120	56	88	108	12
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	14.3	16.1	15.3	13.9
HCM LOS	B	C	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	32%	3%	0%	10%	40%
Vol Thru, %	48%	97%	0%	68%	55%
Vol Right, %	19%	0%	100%	21%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	186	240	98	239	166
LT Vol	60	7	0	25	66
Through Vol	90	233	0	163	91
RT Vol	36	0	98	51	9
Lane Flow Rate	264	272	124	304	208
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.476	0.504	0.205	0.528	0.386
Departure Headway (Hd)	6.474	6.672	5.96	6.252	6.666
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	555	538	600	575	540
Service Time	4.524	4.422	3.709	4.304	4.721
HCM Lane V/C Ratio	0.476	0.506	0.207	0.529	0.385
HCM Control Delay	15.3	16.1	10.3	16.1	13.9
HCM Lane LOS	C	C	B	C	B
HCM 95th-tile Q	2.5	2.8	0.8	3.1	1.8

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	40	104	4	4	238	39	5	3	1	29	16	113
Future Vol, veh/h	40	104	4	4	238	39	5	3	1	29	16	113
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	70	50	50	86	51	42	38	25	60	67	86
Heavy Vehicles, %	5	5	25	25	3	0	0	0	100	3	6	2
Mvmt Flow	63	149	8	8	277	76	12	8	4	48	24	131

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	157	0	0	688	648	153	616	614	315
Stage 1	-	-	-	-	-	-	279	279	-	331	331	-
Stage 2	-	-	-	-	-	-	409	369	-	285	283	-
Critical Hdwy	4.15	-	-	4.35	-	-	7.1	6.5	7.2	7.13	6.56	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.56	-
Follow-up Hdwy	2.245	-	-	2.425	-	-	3.5	4	4.2	3.527	4.054	3.318
Pot Cap-1 Maneuver	1189	-	-	1294	-	-	363	392	689	401	402	725
Stage 1	-	-	-	-	-	-	732	683	-	680	638	-
Stage 2	-	-	-	-	-	-	623	624	-	720	670	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1189	-	-	1294	-	-	269	366	689	373	375	725
Mov Cap-2 Maneuver	-	-	-	-	-	-	269	366	-	373	375	-
Stage 1	-	-	-	-	-	-	690	643	-	641	633	-
Stage 2	-	-	-	-	-	-	487	619	-	666	631	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0.2	16.7	15.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	332	1189	-	-	1294	-	-	544
HCM Lane V/C Ratio	0.072	0.053	-	-	0.006	-	-	0.374
HCM Control Delay (s)	16.7	8.2	0	-	7.8	0	-	15.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	1.7

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	96	228	7	3	172	34	4	5	1	24	14	61
Future Vol, veh/h	96	228	7	3	172	34	4	5	1	24	14	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	88	58	75	81	77	33	63	25	86	88	76
Heavy Vehicles, %	1	0	0	0	0	6	0	0	0	4	0	0
Mvmt Flow	100	259	12	4	212	44	12	8	4	28	16	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	256	0	0	271	0	0	755	729	265	713	713	234
Stage 1	-	-	-	-	-	-	465	465	-	242	242	-
Stage 2	-	-	-	-	-	-	290	264	-	471	471	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.3
Pot Cap-1 Maneuver	1315	-	-	1304	-	-	328	352	779	344	360	810
Stage 1	-	-	-	-	-	-	581	566	-	757	709	-
Stage 2	-	-	-	-	-	-	722	694	-	570	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1315	-	-	1304	-	-	264	319	779	312	326	810
Mov Cap-2 Maneuver	-	-	-	-	-	-	264	319	-	312	326	-
Stage 1	-	-	-	-	-	-	529	515	-	689	706	-
Stage 2	-	-	-	-	-	-	633	691	-	508	512	-

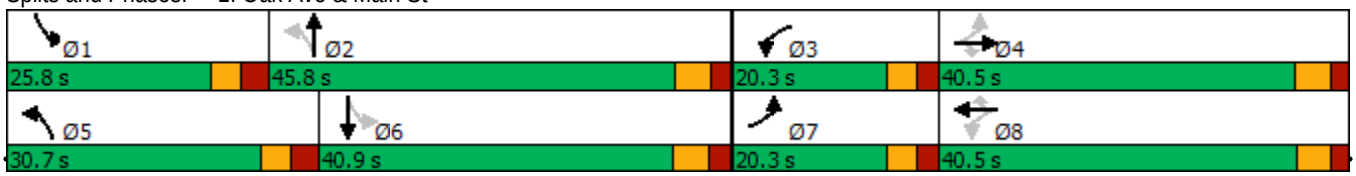
Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.1	17.3	14
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	317	1315	-	-	1304	-	-	523
HCM Lane V/C Ratio	0.076	0.076	-	-	0.003	-	-	0.237
HCM Control Delay (s)	17.3	8	0	-	7.8	0	-	14
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	221	203	51	304	81	238	258	43	52	224	20
Future Volume (vph)	56	221	203	51	304	81	238	258	43	52	224	20
Satd. Flow (prot)	1770	1827	1599	1687	1863	1538	1770	1814	0	1641	1783	0
Flt Permitted	0.285			0.471			0.312			0.537		
Satd. Flow (perm)	531	1827	1599	836	1863	1538	581	1814	0	928	1783	0
Satd. Flow (RTOR)			236			115		10			4	
Peak Hour Factor	0.64	0.85	0.86	0.75	0.92	0.92	0.88	0.85	0.57	0.65	0.85	0.71
Heavy Vehicles (%)	2%	4%	1%	7%	2%	5%	2%	2%	0%	10%	5%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	260	236	68	330	88	270	379	0	80	292	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Total Split (s)	20.3	40.5	40.5	20.3	40.5	40.5	30.7	45.8		25.8	40.9	
Total Lost Time (s)	5.3	5.5	5.5	5.3	5.4	5.4	5.7	5.8		5.8	5.9	
Act Effct Green (s)	29.2	22.2	22.2	26.8	21.1	21.1	42.8	32.2		27.7	19.8	
Actuated g/C Ratio	0.34	0.26	0.26	0.31	0.24	0.24	0.49	0.37		0.32	0.23	
v/c Ratio	0.29	0.56	0.40	0.21	0.73	0.19	0.53	0.56		0.22	0.71	
Control Delay	21.4	35.2	6.4	20.5	42.8	4.2	19.3	29.2		17.8	44.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	21.4	35.2	6.4	20.5	42.8	4.2	19.3	29.2		17.8	44.6	
LOS	C	D	A	C	D	A	B	C		B	D	
Approach Delay		21.5			32.7			25.1			38.8	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	28	118	0	22	160	0	86	168		23	145	
Queue Length 95th (ft)	53	239	51	52	335	23	182	315		44	287	
Internal Link Dist (ft)		987			459			665			1008	
Turn Bay Length (ft)	100			100			150			225		
Base Capacity (vph)	431	797	830	472	812	735	656	918		605	777	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.33	0.28	0.14	0.41	0.12	0.41	0.41		0.13	0.38	

Intersection Summary	
Cycle Length: 132.4	
Actuated Cycle Length: 86.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 28.3	Intersection LOS: C
Intersection Capacity Utilization 64.9%	ICU Level of Service C
Analysis Period (min) 15	

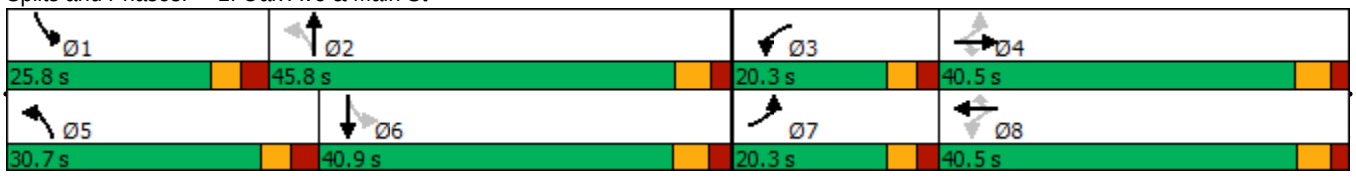
Splits and Phases: 1: Oak Ave & Main St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	352	307	97	298	126	248	351	37	143	400	39
Future Volume (vph)	109	352	307	97	298	126	248	351	37	143	400	39
Satd. Flow (prot)	1805	1881	1615	1805	1863	1583	1770	1870	0	1787	1835	0
Flt Permitted	0.311			0.167			0.127			0.283		
Satd. Flow (perm)	591	1881	1615	317	1863	1583	237	1870	0	532	1835	0
Satd. Flow (RTOR)			302			143		5			4	
Peak Hour Factor	0.85	0.81	0.95	0.81	0.92	0.88	0.98	0.85	0.77	0.76	0.93	0.89
Heavy Vehicles (%)	0%	1%	0%	0%	2%	2%	2%	0%	0%	1%	2%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	435	323	120	324	143	253	461	0	188	474	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Total Split (s)	20.3	40.5	40.5	20.3	40.5	40.5	30.7	45.8		25.8	40.9	
Total Lost Time (s)	5.3	5.5	5.5	5.3	5.4	5.4	5.7	5.8		5.8	5.9	
Act Effct Green (s)	41.0	30.4	30.4	39.5	29.8	29.8	56.0	38.6		44.9	32.7	
Actuated g/C Ratio	0.36	0.27	0.27	0.35	0.26	0.26	0.49	0.34		0.39	0.29	
v/c Ratio	0.40	0.87	0.50	0.51	0.67	0.28	0.70	0.72		0.55	0.89	
Control Delay	26.9	59.3	8.2	31.0	46.4	7.3	34.0	41.7		24.4	60.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.9	59.3	8.2	31.0	46.4	7.3	34.0	41.7		24.4	60.8	
LOS	C	E	A	C	D	A	C	D		C	E	
Approach Delay		36.0			33.8			39.0			50.5	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	62	313	12	58	219	0	116	301		79	344	
Queue Length 95th (ft)	105	424	92	94	354	48	223	448		112	#624	
Internal Link Dist (ft)		987			459			665			1008	
Turn Bay Length (ft)	100			100			150			225		
Base Capacity (vph)	396	595	717	324	589	598	463	696		471	581	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.32	0.73	0.45	0.37	0.55	0.24	0.55	0.66		0.40	0.82	

Intersection Summary	
Cycle Length: 132.4	
Actuated Cycle Length: 113.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 39.6	Intersection LOS: D
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

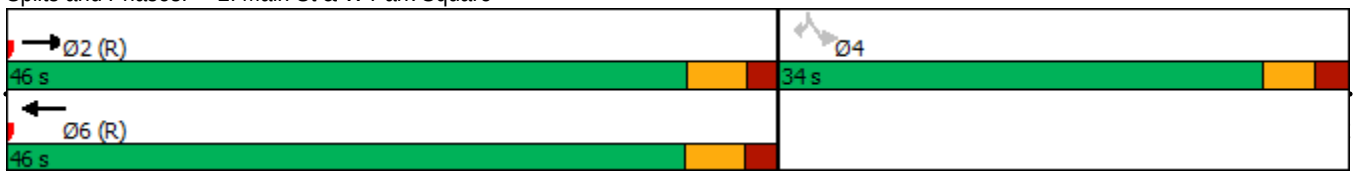
Splits and Phases: 1: Oak Ave & Main St



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	315	363	0	100	73
Future Volume (vph)	0	315	363	0	100	73
Satd. Flow (prot)	0	3298	3330	0	1787	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	3298	3330	0	1787	1583
Satd. Flow (RTOR)						80
Peak Hour Factor	1.00	0.76	0.94	1.00	0.83	0.91
Heavy Vehicles (%)	0%	4%	3%	0%	1%	2%
Parking (#/hr)		0	0			
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	414	386	0	120	80
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Total Split (s)		46.0	46.0		34.0	34.0
Total Lost Time (s)		5.5	5.6		5.2	5.2
Act Effct Green (s)		61.3	61.2		11.7	11.7
Actuated g/C Ratio		0.77	0.76		0.15	0.15
v/c Ratio		0.16	0.15		0.46	0.27
Control Delay		3.9	2.8		36.3	9.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		3.9	2.8		36.3	9.6
LOS		A	A		D	A
Approach Delay		3.9	2.8		25.7	
Approach LOS		A	A		C	
Queue Length 50th (ft)		28	18		56	0
Queue Length 95th (ft)		42	33		91	35
Internal Link Dist (ft)		459	42		556	
Turn Bay Length (ft)						
Base Capacity (vph)		2527	2548		643	621
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.16	0.15		0.19	0.13

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 2 (3%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 7.8	Intersection LOS: A
Intersection Capacity Utilization 27.3%	ICU Level of Service A
Analysis Period (min) 15	

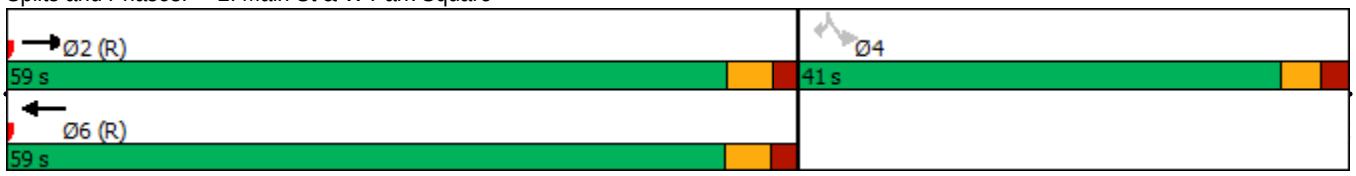
Splits and Phases: 2: Main St & W Park Square



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	534	397	0	133	125
Future Volume (vph)	0	534	397	0	133	125
Satd. Flow (prot)	0	3396	3396	0	1805	1615
Flt Permitted					0.950	
Satd. Flow (perm)	0	3396	3396	0	1805	1615
Satd. Flow (RTOR)						144
Peak Hour Factor	1.00	0.86	0.88	1.00	0.79	0.87
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Parking (#/hr)		0	0			
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	621	451	0	168	144
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Total Split (s)		59.0	59.0		41.0	41.0
Total Lost Time (s)		5.5	5.6		5.2	5.2
Act Effct Green (s)		73.7	73.6		15.6	15.6
Actuated g/C Ratio		0.74	0.74		0.16	0.16
v/c Ratio		0.25	0.18		0.60	0.39
Control Delay		4.9	2.5		47.5	9.0
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		4.9	2.5		47.5	9.0
LOS		A	A		D	A
Approach Delay		4.9	2.5		29.7	
Approach LOS		A	A		C	
Queue Length 50th (ft)		56	25		101	0
Queue Length 95th (ft)		90	37		136	45
Internal Link Dist (ft)		459	42		556	
Turn Bay Length (ft)						
Base Capacity (vph)		2501	2498		646	670
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.25	0.18		0.26	0.21

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 69 (69%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 31.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Main St & W Park Square



Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	332	83	81	349	15	78
Future Vol, veh/h	332	83	81	349	15	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	83	70	91	47	81
Heavy Vehicles, %	4	3	3	3	8	5
Mvmt Flow	431	100	116	384	32	96

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	531	0	905	266
Stage 1	-	-	-	-	481	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	-	-	4.16	-	6.96	7
Critical Hdwy Stg 1	-	-	-	-	5.96	-
Critical Hdwy Stg 2	-	-	-	-	5.96	-
Follow-up Hdwy	-	-	2.23	-	3.58	3.35
Pot Cap-1 Maneuver	-	-	1026	-	265	723
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	611	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1026	-	227	723
Mov Cap-2 Maneuver	-	-	-	-	227	-
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	227	723	-	-	1026	-
HCM Lane V/C Ratio	0.141	0.133	-	-	0.113	-
HCM Control Delay (s)	23.4	10.7	-	-	9	0.4
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	0.5	-	-	0.4	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	599	67	57	368	29	144
Future Vol, veh/h	599	67	57	368	29	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	76	84	85	66	78
Heavy Vehicles, %	1	0	2	1	0	0
Mvmt Flow	681	88	68	433	44	185

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	769	0	1078	385
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	353	-
Critical Hdwy	-	-	4.14	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.22	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	841	-	217	619
Stage 1	-	-	-	-	446	-
Stage 2	-	-	-	-	688	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	841	-	194	619
Mov Cap-2 Maneuver	-	-	-	-	194	-
Stage 1	-	-	-	-	446	-
Stage 2	-	-	-	-	615	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	16.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	194	619	-	-	841	-
HCM Lane V/C Ratio	0.226	0.298	-	-	0.081	-
HCM Control Delay (s)	28.9	13.3	-	-	9.7	0.4
HCM Lane LOS	D	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	1.2	-	-	0.3	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	86	324	430	29	0	0
Future Vol, veh/h	86	324	430	29	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	76	96	66	100	100
Heavy Vehicles, %	1	5	3	4	0	0
Mvmt Flow	100	426	448	44	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	492	0	-	0	883	246
Stage 1	-	-	-	-	470	-
Stage 2	-	-	-	-	413	-
Critical Hdwy	4.12	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.21	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1075	-	-	-	289	760
Stage 1	-	-	-	-	601	-
Stage 2	-	-	-	-	642	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1075	-	-	-	254	760
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	528	-
Stage 2	-	-	-	-	642	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1075	-	-	-	-
HCM Lane V/C Ratio	0.093	-	-	-	-
HCM Control Delay (s)	8.7	0.4	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	125	617	425	61	0	0
Future Vol, veh/h	125	617	425	61	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	92	86	80	100	100
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	140	671	494	76	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	570	0	-	0	1148	285
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	616	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1013	-	-	-	195	718
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	507	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1013	-	-	-	152	718
Mov Cap-2 Maneuver	-	-	-	-	152	-
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	507	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1013	-	-	-	-
HCM Lane V/C Ratio	0.139	-	-	-	-
HCM Control Delay (s)	9.1	0.7	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.5	-	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	323	1	2	458	0	0
Future Vol, veh/h	323	1	2	458	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	25	50	93	100	100
Heavy Vehicles, %	5	0	0	3	0	0
Mvmt Flow	425	4	4	492	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	429	0	681	215
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	254	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1141	-	389	796
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1141	-	387	796
Mov Cap-2 Maneuver	-	-	-	-	387	-
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	767	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1141	-
HCM Lane V/C Ratio	-	-	-	0.004	-
HCM Control Delay (s)	0	-	-	8.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	614	2	4	487	0	0
Future Vol, veh/h	614	2	4	487	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	50	33	87	100	100
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	667	4	12	560	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	671	0	973	336
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	304	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	929	-	253	666
Stage 1	-	-	-	-	476	-
Stage 2	-	-	-	-	728	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	929	-	248	666
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	476	-
Stage 2	-	-	-	-	714	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	0
HCM LOS			A

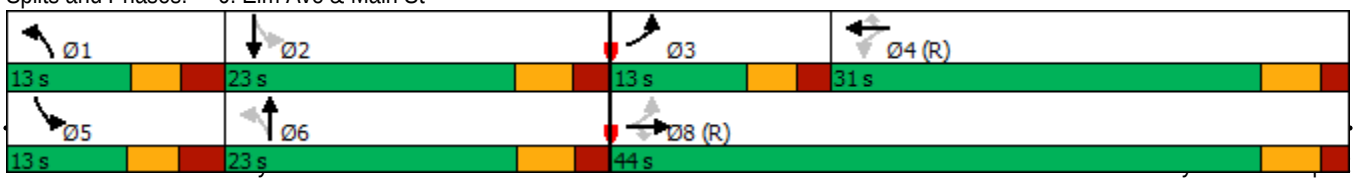
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	929	-
HCM Lane V/C Ratio	-	-	-	0.013	-
HCM Control Delay (s)	0	-	-	8.9	0.1
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	221	35	41	330	43	71	133	48	21	165	60
Future Volume (vph)	65	221	35	41	330	43	71	133	48	21	165	60
Satd. Flow (prot)	1736	1845	1468	1805	1845	1568	1805	1778	0	1805	1792	0
Flt Permitted	0.363			0.584			0.401			0.581		
Satd. Flow (perm)	663	1845	1468	1110	1845	1568	762	1778	0	1104	1792	0
Satd. Flow (RTOR)			117			185		24			19	
Peak Hour Factor	0.96	0.77	0.51	0.79	0.94	0.72	0.74	0.85	0.75	0.58	0.86	0.94
Heavy Vehicles (%)	4%	3%	10%	0%	3%	3%	0%	1%	5%	0%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	287	69	52	351	60	96	220	0	36	256	0
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		
Total Split (s)	13.0	44.0	44.0	31.0	31.0	31.0	13.0	23.0		13.0	23.0	
Total Lost Time (s)	5.0	5.3	5.3	5.3	5.3	5.3	5.6	5.7		5.8	5.8	
Act Effct Green (s)	42.9	42.6	42.6	33.1	33.1	33.1	23.5	19.0		20.9	16.0	
Actuated g/C Ratio	0.54	0.53	0.53	0.41	0.41	0.41	0.29	0.24		0.26	0.20	
v/c Ratio	0.15	0.29	0.08	0.11	0.46	0.08	0.30	0.50		0.11	0.69	
Control Delay	9.4	10.1	0.2	15.8	17.5	0.5	19.9	28.3		17.3	37.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	9.4	10.1	0.2	15.8	17.5	0.5	19.9	28.3		17.3	37.7	
LOS	A	B	A	B	B	A	B	C		B	D	
Approach Delay		8.4			15.1			25.8			35.2	
Approach LOS		A			B			C			D	
Queue Length 50th (ft)	13	58	0	14	102	1	32	88		12	112	
Queue Length 95th (ft)	29	82	0	30	158	0	50	145		19	175	
Internal Link Dist (ft)		301			581			629			535	
Turn Bay Length (ft)	115			65		65	65			60		
Base Capacity (vph)	463	983	836	459	764	757	320	452		362	400	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.15	0.29	0.08	0.11	0.46	0.08	0.30	0.49		0.10	0.64	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 67 (84%), Referenced to phase 4:WBTL and 8:EBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 19.4 — Intersection LOS: B
Intersection Capacity Utilization 58.0% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Elm Ave & Main St



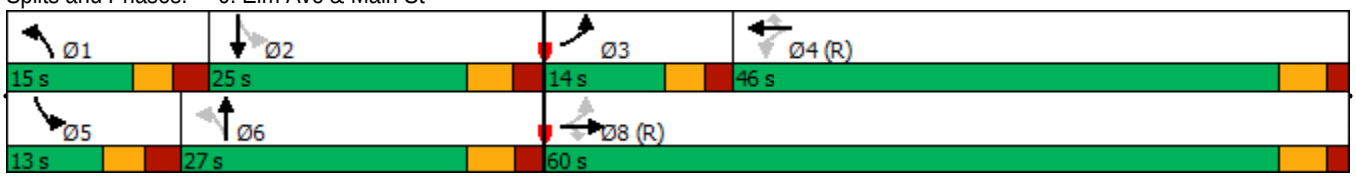
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	415	60	21	366	37	53	123	73	36	97	70
Future Volume (vph)	139	415	60	21	366	37	53	123	73	36	97	70
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615	1805	1797	0	1805	1770	0
Flt Permitted	0.341			0.495			0.447			0.398		
Satd. Flow (perm)	648	1881	1615	940	1863	1615	849	1797	0	756	1770	0
Satd. Flow (RTOR)			94			148		26			33	
Peak Hour Factor	0.87	0.89	0.71	0.75	0.83	0.62	0.88	0.83	0.87	0.64	0.84	0.83
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	160	466	85	28	441	60	60	232	0	56	199	0
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		
Total Split (s)	14.0	60.0	60.0	46.0	46.0	46.0	15.0	27.0		13.0	25.0	
Total Lost Time (s)	5.0	5.3	5.3	5.3	5.3	5.3	5.6	5.7		5.8	5.8	
Act Effct Green (s)	61.6	61.3	61.3	48.0	48.0	48.0	24.0	17.5		22.3	16.7	
Actuated g/C Ratio	0.62	0.61	0.61	0.48	0.48	0.48	0.24	0.18		0.22	0.17	
v/c Ratio	0.32	0.40	0.08	0.06	0.49	0.07	0.22	0.69		0.24	0.62	
Control Delay	9.7	10.1	1.1	14.7	18.4	0.8	26.2	45.3		27.0	40.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	9.7	10.1	1.1	14.7	18.4	0.8	26.2	45.3		27.0	40.6	
LOS	A	B	A	B	B	A	C	D		C	D	
Approach Delay		8.9			16.2			41.4			37.6	
Approach LOS		A			B			D			D	
Queue Length 50th (ft)	35	119	0	9	168	0	28	126		26	99	
Queue Length 95th (ft)	64	178	3	m20	219	m1	53	177		36	154	
Internal Link Dist (ft)		301			581			629			535	
Turn Bay Length (ft)	115			65		65	65			60		
Base Capacity (vph)	506	1153	1026	451	894	852	302	403		245	366	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.32	0.40	0.08	0.06	0.49	0.07	0.20	0.58		0.23	0.54	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 40 (40%), Referenced to phase 4:WBTL and 8:EBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 20.5 Intersection LOS: C
Intersection Capacity Utilization 64.3% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

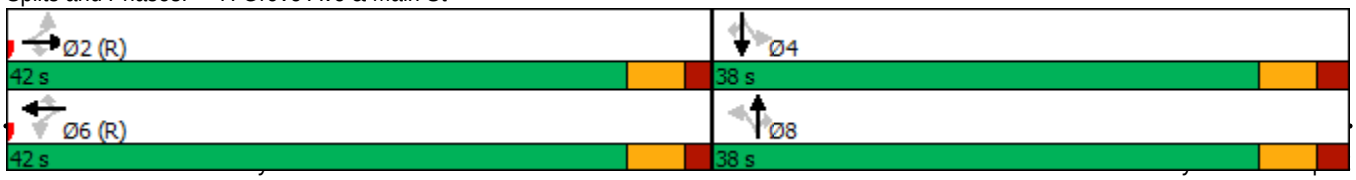
Splits and Phases: 6: Elm Ave & Main St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	174	25	14	249	114	29	131	16	36	265	135
Future Volume (vph)	88	174	25	14	249	114	29	131	16	36	265	135
Satd. Flow (prot)	0	1808	1615	0	1818	1524	0	1865	1615	0	1816	1568
Flt Permitted		0.762			0.976			0.766			0.943	
Satd. Flow (perm)	0	1406	1615	0	1780	1524	0	1444	1615	0	1723	1568
Satd. Flow (RTOR)			56			133			36			104
Peak Hour Factor	0.67	0.93	0.45	0.88	0.96	0.86	0.66	0.84	0.44	0.90	0.85	0.84
Heavy Vehicles (%)	3%	3%	0%	7%	4%	6%	0%	1%	0%	4%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	318	56	0	275	133	0	200	36	0	352	161
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Total Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Lost Time (s)		5.1	5.1		5.1	5.1		5.5	5.5		5.5	5.5
Act Effct Green (s)		44.6	44.6		44.6	44.6		24.8	24.8		24.8	24.8
Actuated g/C Ratio		0.56	0.56		0.56	0.56		0.31	0.31		0.31	0.31
v/c Ratio		0.41	0.06		0.28	0.15		0.45	0.07		0.66	0.29
Control Delay		8.0	1.0		11.7	2.8		24.0	5.9		29.2	8.5
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		8.0	1.0		11.7	2.8		24.0	5.9		29.2	8.5
LOS		A	A		B	A		C	A		C	A
Approach Delay		7.0			8.8			21.2			22.7	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)		51	1		68	0		78	0		149	20
Queue Length 95th (ft)		81	1		138	25		109	3		189	47
Internal Link Dist (ft)		581			1203			622			478	
Turn Bay Length (ft)			100			185			50			50
Base Capacity (vph)		783	924		991	907		586	677		699	698
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.41	0.06		0.28	0.15		0.34	0.05		0.50	0.23

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 76 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 70.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Grove Ave & Main St



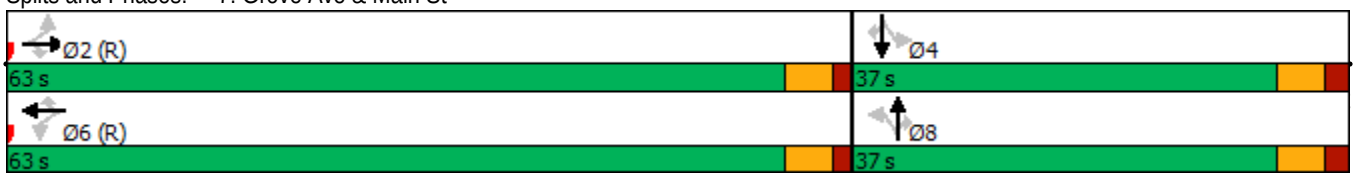
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	338	48	7	255	62	55	145	20	43	189	113
Future Volume (vph)	139	338	48	7	255	62	55	145	20	43	189	113
Satd. Flow (prot)	0	1857	1568	0	1877	1615	0	1858	1615	0	1883	1599
Flt Permitted		0.772			0.966			0.571			0.795	
Satd. Flow (perm)	0	1457	1568	0	1818	1615	0	1078	1615	0	1510	1599
Satd. Flow (RTOR)			57			79			23			86
Peak Hour Factor	0.79	0.92	0.67	0.44	0.91	0.78	0.69	0.86	0.63	0.90	0.84	0.76
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	2%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	543	72	0	296	79	0	249	32	0	273	149
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Total Split (s)	63.0	63.0	63.0	63.0	63.0	63.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Lost Time (s)		5.1	5.1		5.1	5.1		5.5	5.5		5.5	5.5
Act Effct Green (s)		64.0	64.0		64.0	64.0		25.4	25.4		25.4	25.4
Actuated g/C Ratio		0.64	0.64		0.64	0.64		0.25	0.25		0.25	0.25
v/c Ratio		0.58	0.07		0.25	0.07		0.91	0.07		0.71	0.32
Control Delay		10.2	1.3		9.4	2.3		71.4	13.2		43.9	14.2
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		10.2	1.3		9.4	2.3		71.4	13.2		43.9	14.2
LOS		B	A		A	A		E	B		D	B
Approach Delay		9.1			7.9			64.8			33.5	
Approach LOS		A			A			E			C	
Queue Length 50th (ft)		87	1		75	0		153	4		158	31
Queue Length 95th (ft)		334	3		137	13		#238	14		210	55
Internal Link Dist (ft)		581			1203			622			478	
Turn Bay Length (ft)			100			185			50			50
Base Capacity (vph)		932	1023		1163	1061		339	524		475	562
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.58	0.07		0.25	0.07		0.73	0.06		0.57	0.27

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 51 (51%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 24.2 — Intersection LOS: C
Intersection Capacity Utilization 79.9% — ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Grove Ave & Main St



Intersection	
Intersection Delay, s/veh	58.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	102	55	74	278	81	115	109	22	55	199	21
Future Vol, veh/h	11	102	55	74	278	81	115	109	22	55	199	21
Peak Hour Factor	0.69	0.73	0.92	0.60	0.79	0.84	0.85	0.85	0.55	0.69	0.84	0.53
Heavy Vehicles, %	13	5	0	1	3	2	8	10	9	2	1	0
Mvmt Flow	16	140	60	123	352	96	135	128	40	80	237	40
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	15.7	109.3	26.1	31
HCM LOS	C	F	D	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	47%	10%	0%	17%	20%
Vol Thru, %	44%	90%	0%	64%	72%
Vol Right, %	9%	0%	100%	19%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	246	113	55	433	275
LT Vol	115	11	0	74	55
Through Vol	109	102	0	278	199
RT Vol	22	0	55	81	21
Lane Flow Rate	304	156	60	572	356
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.66	0.373	0.128	1.137	0.745
Departure Headway (Hd)	8.348	9.088	8.168	7.16	8.022
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	437	399	442	503	452
Service Time	6.348	6.788	5.868	5.241	6.022
HCM Lane V/C Ratio	0.696	0.391	0.136	1.137	0.788
HCM Control Delay	26.1	17.1	12.1	109.3	31
HCM Lane LOS	D	C	B	F	D
HCM 95th-tile Q	4.6	1.7	0.4	19.4	6.1

Intersection	
Intersection Delay, s/veh	26.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	289	122	31	201	63	74	112	46	81	114	11
Future Vol, veh/h	9	289	122	31	201	63	74	112	46	81	114	11
Peak Hour Factor	0.45	0.91	0.78	0.70	0.85	0.68	0.69	0.76	0.64	0.75	0.84	0.69
Heavy Vehicles, %	0	1	0	0	0	0	3	0	0	0	0	0
Mvmt Flow	20	318	156	44	236	93	107	147	72	108	136	16
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	24.7	32.7	27.3	21.8
HCM LOS	C	D	D	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	32%	3%	0%	11%	39%
Vol Thru, %	48%	97%	0%	68%	55%
Vol Right, %	20%	0%	100%	21%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	232	298	122	295	206
LT Vol	74	9	0	31	81
Through Vol	112	289	0	201	114
RT Vol	46	0	122	63	11
Lane Flow Rate	326	338	156	373	260
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.702	0.739	0.311	0.78	0.581
Departure Headway (Hd)	7.746	7.883	7.163	7.518	8.051
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	464	456	499	478	447
Service Time	5.836	5.67	4.949	5.607	6.15
HCM Lane V/C Ratio	0.703	0.741	0.313	0.78	0.582
HCM Control Delay	27.3	30	13.2	32.7	21.8
HCM Lane LOS	D	D	B	D	C
HCM 95th-tile Q	5.4	6	1.3	6.9	3.6

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	51	128	5	6	295	48	6	4	1	36	20	140
Future Vol, veh/h	51	128	5	6	295	48	6	4	1	36	20	140
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	84	42	50	86	86	38	33	25	60	63	85
Heavy Vehicles, %	5	5	25	25	3	0	0	0	100	3	6	2
Mvmt Flow	80	152	12	12	343	56	16	12	4	60	32	165

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	399	0	0	164	0	0	812	741	158	721	719	371
Stage 1	-	-	-	-	-	-	318	318	-	395	395	-
Stage 2	-	-	-	-	-	-	494	423	-	326	324	-
Critical Hdwy	4.15	-	-	4.35	-	-	7.1	6.5	7.2	7.13	6.56	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.56	-
Follow-up Hdwy	2.245	-	-	2.425	-	-	3.5	4	4.2	3.527	4.054	3.318
Pot Cap-1 Maneuver	1144	-	-	1286	-	-	300	347	684	341	349	675
Stage 1	-	-	-	-	-	-	698	657	-	628	598	-
Stage 2	-	-	-	-	-	-	561	591	-	684	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1144	-	-	1286	-	-	196	316	684	307	318	675
Mov Cap-2 Maneuver	-	-	-	-	-	-	196	316	-	307	318	-
Stage 1	-	-	-	-	-	-	644	606	-	580	591	-
Stage 2	-	-	-	-	-	-	397	584	-	615	593	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.2	21.1	21.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	256	1144	-	-	1286	-	-	476
HCM Lane V/C Ratio	0.125	0.07	-	-	0.009	-	-	0.539
HCM Control Delay (s)	21.1	8.4	0	-	7.8	0	-	21.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	3.1

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	120	284	9	3	213	42	5	5	1	30	17	76
Future Vol, veh/h	120	284	9	3	213	42	5	5	1	30	17	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	88	56	75	81	75	31	63	25	83	85	76
Heavy Vehicles, %	1	0	0	0	0	6	0	0	0	4	0	0
Mvmt Flow	124	323	16	4	263	56	16	8	4	36	20	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	319	0	0	339	0	0	938	906	331	884	886	291
Stage 1	-	-	-	-	-	-	579	579	-	299	299	-
Stage 2	-	-	-	-	-	-	359	327	-	585	587	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.3
Pot Cap-1 Maneuver	1247	-	-	1231	-	-	247	278	715	264	286	753
Stage 1	-	-	-	-	-	-	504	504	-	706	670	-
Stage 2	-	-	-	-	-	-	663	651	-	494	500	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1247	-	-	1231	-	-	182	243	715	231	250	753
Mov Cap-2 Maneuver	-	-	-	-	-	-	182	243	-	231	250	-
Stage 1	-	-	-	-	-	-	442	442	-	619	667	-
Stage 2	-	-	-	-	-	-	555	648	-	423	439	-

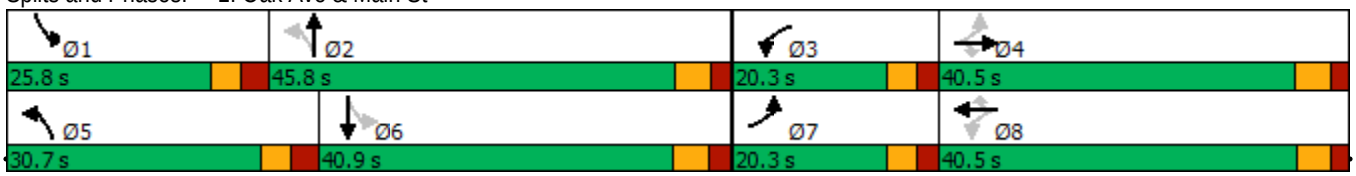
Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0.1	23.6	18.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	221	1247	-	-	1231	-	-	423
HCM Lane V/C Ratio	0.127	0.099	-	-	0.003	-	-	0.369
HCM Control Delay (s)	23.6	8.2	0	-	7.9	0	-	18.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.3	-	-	0	-	-	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	221	203	51	304	81	238	258	43	52	224	20
Future Volume (vph)	56	221	203	51	304	81	238	258	43	52	224	20
Satd. Flow (prot)	1770	1827	1599	1687	1863	1538	1770	1814	0	1641	1783	0
Flt Permitted	0.285			0.471			0.312			0.537		
Satd. Flow (perm)	531	1827	1599	836	1863	1538	581	1814	0	928	1783	0
Satd. Flow (RTOR)			236			115		10			4	
Peak Hour Factor	0.64	0.85	0.86	0.75	0.92	0.92	0.88	0.85	0.57	0.65	0.85	0.71
Heavy Vehicles (%)	2%	4%	1%	7%	2%	5%	2%	2%	0%	10%	5%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	260	236	68	330	88	270	379	0	80	292	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Total Split (s)	20.3	40.5	40.5	20.3	40.5	40.5	30.7	45.8		25.8	40.9	
Total Lost Time (s)	5.3	5.5	5.5	5.3	5.4	5.4	5.7	5.8		5.8	5.9	
Act Effct Green (s)	29.2	22.2	22.2	26.8	21.1	21.1	42.8	32.2		27.7	19.8	
Actuated g/C Ratio	0.34	0.26	0.26	0.31	0.24	0.24	0.49	0.37		0.32	0.23	
v/c Ratio	0.29	0.56	0.40	0.21	0.73	0.19	0.53	0.56		0.22	0.71	
Control Delay	21.4	35.2	6.4	20.5	42.8	4.2	19.3	29.2		17.8	44.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	21.4	35.2	6.4	20.5	42.8	4.2	19.3	29.2		17.8	44.6	
LOS	C	D	A	C	D	A	B	C		B	D	
Approach Delay		21.5			32.7			25.1			38.8	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	28	118	0	22	160	0	86	168		23	145	
Queue Length 95th (ft)	53	239	51	52	335	23	182	315		44	287	
Internal Link Dist (ft)		987			459			665			1008	
Turn Bay Length (ft)	100			300		100	150			225		
Base Capacity (vph)	431	797	830	472	812	735	656	918		605	777	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.33	0.28	0.14	0.41	0.12	0.41	0.41		0.13	0.38	

Intersection Summary	
Cycle Length: 132.4	
Actuated Cycle Length: 86.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 28.3	Intersection LOS: C
Intersection Capacity Utilization 64.9%	ICU Level of Service C
Analysis Period (min) 15	

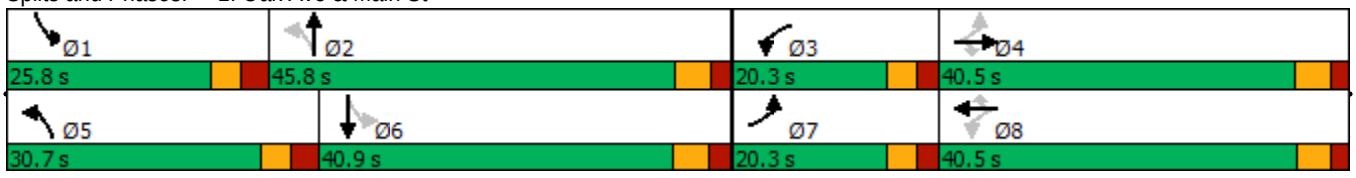
Splits and Phases: 1: Oak Ave & Main St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	352	307	97	298	126	248	351	37	143	400	39
Future Volume (vph)	109	352	307	97	298	126	248	351	37	143	400	39
Satd. Flow (prot)	1805	1881	1615	1805	1863	1583	1770	1870	0	1787	1835	0
Flt Permitted	0.311			0.167			0.127			0.283		
Satd. Flow (perm)	591	1881	1615	317	1863	1583	237	1870	0	532	1835	0
Satd. Flow (RTOR)			302			115		5			4	
Peak Hour Factor	0.85	0.81	0.95	0.81	0.92	0.88	0.98	0.85	0.77	0.76	0.93	0.89
Heavy Vehicles (%)	0%	1%	0%	0%	2%	2%	2%	0%	0%	1%	2%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	435	323	120	324	143	253	461	0	188	474	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Total Split (s)	20.3	40.5	40.5	20.3	40.5	40.5	30.7	45.8		25.8	40.9	
Total Lost Time (s)	5.3	5.5	5.5	5.3	5.4	5.4	5.7	5.8		5.8	5.9	
Act Effct Green (s)	41.0	30.4	30.4	39.5	29.8	29.8	56.0	38.6		44.9	32.7	
Actuated g/C Ratio	0.36	0.27	0.27	0.35	0.26	0.26	0.49	0.34		0.39	0.29	
v/c Ratio	0.40	0.87	0.50	0.51	0.67	0.29	0.70	0.72		0.55	0.89	
Control Delay	26.9	59.3	8.2	31.0	46.4	11.8	34.0	41.7		24.4	60.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.9	59.3	8.2	31.0	46.4	11.8	34.0	41.7		24.4	60.8	
LOS	C	E	A	C	D	B	C	D		C	E	
Approach Delay		36.0			34.9			39.0			50.5	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	62	313	12	58	219	16	116	301		79	344	
Queue Length 95th (ft)	105	424	92	94	354	68	223	448		112	#624	
Internal Link Dist (ft)		987			459			665			1008	
Turn Bay Length (ft)	100			300		100	150			225		
Base Capacity (vph)	396	595	717	324	589	579	463	696		471	581	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.32	0.73	0.45	0.37	0.55	0.25	0.55	0.66		0.40	0.82	

Intersection Summary	
Cycle Length: 132.4	
Actuated Cycle Length: 113.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 39.9	Intersection LOS: D
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Oak Ave & Main St



HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	AM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Oak Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Oak Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.85
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	57	221	203	0	51	304	81	0	237	258	42	0	52	224	21
Percent Heavy Vehicles, %	3	2	4	1	0	7	2	5	3	2	2	0	3	10	5	6
Flow Rate (v_{PCE}), pc/h	0	68	270	241	0	64	365	100	0	284	310	49	0	67	277	26
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		579			529			643			370	
Entry Volume, veh/h		565			513			631			349	
Circulating Flow (v_c), pc/h	408			662			405			713		
Exiting Flow (v_{ex}), pc/h	386			675			478			582		
Capacity (c_{pce}), pc/h		910			702			913			667	
Capacity (c), veh/h		888			681			896			629	
v/c Ratio (x)		0.64			0.75			0.70			0.55	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		14.0			23.3			16.5			15.4	
Lane LOS		B			C			C			C	
95% Queue, veh		4.7			6.9			6.0			3.4	
Approach Delay, s/veh	14.0			23.3			16.5			15.4		
Approach LOS	B			C			C			C		
Intersection Delay, s/veh | LOS	17.3						C					

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HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	PM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Oak Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Oak Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.95
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	109	353	306	0	97	299	126	0	248	351	38	0	143	399	38
Percent Heavy Vehicles, %	3	0	1	0	0	0	2	2	3	2	0	0	3	1	2	3
Flow Rate (v_{PCE}), pc/h	0	115	375	322	0	102	321	135	0	266	369	40	0	152	428	41
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		812			558			675			621	
Entry Volume, veh/h		808			549			670			610	
Circulating Flow (v_c), pc/h	682			750			642			689		
Exiting Flow (v_{ex}), pc/h	567			628			619			852		
Capacity (c_{pce}), pc/h		688			642			717			683	
Capacity (c), veh/h		685			632			711			671	
v/c Ratio (x)		1.18			0.87			0.94			0.91	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		117.2			36.2			44.7			40.5	
Lane LOS		F			E			E			E	
95% Queue, veh		26.7			10.1			13.5			11.8	
Approach Delay, s/veh	117.2			36.2			44.7			40.5		
Approach LOS	F			E			E			E		
Intersection Delay, s/veh | LOS	64.2						F					

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HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	AM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Oak Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Oak Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.85
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	1	0	0	0	1	0
Lane Assignment	LT		TR		LT		TR				LTR				LTR	
Volume (V), veh/h	0	57	221	203	0	51	304	81	0	237	258	42	0	52	224	21
Percent Heavy Vehicles, %	3	2	4	1	0	7	2	5	3	2	2	0	3	10	5	6
Flow Rate (v_{PCE}), pc/h	0	68	270	241	0	64	365	100	0	284	310	49	0	67	277	26
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2				2			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.5436	4.5436		4.5436	4.5436			4.3276			4.3276	
Follow-Up Headway, s	2.5352	2.5352		2.5352	2.5352			2.5352			2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	272	307		249	280			643			370	
Entry Volume, veh/h	266	299		241	272			631			349	
Circulating Flow (v_c), pc/h	408			662			405			713		
Exiting Flow (v_{ex}), pc/h	386			675			478			582		
Capacity (c_{pce}), pc/h	980	980		777	777			1006			775	
Capacity (c), veh/h	956	956		754	754			988			731	
v/c Ratio (x)	0.28	0.31		0.32	0.36			0.64			0.48	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	6.6	7.0		8.6	9.2			13.0			11.7	
Lane LOS	A	A		A	A			B			B	
95% Queue, veh	1.1	1.3		1.4	1.6			4.8			2.6	
Approach Delay, s/veh	6.8			8.9			13.0			11.7		
Approach LOS	A			A			B			B		
Intersection Delay, s/veh | LOS	10.1						B					

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HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	PM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Oak Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Oak Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.95
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	1	0	0	0	1	0
Lane Assignment	LT		TR		LT		TR				LTR				LTR	
Volume (V), veh/h	0	109	353	306	0	97	299	126	0	248	351	38	0	143	399	38
Percent Heavy Vehicles, %	3	0	1	0	0	0	2	2	3	2	0	0	3	1	2	3
Flow Rate (v_{PCE}), pc/h	0	115	375	322	0	102	321	135	0	266	369	40	0	152	428	41
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2				2			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.5436	4.5436		4.5436	4.5436			4.3276			4.3276	
Follow-Up Headway, s	2.5352	2.5352		2.5352	2.5352			2.5352			2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	382	430		262	296			675			621	
Entry Volume, veh/h	380	428		258	291			670			610	
Circulating Flow (v_c), pc/h	682			750			642			689		
Exiting Flow (v_{ex}), pc/h	567			628			619			852		
Capacity (c_{pce}), pc/h	763	763		718	718			823			791	
Capacity (c), veh/h	760	760		706	706			816			776	
v/c Ratio (x)	0.50	0.56		0.37	0.41			0.82			0.79	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	11.9	13.5		9.8	10.7			25.2			23.3	
Lane LOS	B	B		A	B			D			C	
95% Queue, veh	2.8	3.6		1.7	2.0			9.1			8.0	
Approach Delay, s/veh	12.7			10.3			25.2			23.3		
Approach LOS	B			B			D			C		
Intersection Delay, s/veh | LOS	17.8						C					

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	315	363	0	100	73
Future Volume (vph)	0	315	363	0	100	73
Satd. Flow (prot)	0	1644	1660	0	1787	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	1644	1660	0	1787	1583
Satd. Flow (RTOR)						80
Peak Hour Factor	1.00	0.76	0.94	1.00	0.83	0.91
Heavy Vehicles (%)	0%	4%	3%	0%	1%	2%
Parking (#/hr)		0	0			
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	414	386	0	120	80
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Total Split (s)		55.0	55.0		25.0	25.0
Total Lost Time (s)		5.5	5.6		5.2	5.2
Act Effct Green (s)		61.4	61.3		11.6	11.6
Actuated g/C Ratio		0.77	0.77		0.14	0.14
v/c Ratio		0.33	0.30		0.46	0.27
Control Delay		5.2	4.8		36.5	9.7
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		5.2	4.8		36.5	9.7
LOS		A	A		D	A
Approach Delay		5.2	4.8		25.8	
Approach LOS		A	A		C	
Queue Length 50th (ft)		63	45		56	0
Queue Length 95th (ft)		97	123		91	35
Internal Link Dist (ft)		459	42		556	
Turn Bay Length (ft)						
Base Capacity (vph)		1260	1271		442	451
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.33	0.30		0.27	0.18

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 70 (88%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 9.2 — Intersection LOS: A
Intersection Capacity Utilization 33.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Main St & W Park Square

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	534	397	0	133	125
Future Volume (vph)	0	534	397	0	133	125
Satd. Flow (prot)	0	1693	1693	0	1805	1615
Flt Permitted					0.950	
Satd. Flow (perm)	0	1693	1693	0	1805	1615
Satd. Flow (RTOR)						144
Peak Hour Factor	1.00	0.86	0.88	1.00	0.79	0.87
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Parking (#/hr)		0	0			
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	621	451	0	168	144
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Total Split (s)		73.0	73.0		27.0	27.0
Total Lost Time (s)		5.5	5.6		5.2	5.2
Act Effct Green (s)		73.9	73.8		15.4	15.4
Actuated g/C Ratio		0.74	0.74		0.15	0.15
v/c Ratio		0.50	0.36		0.60	0.39
Control Delay		7.7	3.9		48.1	9.2
Queue Delay		0.9	0.0		0.0	0.0
Total Delay		8.5	3.9		48.1	9.2
LOS		A	A		D	A
Approach Delay		8.5	3.9		30.1	
Approach LOS		A	A		C	
Queue Length 50th (ft)		138	63		101	0
Queue Length 95th (ft)		235	91		137	45
Internal Link Dist (ft)		459	42		556	
Turn Bay Length (ft)						
Base Capacity (vph)		1250	1248		393	464
Starvation Cap Reductn		342	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.68	0.36		0.43	0.31

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 38 (38%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 11.9 — Intersection LOS: B
Intersection Capacity Utilization 44.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Main St & W Park Square

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Vol, veh/h	0	315	363	0	100	73
Future Vol, veh/h	0	315	363	0	100	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	76	94	100	83	91
Heavy Vehicles, %	0	4	3	0	1	2
Mvmt Flow	0	414	386	0	120	80

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	800	386
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	414	-
Critical Hdwy	-	-	-	-	6.41	6.22
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	-	-	3.509	3.318
Pot Cap-1 Maneuver	0	-	-	0	356	662
Stage 1	0	-	-	0	689	-
Stage 2	0	-	-	0	669	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	356	662
Mov Cap-2 Maneuver	-	-	-	-	472	-
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	669	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	472	662
HCM Lane V/C Ratio	-	-	0.255	0.121
HCM Control Delay (s)	-	-	15.2	11.2
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1	0.4

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Vol, veh/h	0	534	397	0	133	125
Future Vol, veh/h	0	534	397	0	133	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	86	88	100	79	87
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	621	451	0	168	144

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1072	451
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	621	-
Critical Hdwy	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	-	-	0	246	613
Stage 1	0	-	-	0	646	-
Stage 2	0	-	-	0	540	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	246	613
Mov Cap-2 Maneuver	-	-	-	-	379	-
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	540	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	379	613
HCM Lane V/C Ratio	-	-	0.444	0.234
HCM Control Delay (s)	-	-	21.9	12.7
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	2.2	0.9

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	332	83	81	349	15	78
Future Vol, veh/h	332	83	81	349	15	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	83	70	91	47	81
Heavy Vehicles, %	4	3	3	3	8	5
Mvmt Flow	431	100	116	384	32	96

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	531	0	1097	481
Stage 1	-	-	-	-	481	-
Stage 2	-	-	-	-	616	-
Critical Hdwy	-	-	4.13	-	6.48	6.25
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	-	-	2.227	-	3.572	3.345
Pot Cap-1 Maneuver	-	-	1031	-	230	579
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	527	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1031	-	204	579
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	332	579	-	-	1031	-
HCM Lane V/C Ratio	0.096	0.166	-	-	0.112	-
HCM Control Delay (s)	17	12.5	-	-	8.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.6	-	-	0.4	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	599	67	57	368	29	144
Future Vol, veh/h	599	67	57	368	29	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	76	84	85	66	78
Heavy Vehicles, %	1	0	2	1	0	0
Mvmt Flow	681	88	68	433	44	185

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	769	0	1294	725
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	569	-
Critical Hdwy	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	845	-	181	428
Stage 1	-	-	-	-	483	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	845	-	167	428
Mov Cap-2 Maneuver	-	-	-	-	305	-
Stage 1	-	-	-	-	483	-
Stage 2	-	-	-	-	524	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	19.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	305	428	-	-	845	-
HCM Lane V/C Ratio	0.144	0.431	-	-	0.08	-
HCM Control Delay (s)	18.8	19.6	-	-	9.6	-
HCM Lane LOS	C	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	2.1	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	86	324	430	29	0	0
Future Vol, veh/h	86	324	430	29	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	76	96	66	100	100
Heavy Vehicles, %	1	5	3	4	0	0
Mvmt Flow	100	426	448	44	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	492	0	-	0	1096	470
Stage 1	-	-	-	-	470	-
Stage 2	-	-	-	-	626	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1077	-	-	-	238	598
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1077	-	-	-	216	598
Mov Cap-2 Maneuver	-	-	-	-	352	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	537	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1077	-	-	-	-
HCM Lane V/C Ratio	0.093	-	-	-	-
HCM Control Delay (s)	8.7	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	125	617	425	61	0	0
Future Vol, veh/h	125	617	425	61	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	92	86	80	100	100
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	140	671	494	76	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	570	0	-	0	1483	532
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	951	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1013	-	-	-	139	551
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	379	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1013	-	-	-	120	551
Mov Cap-2 Maneuver	-	-	-	-	252	-
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	379	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1013	-	-	-	-
HCM Lane V/C Ratio	0.139	-	-	-	-
HCM Control Delay (s)	9.1	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.5	-	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	323	1	2	458	0	0
Future Vol, veh/h	323	1	2	458	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	25	50	93	100	100
Heavy Vehicles, %	5	0	0	3	0	0
Mvmt Flow	425	4	4	492	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	429	0	927	427
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	500	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1141	-	300	632
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	613	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1141	-	299	632
Mov Cap-2 Maneuver	-	-	-	-	426	-
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	611	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1141	-
HCM Lane V/C Ratio	-	-	-	0.004	-
HCM Control Delay (s)	0	-	-	8.2	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	614	2	4	487	0	0
Future Vol, veh/h	614	2	4	487	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	50	33	87	100	100
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	667	4	12	560	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	671	0	1253	669
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	584	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	929	-	192	461
Stage 1	-	-	-	-	513	-
Stage 2	-	-	-	-	561	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	929	-	190	461
Mov Cap-2 Maneuver	-	-	-	-	330	-
Stage 1	-	-	-	-	513	-
Stage 2	-	-	-	-	554	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	0
HCM LOS			A

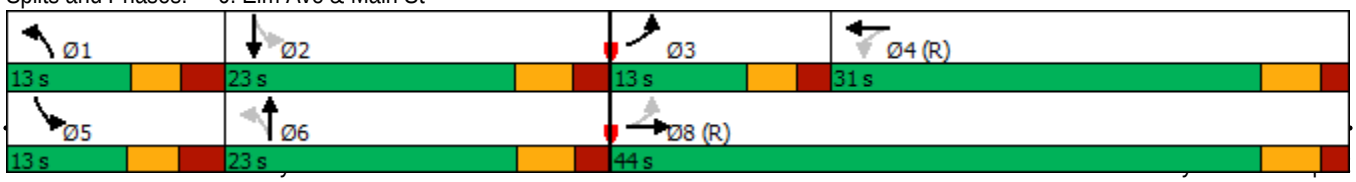
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	929	-
HCM Lane V/C Ratio	-	-	-	0.013	-
HCM Control Delay (s)	0	-	-	8.9	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	221	35	41	330	43	71	133	48	21	165	60
Future Volume (vph)	65	221	35	41	330	43	71	133	48	21	165	60
Satd. Flow (prot)	1736	1768	0	1805	1804	0	1805	1778	0	1805	1792	0
Flt Permitted	0.303			0.548			0.401			0.581		
Satd. Flow (perm)	554	1768	0	1041	1804	0	762	1778	0	1104	1792	0
Satd. Flow (RTOR)		21			11			24			19	
Peak Hour Factor	0.96	0.77	0.51	0.79	0.94	0.72	0.74	0.85	0.75	0.58	0.86	0.94
Heavy Vehicles (%)	4%	3%	10%	0%	3%	3%	0%	1%	5%	0%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	356	0	52	411	0	96	220	0	36	256	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Total Split (s)	13.0	44.0		31.0	31.0		13.0	23.0		13.0	23.0	
Total Lost Time (s)	5.0	5.3		5.3	5.3		5.6	5.7		5.8	5.8	
Act Effct Green (s)	42.9	42.6		33.1	33.1		23.5	19.0		20.9	16.0	
Actuated g/C Ratio	0.54	0.53		0.41	0.41		0.29	0.24		0.26	0.20	
v/c Ratio	0.17	0.37		0.12	0.55		0.30	0.50		0.11	0.69	
Control Delay	9.9	10.4		16.6	19.8		19.9	28.3		17.3	37.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.9	10.4		16.6	19.8		19.9	28.3		17.3	37.7	
LOS	A	B		B	B		B	C		B	D	
Approach Delay		10.3			19.5			25.8			35.2	
Approach LOS		B			B			C			D	
Queue Length 50th (ft)	13	91		14	117		32	88		12	112	
Queue Length 95th (ft)	31	114		31	196		50	145		19	175	
Internal Link Dist (ft)		301			581			629			535	
Turn Bay Length (ft)	175			150			65			60		
Base Capacity (vph)	415	951		431	753		320	452		362	400	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.37		0.12	0.55		0.30	0.49		0.10	0.64	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 71 (89%), Referenced to phase 4:WBTL and 8:EBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 21.3 — Intersection LOS: C
Intersection Capacity Utilization 60.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Elm Ave & Main St



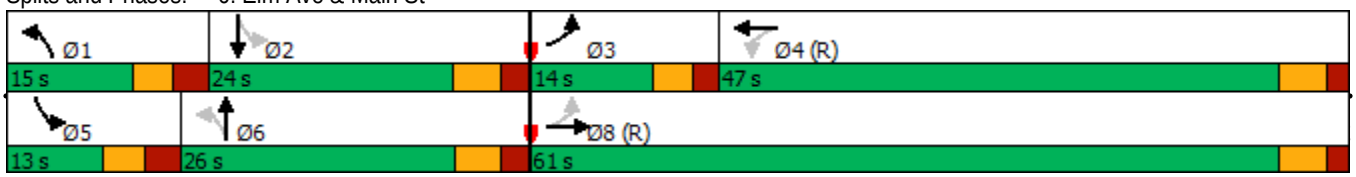
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	415	60	21	366	37	53	123	73	36	97	70
Future Volume (vph)	139	415	60	21	366	37	53	123	73	36	97	70
Satd. Flow (prot)	1805	1841	0	1805	1834	0	1805	1797	0	1805	1770	0
Flt Permitted	0.294			0.458			0.444			0.394		
Satd. Flow (perm)	559	1841	0	870	1834	0	844	1797	0	749	1770	0
Satd. Flow (RTOR)		15			8			26			32	
Peak Hour Factor	0.87	0.89	0.71	0.75	0.83	0.62	0.88	0.83	0.87	0.64	0.84	0.83
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	160	551	0	28	501	0	60	232	0	56	199	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Total Split (s)	14.0	61.0		47.0	47.0		15.0	26.0		13.0	24.0	
Total Lost Time (s)	5.0	5.3		5.3	5.3		5.6	5.7		5.8	5.8	
Act Effct Green (s)	61.8	61.5		48.2	48.2		23.8	17.3		22.1	16.5	
Actuated g/C Ratio	0.62	0.62		0.48	0.48		0.24	0.17		0.22	0.16	
v/c Ratio	0.36	0.48		0.07	0.56		0.22	0.70		0.24	0.62	
Control Delay	9.8	10.7		13.7	17.9		26.5	46.0		27.3	41.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.8	10.7		13.7	17.9		26.5	46.0		27.3	41.5	
LOS	A	B		B	B		C	D		C	D	
Approach Delay		10.5			17.7			42.0			38.4	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	34	159		8	198		28	126		26	100	
Queue Length 95th (ft)	58	241		m19	250		54	179		37	156	
Internal Link Dist (ft)		301			581			629			535	
Turn Bay Length (ft)	175			150			65			60		
Base Capacity (vph)	460	1138		419	888		300	385		243	348	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.48		0.07	0.56		0.20	0.60		0.23	0.57	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 32 (32%), Referenced to phase 4:WBTL and 8:EBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 21.8 — Intersection LOS: C
Intersection Capacity Utilization 68.0% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Elm Ave & Main St



Intersection	
Int Delay, s/veh	65.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	221	35	41	330	43	71	133	48	21	165	60
Future Vol, veh/h	65	221	35	41	330	43	71	133	48	21	165	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	150	-	-	65	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	77	51	79	94	72	74	85	75	58	86	94
Heavy Vehicles, %	4	3	10	0	3	3	0	1	5	0	2	2
Mvmt Flow	68	287	69	52	351	60	96	156	64	36	192	64

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	411	0	0	356	0	0	1071	973	322	1053	977	381
Stage 1	-	-	-	-	-	-	458	458	-	485	485	-
Stage 2	-	-	-	-	-	-	613	515	-	568	492	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.51	6.25	7.1	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.51	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.51	-	6.1	5.52	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4.009	3.345	3.5	4.018	3.318
Pot Cap-1 Maneuver	1137	-	-	1214	-	-	200	253	712	206	251	666
Stage 1	-	-	-	-	-	-	587	569	-	567	552	-
Stage 2	-	-	-	-	-	-	483	536	-	511	548	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1137	-	-	1214	-	-	~ 48	228	712	78	226	666
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 48	228	-	78	226	-
Stage 1	-	-	-	-	-	-	552	535	-	533	528	-
Stage 2	-	-	-	-	-	-	266	513	-	309	515	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.9	231.9	82.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	48	284	1137	-	-	1214	-	-	78	271
HCM Lane V/C Ratio	1.999	0.776	0.06	-	-	0.043	-	-	0.464	0.944
HCM Control Delay (s)	$ 648.2	50.8	8.4	-	-	8.1	-	-	86.1	81.7
HCM Lane LOS	F	F	A	-	-	A	-	-	F	F
HCM 95th %tile Q(veh)	9.7	6	0.2	-	-	0.1	-	-	1.9	8.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	211.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	139	415	60	21	366	37	53	123	73	36	97	70
Future Vol, veh/h	139	415	60	21	366	37	53	123	73	36	97	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	150	-	-	65	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	89	71	75	83	62	88	83	87	64	84	83
Heavy Vehicles, %	0	1	0	0	2	0	0	0	0	0	1	0
Mvmt Flow	160	466	85	28	441	60	60	148	84	56	115	84

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	501	0	0	551	0	0	1456	1386	509	1472	1398	471
Stage 1	-	-	-	-	-	-	829	829	-	527	527	-
Stage 2	-	-	-	-	-	-	627	557	-	945	871	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.51	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.51	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4.009	3.3
Pot Cap-1 Maneuver	1074	-	-	1029	-	-	109	~ 144	568	106	141	597
Stage 1	-	-	-	-	-	-	368	388	-	538	530	-
Stage 2	-	-	-	-	-	-	475	515	-	317	370	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1074	-	-	1029	-	-	~ 6	~ 119	568	-	117	597
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 6	~ 119	-	-	117	-
Stage 1	-	-	-	-	-	-	313	330	-	458	516	-
Stage 2	-	-	-	-	-	-	308	501	-	127	315	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.5	$ 1288.9	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	6	167	1074	-	-	1029	-	-	-	177
HCM Lane V/C Ratio	10.038	1.39	0.149	-	-	0.027	-	-	-	1.129
HCM Control Delay (s)	$ 5254.9	259.8	8.9	-	-	8.6	-	-	-	160
HCM Lane LOS	F	F	A	-	-	A	-	-	-	F
HCM 95th %tile Q(veh)	9.2	14.2	0.5	-	-	0.1	-	-	-	10.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	32.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	221	35	41	330	43	71	133	48	21	165	60
Future Vol, veh/h	65	221	35	41	330	43	71	133	48	21	165	60
Peak Hour Factor	0.96	0.77	0.51	0.79	0.94	0.72	0.74	0.85	0.75	0.58	0.86	0.94
Heavy Vehicles, %	4	3	10	0	3	3	0	1	5	0	2	2
Mvmt Flow	68	287	69	52	351	60	96	156	64	36	192	64
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	32.8	47.6	18.5	22.2
HCM LOS	D	E	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	73%	0%	86%	0%	88%	0%	73%
Vol Right, %	0%	27%	0%	14%	0%	12%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	71	181	65	256	41	373	21	225
LT Vol	71	0	65	0	41	0	21	0
Through Vol	0	133	0	221	0	330	0	165
RT Vol	0	48	0	35	0	43	0	60
Lane Flow Rate	96	220	68	356	52	411	36	256
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.245	0.52	0.164	0.801	0.123	0.913	0.092	0.604
Departure Headway (Hd)	9.179	8.483	8.744	8.109	8.548	8	9.187	8.507
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	391	426	410	445	419	452	390	424
Service Time	6.946	6.249	6.507	5.872	6.307	5.759	6.952	6.272
HCM Lane V/C Ratio	0.246	0.516	0.166	0.8	0.124	0.909	0.092	0.604
HCM Control Delay	14.9	20.1	13.2	36.5	12.5	52	12.9	23.5
HCM Lane LOS	B	C	B	E	B	F	B	C
HCM 95th-tile Q	0.9	2.9	0.6	7.3	0.4	10.2	0.3	3.9

Intersection	
Intersection Delay, s/veh	79.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	139	415	60	21	366	37	53	123	73	36	97	70
Future Vol, veh/h	139	415	60	21	366	37	53	123	73	36	97	70
Peak Hour Factor	0.87	0.89	0.71	0.75	0.83	0.62	0.88	0.83	0.87	0.64	0.84	0.83
Heavy Vehicles, %	0	1	0	0	2	0	0	0	0	0	1	0
Mvmt Flow	160	466	85	28	441	60	60	148	84	56	115	84
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	108.8	100.7	20.7	18.9
HCM LOS	F	F	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	63%	0%	87%	0%	91%	0%	58%
Vol Right, %	0%	37%	0%	13%	0%	9%	0%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	53	196	139	475	21	403	36	167
LT Vol	53	0	139	0	21	0	36	0
Through Vol	0	123	0	415	0	366	0	97
RT Vol	0	73	0	60	0	37	0	70
Lane Flow Rate	60	232	160	551	28	501	56	200
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.155	0.547	0.373	1.199	0.066	1.112	0.146	0.477
Departure Headway (Hd)	9.938	9.139	8.731	8.138	8.909	8.359	10.089	9.272
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	363	397	415	452	405	441	358	392
Service Time	7.638	6.839	6.431	5.838	6.609	6.059	7.789	6.972
HCM Lane V/C Ratio	0.165	0.584	0.386	1.219	0.069	1.136	0.156	0.51
HCM Control Delay	14.5	22.3	16.5	135.6	12.2	105.7	14.5	20.1
HCM Lane LOS	B	C	C	F	B	F	B	C
HCM 95th-tile Q	0.5	3.2	1.7	20.6	0.2	16.8	0.5	2.5

HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	AM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Elm Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Elm Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.86
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	66	221	36	0	40	330	43	0	71	133	47	0	20	165	60
Percent Heavy Vehicles, %	3	4	3	10	0	0	3	3	3	0	1	5	3	0	2	2
Flow Rate (v_{PCE}), pc/h	0	80	265	46	0	47	395	52	0	83	156	57	0	23	196	71
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	31				2				7				5			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		391			494			296			290	
Entry Volume, veh/h		376			481			292			285	
Circulating Flow (v_c), pc/h	266			319			368			525		
Exiting Flow (v_{ex}), pc/h	345			549			288			289		
Capacity (c_{pce}), pc/h		1052			997			948			808	
Capacity (c), veh/h		1007			970			934			793	
v/c Ratio (x)		0.37			0.50			0.31			0.36	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.6			9.8			7.2			8.9	
Lane LOS		A			A			A			A	
95% Queue, veh		1.7			2.8			1.3			1.6	
Approach Delay, s/veh	7.6			9.8			7.2			8.9		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	8.5						A					

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HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	PM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Elm Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Elm Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.95
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	139	415	61	0	21	366	37	0	53	123	73	0	36	97	71
Percent Heavy Vehicles, %	3	0	1	0	0	0	2	0	3	0	0	0	3	0	1	0
Flow Rate (v_{PCE}), pc/h	0	146	441	64	0	22	393	39	0	56	129	77	0	38	103	75
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	28				3				7				5			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		651			454			262			216	
Entry Volume, veh/h		647			446			262			215	
Circulating Flow (v_c), pc/h	163			331			625			471		
Exiting Flow (v_{ex}), pc/h	556			524			314			189		
Capacity (c_{pce}), pc/h		1169			985			729			854	
Capacity (c), veh/h		1156			967			729			849	
v/c Ratio (x)		0.56			0.46			0.36			0.25	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.8			9.2			9.5			6.9	
Lane LOS		A			A			A			A	
95% Queue, veh		3.6			2.5			1.6			1.0	
Approach Delay, s/veh	9.8			9.2			9.5			6.9		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	9.2						A					

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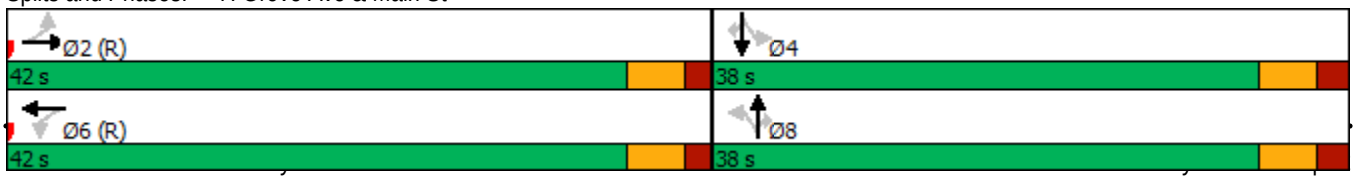
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	174	25	14	249	114	29	131	16	36	265	135
Future Volume (vph)	88	174	25	14	249	114	29	131	16	36	265	135
Satd. Flow (prot)	1752	1792	0	1687	1723	0	0	1865	1615	0	1816	1568
Flt Permitted	0.474			0.602				0.766			0.943	
Satd. Flow (perm)	874	1792	0	1069	1723	0	0	1444	1615	0	1723	1568
Satd. Flow (RTOR)		25			43				36			104
Peak Hour Factor	0.67	0.93	0.45	0.88	0.96	0.86	0.66	0.84	0.44	0.90	0.85	0.84
Heavy Vehicles (%)	3%	3%	0%	7%	4%	6%	0%	1%	0%	4%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	243	0	16	392	0	0	200	36	0	352	161
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Total Split (s)	42.0	42.0		42.0	42.0		38.0	38.0	38.0	38.0	38.0	38.0
Total Lost Time (s)	5.1	5.1		5.1	5.1			5.5	5.5		5.5	5.5
Act Effct Green (s)	44.6	44.6		44.6	44.6			24.8	24.8		24.8	24.8
Actuated g/C Ratio	0.56	0.56		0.56	0.56			0.31	0.31		0.31	0.31
v/c Ratio	0.27	0.24		0.03	0.40			0.45	0.07		0.66	0.29
Control Delay	7.8	5.7		10.9	11.8			24.0	5.9		29.2	8.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	7.8	5.7		10.9	11.8			24.0	5.9		29.2	8.5
LOS	A	A		B	B			C	A		C	A
Approach Delay		6.4			11.8			21.2			22.7	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	19	28		3	93			78	0		149	20
Queue Length 95th (ft)	31	59		14	189			109	3		189	47
Internal Link Dist (ft)		581			1203			622			478	
Turn Bay Length (ft)	300			150					50			50
Base Capacity (vph)	486	1009		595	978			586	677		699	698
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.27	0.24		0.03	0.40			0.34	0.05		0.50	0.23

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 76 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 15.6 — Intersection LOS: B
Intersection Capacity Utilization 74.7% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Grove Ave & Main St



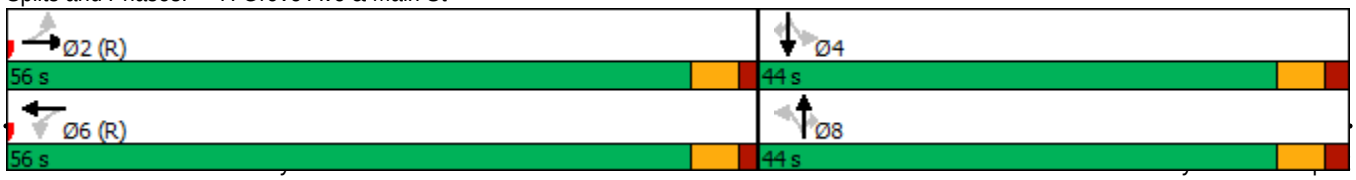
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	338	48	7	255	62	55	145	20	43	189	113
Future Volume (vph)	139	338	48	7	255	62	55	145	20	43	189	113
Satd. Flow (prot)	1805	1828	0	1805	1823	0	0	1858	1615	0	1883	1599
Flt Permitted	0.515			0.459				0.554			0.778	
Satd. Flow (perm)	978	1828	0	872	1823	0	0	1046	1615	0	1478	1599
Satd. Flow (RTOR)		14			21				23			96
Peak Hour Factor	0.79	0.92	0.67	0.44	0.91	0.78	0.69	0.86	0.63	0.90	0.84	0.76
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	2%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	439	0	16	359	0	0	249	32	0	273	149
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Total Split (s)	56.0	56.0		56.0	56.0		44.0	44.0	44.0	44.0	44.0	44.0
Total Lost Time (s)	5.1	5.1		5.1	5.1			5.5	5.5		5.5	5.5
Act Effct Green (s)	64.7	64.7		64.7	64.7			24.7	24.7		24.7	24.7
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.25	0.25		0.25	0.25
v/c Ratio	0.28	0.37		0.03	0.30			0.97	0.08		0.75	0.32
Control Delay	7.0	6.8		8.9	9.2			84.2	12.9		46.9	12.7
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	7.0	6.8		8.9	9.2			84.2	12.9		46.9	12.7
LOS	A	A		A	A			F	B		D	B
Approach Delay		6.9			9.2			76.1			34.8	
Approach LOS		A			A			E			C	
Queue Length 50th (ft)	21	61		3	85			157	4		161	26
Queue Length 95th (ft)	76	229		7	169			219	14		204	49
Internal Link Dist (ft)		581			1203			622			478	
Turn Bay Length (ft)	300			150					50			50
Base Capacity (vph)	632	1187		564	1186			402	635		569	674
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.28	0.37		0.03	0.30			0.62	0.05		0.48	0.22

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 60 (60%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 25.8 — Intersection LOS: C
Intersection Capacity Utilization 73.9% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Grove Ave & Main St



PM Peak Hour

Intersection	
Int Delay, s/veh	78.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	174	25	14	249	114	29	131	16	36	265	135
Future Vol, veh/h	88	174	25	14	249	114	29	131	16	36	265	135
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	150	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	93	45	88	96	86	66	84	44	90	85	84
Heavy Vehicles, %	3	3	0	7	4	6	0	1	0	4	4	3
Mvmt Flow	131	187	56	16	259	133	44	156	36	40	312	161

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	392	0	0	243	0	0	1071	901	215	931	863	326
Stage 1	-	-	-	-	-	-	477	477	-	358	358	-
Stage 2	-	-	-	-	-	-	594	424	-	573	505	-
Critical Hdwy	4.13	-	-	4.17	-	-	7.1	6.51	6.2	7.14	6.54	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.51	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.51	-	6.14	5.54	-
Follow-up Hdwy	2.227	-	-	2.263	-	-	3.5	4.009	3.3	3.536	4.036	3.327
Pot Cap-1 Maneuver	1161	-	-	1295	-	-	200	279	830	245	~ 290	713
Stage 1	-	-	-	-	-	-	573	558	-	656	624	-
Stage 2	-	-	-	-	-	-	495	589	-	501	537	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1161	-	-	1295	-	-	-	244	830	105	~ 254	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	244	-	105	~ 254	-
Stage 1	-	-	-	-	-	-	508	495	-	582	617	-
Stage 2	-	-	-	-	-	-	187	582	-	291	476	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	0.3		231.8
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	830	1161	-	-	1295	-	-	219	713
HCM Lane V/C Ratio	-	0.044	0.113	-	-	0.012	-	-	1.606	0.225
HCM Control Delay (s)	-	9.5	8.5	-	-	7.8	-	-	$ 332.4	11.5
HCM Lane LOS	-	A	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	0.1	0.4	-	-	0	-	-	22.5	0.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	929.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	139	338	48	7	255	62	55	145	20	43	189	113
Future Vol, veh/h	139	338	48	7	255	62	55	145	20	43	189	113
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	150	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	92	67	44	91	78	69	86	63	90	84	76
Heavy Vehicles, %	0	1	3	0	1	0	2	0	0	0	0	1
Mvmt Flow	176	367	72	16	280	79	80	169	32	48	225	149

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	439	0	0	1294	1146	403	1208	1143	320
Stage 1	-	-	-	-	-	-	755	755	-	352	352	-
Stage 2	-	-	-	-	-	-	539	391	-	856	791	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.12	6.5	6.2	7.1	6.5	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.518	4	3.3	3.5	4	3.309
Pot Cap-1 Maneuver	1211	-	-	1132	-	-	139	201	652	161	~ 202	723
Stage 1	-	-	-	-	-	-	401	420	-	669	635	-
Stage 2	-	-	-	-	-	-	527	611	-	355	404	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1211	-	-	1132	-	-	-	169	652	~ 4	~ 170	723
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	169	-	~ 4	~ 170	-
Stage 1	-	-	-	-	-	-	343	359	-	572	626	-
Stage 2	-	-	-	-	-	-	264	602	-	153	345	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0.3		$ 3726.4
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	652	1211	-	-	1132	-	-	21	723
HCM Lane V/C Ratio	-	0.049	0.145	-	-	0.014	-	-	12.989	0.206
HCM Control Delay (s)	-	10.8	8.5	-	-	8.2	-	-	$ 5751.4	11.3
HCM Lane LOS	-	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	0.2	0.5	-	-	0	-	-	34.4	0.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	29.6
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	174	25	14	249	114	29	131	16	36	265	135
Future Vol, veh/h	88	174	25	14	249	114	29	131	16	36	265	135
Peak Hour Factor	0.67	0.93	0.45	0.88	0.96	0.86	0.66	0.84	0.44	0.90	0.85	0.84
Heavy Vehicles, %	3	3	0	7	4	6	0	1	0	4	4	3
Mvmt Flow	131	187	56	16	259	133	44	156	36	40	312	161
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	19.5	44.2	18.7	30.4
HCM LOS	C	E	C	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	18%	0%	100%	0%	100%	0%	12%	0%
Vol Thru, %	82%	0%	0%	87%	0%	69%	88%	0%
Vol Right, %	0%	100%	0%	13%	0%	31%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	160	16	88	199	14	363	301	135
LT Vol	29	0	88	0	14	0	36	0
Through Vol	131	0	0	174	0	249	265	0
RT Vol	0	16	0	25	0	114	0	135
Lane Flow Rate	200	36	131	243	16	392	352	161
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.493	0.082	0.327	0.563	0.039	0.874	0.809	0.334
Departure Headway (Hd)	8.879	8.073	8.968	8.358	8.828	8.031	8.276	7.489
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	406	443	401	432	406	451	436	481
Service Time	6.636	5.83	6.725	6.114	6.577	5.779	6.025	5.238
HCM Lane V/C Ratio	0.493	0.081	0.327	0.563	0.039	0.869	0.807	0.335
HCM Control Delay	20	11.6	16	21.4	11.9	45.5	37.9	14
HCM Lane LOS	C	B	C	C	B	E	E	B
HCM 95th-tile Q	2.6	0.3	1.4	3.4	0.1	9.1	7.4	1.5

Intersection	
Intersection Delay, s/veh	43.2
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	139	338	48	7	255	62	55	145	20	43	189	113
Future Vol, veh/h	139	338	48	7	255	62	55	145	20	43	189	113
Peak Hour Factor	0.79	0.92	0.67	0.44	0.91	0.78	0.69	0.86	0.63	0.90	0.84	0.76
Heavy Vehicles, %	0	1	3	0	1	0	2	0	0	0	0	1
Mvmt Flow	176	367	72	16	280	79	80	169	32	48	225	149
Number of Lanes	1	1	0	1	1	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	63	44.7	26	24.3
HCM LOS	F	E	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	28%	0%	100%	0%	100%	0%	19%	0%
Vol Thru, %	72%	0%	0%	88%	0%	80%	81%	0%
Vol Right, %	0%	100%	0%	12%	0%	20%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	20	139	386	7	317	232	113
LT Vol	55	0	139	0	7	0	43	0
Through Vol	145	0	0	338	0	255	189	0
RT Vol	0	20	0	48	0	62	0	113
Lane Flow Rate	248	32	176	439	16	360	273	149
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.643	0.074	0.442	1.03	0.041	0.859	0.68	0.336
Departure Headway (Hd)	9.51	8.597	9.035	8.442	9.418	8.771	9.153	8.324
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	382	419	401	435	382	417	398	434
Service Time	7.21	6.297	6.735	6.142	7.118	6.471	6.853	6.024
HCM Lane V/C Ratio	0.649	0.076	0.439	1.009	0.042	0.863	0.686	0.343
HCM Control Delay	27.8	12	18.7	80.8	12.5	46.1	29.2	15.2
HCM Lane LOS	D	B	C	F	B	E	D	C
HCM 95th-tile Q	4.3	0.2	2.2	13.7	0.1	8.4	4.9	1.5

HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	AM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Grove Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Grove Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.86
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	89	174	25	0	14	249	115	0	29	131	16	0	35	265	135
Percent Heavy Vehicles, %	3	3	3	0	0	7	4	6	3	0	1	0	3	4	4	3
Flow Rate (v_{PCE}), pc/h	0	107	208	29	0	17	301	142	0	34	154	19	0	42	320	162
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		344			460			207			524	
Entry Volume, veh/h		335			439			205			505	
Circulating Flow (v_c), pc/h	379			295			357			352		
Exiting Flow (v_{ex}), pc/h	269			497			403			366		
Capacity (c_{pce}), pc/h		938			1021			959			964	
Capacity (c), veh/h		913			975			952			929	
v/c Ratio (x)		0.37			0.45			0.22			0.54	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.0			8.9			5.9			11.1	
Lane LOS		A			A			A			B	
95% Queue, veh		1.7			2.4			0.8			3.4	
Approach Delay, s/veh	8.0			8.9			5.9			11.1		
Approach LOS	A			A			A			B		
Intersection Delay, s/veh | LOS	9.1						A					

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HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	PM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Grove Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Grove Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.96
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	138	338	48	0	7	256	62	0	55	146	19	0	43	188	113
Percent Heavy Vehicles, %	3	0	1	3	0	0	1	0	3	2	0	0	0	0	0	1
Flow Rate (v_{PCE}), pc/h	0	144	356	52	0	7	269	65	0	58	152	20	0	45	196	119
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		552			341			230			360	
Entry Volume, veh/h		547			338			229			359	
Circulating Flow (v_c), pc/h	248			354			545			334		
Exiting Flow (v_{ex}), pc/h	421			446			361			255		
Capacity (c_{pce}), pc/h		1072			962			792			982	
Capacity (c), veh/h		1062			954			788			978	
v/c Ratio (x)		0.52			0.35			0.29			0.37	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.5			7.6			7.9			7.6	
Lane LOS		A			A			A			A	
95% Queue, veh		3.0			1.6			1.2			1.7	
Approach Delay, s/veh	9.5			7.6			7.9			7.6		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	8.4						A					

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Intersection	
Intersection Delay, s/veh	34.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	102	55	74	278	81	115	109	22	55	199	21
Future Vol, veh/h	11	102	55	74	278	81	115	109	22	55	199	21
Peak Hour Factor	0.69	0.73	0.92	0.60	0.79	0.84	0.85	0.85	0.55	0.69	0.84	0.53
Heavy Vehicles, %	13	5	0	1	3	2	8	10	9	2	1	0
Mvmt Flow	16	140	60	123	352	96	135	128	40	80	237	40
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	18	48.3	26	31.1
HCM LOS	C	E	D	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	47%	100%	0%	100%	0%	20%
Vol Thru, %	44%	0%	65%	0%	77%	72%
Vol Right, %	9%	0%	35%	0%	23%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	246	11	157	74	359	275
LT Vol	115	11	0	74	0	55
Through Vol	109	0	102	0	278	199
RT Vol	22	0	55	0	81	21
Lane Flow Rate	304	16	200	123	448	356
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.672	0.041	0.466	0.284	0.95	0.758
Departure Headway (Hd)	7.972	9.326	8.408	8.277	7.631	7.656
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	452	383	427	433	475	470
Service Time	6.047	7.108	6.189	6.043	5.397	5.727
HCM Lane V/C Ratio	0.673	0.042	0.468	0.284	0.943	0.757
HCM Control Delay	26	12.5	18.4	14.3	57.6	31.1
HCM Lane LOS	D	B	C	B	F	D
HCM 95th-tile Q	4.9	0.1	2.4	1.2	11.5	6.4

Intersection	
Intersection Delay, s/veh	44.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	289	122	31	201	63	74	112	46	81	114	11
Future Vol, veh/h	9	289	122	31	201	63	74	112	46	81	114	11
Peak Hour Factor	0.45	0.91	0.78	0.70	0.85	0.68	0.69	0.76	0.64	0.75	0.84	0.69
Heavy Vehicles, %	0	1	0	0	0	0	3	0	0	0	0	0
Mvmt Flow	20	318	156	44	236	93	107	147	72	108	136	16
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	77	28.7	30.3	23.8
HCM LOS	F	D	D	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	32%	100%	0%	100%	0%	39%
Vol Thru, %	48%	0%	70%	0%	76%	55%
Vol Right, %	20%	0%	30%	0%	24%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	232	9	411	31	264	206
LT Vol	74	9	0	31	0	81
Through Vol	112	0	289	0	201	114
RT Vol	46	0	122	0	63	11
Lane Flow Rate	326	20	474	44	329	260
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.726	0.048	1.036	0.107	0.735	0.601
Departure Headway (Hd)	8.295	8.584	7.867	9.013	8.317	8.649
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	437	420	465	400	438	421
Service Time	6.295	6.284	5.567	6.713	6.017	6.649
HCM Lane V/C Ratio	0.746	0.048	1.019	0.11	0.751	0.618
HCM Control Delay	30.3	11.7	79.8	12.8	30.8	23.8
HCM Lane LOS	D	B	F	B	D	C
HCM 95th-tile Q	5.7	0.2	14.4	0.4	5.9	3.8

Intersection	
Int Delay, s/veh	393.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	102	55	74	278	81	115	109	22	55	199	21
Future Vol, veh/h	11	102	55	74	278	81	115	109	22	55	199	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	73	92	60	79	84	85	85	55	69	84	53
Heavy Vehicles, %	13	5	0	1	3	2	8	10	9	2	1	0
Mvmt Flow	16	140	60	123	352	96	135	128	40	80	237	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	448	0	0	200	0	0	987	896	170	932	878	400
Stage 1	-	-	-	-	-	-	202	202	-	646	646	-
Stage 2	-	-	-	-	-	-	785	694	-	286	232	-
Critical Hdwy	4.23	-	-	4.11	-	-	7.18	6.6	6.29	7.12	6.51	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.6	-	6.12	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.6	-	6.12	5.51	-
Follow-up Hdwy	2.317	-	-	2.209	-	-	3.572	4.09	3.381	3.518	4.009	3.3
Pot Cap-1 Maneuver	1057	-	-	1378	-	-	221	271	856	247	288	654
Stage 1	-	-	-	-	-	-	786	719	-	460	469	-
Stage 2	-	-	-	-	-	-	377	432	-	721	714	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1057	-	-	1378	-	-	~ 39	243	856	128	258	654
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 39	243	-	128	258	-
Stage 1	-	-	-	-	-	-	774	708	-	453	427	-
Stage 2	-	-	-	-	-	-	144	394	-	554	703	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.7	$ 1485.2	$ 331.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	75	1057	-	-	1378	-	-	222
HCM Lane V/C Ratio	4.047	0.015	-	-	0.09	-	-	1.605
HCM Control Delay (s)	$ 1485.2	8.5	-	-	7.9	-	-	$ 331.1
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	32.1	0	-	-	0.3	-	-	22.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	91.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	289	122	31	201	63	74	112	46	81	114	11
Future Vol, veh/h	9	289	122	31	201	63	74	112	46	81	114	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	91	78	70	85	68	69	76	64	75	84	69
Heavy Vehicles, %	0	1	0	0	0	0	3	0	0	0	0	0
Mvmt Flow	20	318	156	44	236	93	107	147	72	108	136	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	329	0	0	474	0	0	883	853	396	917	885	283
Stage 1	-	-	-	-	-	-	436	436	-	371	371	-
Stage 2	-	-	-	-	-	-	447	417	-	546	514	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.13	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.527	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1242	-	-	1099	-	-	265	299	658	255	286	761
Stage 1	-	-	-	-	-	-	597	583	-	653	623	-
Stage 2	-	-	-	-	-	-	589	595	-	526	539	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1242	-	-	1099	-	-	151	283	658	129	270	761
Mov Cap-2 Maneuver	-	-	-	-	-	-	151	283	-	129	270	-
Stage 1	-	-	-	-	-	-	587	574	-	643	598	-
Stage 2	-	-	-	-	-	-	428	571	-	343	530	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1	216.9	239.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	244	1242	-	-	1099	-	-	191
HCM Lane V/C Ratio	1.338	0.016	-	-	0.04	-	-	1.359
HCM Control Delay (s)	216.9	7.9	-	-	8.4	-	-	239.2
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	17.4	0	-	-	0.1	-	-	15.1

HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	AM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Lincoln Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Lincoln Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.86
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	10	102	55	0	74	278	81	0	115	109	22	0	55	199	21
Percent Heavy Vehicles, %	3	13	5	0	0	1	3	2	3	8	10	9	0	2	1	0
Flow Rate (v_{PCE}), pc/h	0	13	125	64	0	87	333	96	0	144	139	28	0	65	234	24
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		202			516			311			323	
Entry Volume, veh/h		195			504			285			319	
Circulating Flow (v_c), pc/h	386			296			203			564		
Exiting Flow (v_{ex}), pc/h	218			501			248			385		
Capacity (c_{pce}), pc/h		931			1020			1122			776	
Capacity (c), veh/h		897			996			1029			768	
v/c Ratio (x)		0.22			0.51			0.28			0.42	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.2			9.8			6.2			10.1	
Lane LOS		A			A			A			B	
95% Queue, veh		0.8			2.9			1.1			2.1	
Approach Delay, s/veh	6.2			9.8			6.2			10.1		
Approach LOS	A			A			A			B		
Intersection Delay, s/veh | LOS	8.5						A					

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HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	PM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Lincoln Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Lincoln Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	9	289	122	0	31	202	63	0	74	112	45	0	82	113	11
Percent Heavy Vehicles, %	3	0	1	0	0	0	0	0	3	3	0	0	0	0	0	0
Flow Rate (v_{PCE}), pc/h	0	10	317	133	0	34	220	68	0	83	122	49	0	89	123	12
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		460			322			254			224	
Entry Volume, veh/h		457			322			252			224	
Circulating Flow (v_c), pc/h	246			215			416			337		
Exiting Flow (v_{ex}), pc/h	455			315			200			290		
Capacity (c_{pce}), pc/h		1074			1108			903			979	
Capacity (c), veh/h		1066			1108			894			979	
v/c Ratio (x)		0.43			0.29			0.28			0.23	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.0			6.0			7.0			5.9	
Lane LOS		A			A			A			A	
95% Queue, veh		2.2			1.2			1.2			0.9	
Approach Delay, s/veh	8.0			6.0			7.0			5.9		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	6.9						A					

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Intersection	
Intersection Delay, s/veh	22
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	85	55	74	233	68	115	109	22	46	199	18
Future Vol, veh/h	8	85	55	74	233	68	115	109	22	46	199	18
Peak Hour Factor	0.69	0.73	0.92	0.60	0.79	0.84	0.85	0.85	0.55	0.69	0.84	0.53
Heavy Vehicles, %	13	5	0	1	3	2	8	10	9	2	1	0
Mvmt Flow	12	116	60	123	295	81	135	128	40	67	237	34
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	15.2	24.6	21.4	22.6
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	47%	100%	0%	100%	0%	17%
Vol Thru, %	44%	0%	61%	0%	77%	76%
Vol Right, %	9%	0%	39%	0%	23%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	246	8	140	74	301	263
LT Vol	115	8	0	74	0	46
Through Vol	109	0	85	0	233	199
RT Vol	22	0	55	0	68	18
Lane Flow Rate	304	12	176	123	376	338
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.617	0.028	0.384	0.267	0.746	0.655
Departure Headway (Hd)	7.32	8.782	7.838	7.9	7.256	7.103
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	498	409	462	458	500	513
Service Time	5.32	6.502	5.557	5.6	4.956	5.103
HCM Lane V/C Ratio	0.61	0.029	0.381	0.269	0.752	0.659
HCM Control Delay	21.4	11.8	15.4	13.5	28.3	22.6
HCM Lane LOS	C	B	C	B	D	C
HCM 95th-tile Q	4.1	0.1	1.8	1.1	6.3	4.7

Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	242	102	26	170	53	62	94	37	69	95	9
Future Vol, veh/h	7	242	102	26	170	53	62	94	37	69	95	9
Peak Hour Factor	0.45	0.91	0.78	0.70	0.85	0.68	0.69	0.76	0.64	0.75	0.84	0.69
Heavy Vehicles, %	0	1	0	0	0	0	3	0	0	0	0	0
Mvmt Flow	16	266	131	37	200	78	90	124	58	92	113	13
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	25.7	16.7	17.2	15.4
HCM LOS	D	C	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	32%	100%	0%	100%	0%	40%
Vol Thru, %	49%	0%	70%	0%	76%	55%
Vol Right, %	19%	0%	30%	0%	24%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	193	7	344	26	223	173
LT Vol	62	7	0	26	0	69
Through Vol	94	0	242	0	170	95
RT Vol	37	0	102	0	53	9
Lane Flow Rate	271	16	397	37	278	218
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.518	0.032	0.739	0.079	0.535	0.429
Departure Headway (Hd)	6.87	7.413	6.705	7.62	6.935	7.078
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	521	481	536	468	517	506
Service Time	4.952	5.185	4.476	5.403	4.717	5.166
HCM Lane V/C Ratio	0.52	0.033	0.741	0.079	0.538	0.431
HCM Control Delay	17.2	10.4	26.3	11.1	17.5	15.4
HCM Lane LOS	C	B	D	B	C	C
HCM 95th-tile Q	2.9	0.1	6.2	0.3	3.1	2.1

Intersection	
Intersection Delay, s/veh	25.4
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	91	55	74	249	72	115	109	22	49	199	19
Future Vol, veh/h	9	91	55	74	249	72	115	109	22	49	199	19
Peak Hour Factor	0.69	0.73	0.92	0.60	0.79	0.84	0.85	0.85	0.55	0.69	0.84	0.53
Heavy Vehicles, %	13	5	0	1	3	2	8	10	9	2	1	0
Mvmt Flow	13	125	60	123	315	86	135	128	40	71	237	36
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	16	30.6	22.8	25.3
HCM LOS	C	D	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	47%	100%	0%	100%	0%	18%
Vol Thru, %	44%	0%	62%	0%	78%	75%
Vol Right, %	9%	0%	38%	0%	22%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	246	9	146	74	321	267
LT Vol	115	9	0	74	0	49
Through Vol	109	0	91	0	249	199
RT Vol	22	0	55	0	72	19
Lane Flow Rate	304	13	184	123	401	344
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.635	0.032	0.411	0.274	0.82	0.694
Departure Headway (Hd)	7.526	8.961	8.026	8.006	7.363	7.269
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	480	399	448	449	493	498
Service Time	5.576	6.719	5.784	5.753	5.11	5.319
HCM Lane V/C Ratio	0.633	0.033	0.411	0.274	0.813	0.691
HCM Control Delay	22.8	12	16.3	13.8	35.8	25.3
HCM Lane LOS	C	B	C	B	E	D
HCM 95th-tile Q	4.3	0.1	2	1.1	7.9	5.3

Intersection	
Intersection Delay, s/veh	25.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	259	109	28	181	57	67	100	40	73	101	10
Future Vol, veh/h	8	259	109	28	181	57	67	100	40	73	101	10
Peak Hour Factor	0.45	0.91	0.78	0.70	0.85	0.68	0.69	0.76	0.64	0.75	0.84	0.69
Heavy Vehicles, %	0	1	0	0	0	0	3	0	0	0	0	0
Mvmt Flow	18	285	140	40	213	84	97	132	63	97	120	14
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	36	20.1	20.7	17.9
HCM LOS	E	C	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	32%	100%	0%	100%	0%	40%
Vol Thru, %	48%	0%	70%	0%	76%	55%
Vol Right, %	19%	0%	30%	0%	24%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	207	8	368	28	238	184
LT Vol	67	8	0	28	0	73
Through Vol	100	0	259	0	181	101
RT Vol	40	0	109	0	57	10
Lane Flow Rate	291	18	424	40	297	232
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.595	0.039	0.839	0.09	0.611	0.491
Departure Headway (Hd)	7.356	7.831	7.12	8.096	7.406	7.611
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	489	457	509	442	487	473
Service Time	5.417	5.585	4.874	5.856	5.166	5.677
HCM Lane V/C Ratio	0.595	0.039	0.833	0.09	0.61	0.49
HCM Control Delay	20.7	10.9	37.1	11.7	21.2	17.9
HCM Lane LOS	C	B	E	B	C	C
HCM 95th-tile Q	3.8	0.1	8.5	0.3	4	2.7

Intersection	
Intersection Delay, s/veh	28.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	96	55	74	262	76	115	109	22	51	199	20
Future Vol, veh/h	9	96	55	74	262	76	115	109	22	51	199	20
Peak Hour Factor	0.69	0.73	0.92	0.60	0.79	0.84	0.85	0.85	0.55	0.69	0.84	0.53
Heavy Vehicles, %	13	5	0	1	3	2	8	10	9	2	1	0
Mvmt Flow	13	132	60	123	332	90	135	128	40	74	237	38
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	16.9	36.8	24.1	27.4
HCM LOS	C	E	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	47%	100%	0%	100%	0%	19%
Vol Thru, %	44%	0%	64%	0%	78%	74%
Vol Right, %	9%	0%	36%	0%	22%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	246	9	151	74	338	270
LT Vol	115	9	0	74	0	51
Through Vol	109	0	96	0	262	199
RT Vol	22	0	55	0	76	20
Lane Flow Rate	304	13	191	123	422	349
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.65	0.033	0.435	0.278	0.876	0.719
Departure Headway (Hd)	7.711	9.112	8.185	8.116	7.472	7.431
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	392	440	443	485	484
Service Time	5.77	6.878	5.951	5.868	5.224	5.488
HCM Lane V/C Ratio	0.651	0.033	0.434	0.278	0.87	0.721
HCM Control Delay	24.1	12.2	17.2	14	43.5	27.4
HCM Lane LOS	C	B	C	B	E	D
HCM 95th-tile Q	4.6	0.1	2.2	1.1	9.4	5.7

Intersection	
Intersection Delay, s/veh	32.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	273	115	29	191	60	70	105	42	77	106	11
Future Vol, veh/h	8	273	115	29	191	60	70	105	42	77	106	11
Peak Hour Factor	0.45	0.91	0.78	0.70	0.85	0.68	0.69	0.76	0.64	0.75	0.84	0.69
Heavy Vehicles, %	0	1	0	0	0	0	3	0	0	0	0	0
Mvmt Flow	18	300	147	41	225	88	101	138	66	103	126	16
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	50	23.9	24.5	20.4
HCM LOS	E	C	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	32%	100%	0%	100%	0%	40%
Vol Thru, %	48%	0%	70%	0%	76%	55%
Vol Right, %	19%	0%	30%	0%	24%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	8	388	29	251	194
LT Vol	70	8	0	29	0	77
Through Vol	105	0	273	0	191	106
RT Vol	42	0	115	0	60	11
Lane Flow Rate	305	18	447	41	313	245
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.656	0.04	0.924	0.097	0.675	0.545
Departure Headway (Hd)	7.733	8.145	7.432	8.457	7.765	8.017
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	464	438	488	422	463	448
Service Time	5.823	5.922	5.208	6.244	5.551	6.115
HCM Lane V/C Ratio	0.657	0.041	0.916	0.097	0.676	0.547
HCM Control Delay	24.5	11.3	51.5	12.2	25.4	20.4
HCM Lane LOS	C	B	F	B	D	C
HCM 95th-tile Q	4.6	0.1	10.8	0.3	4.9	3.2

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	128	5	6	295	48	6	4	1	36	20	140
Future Vol, veh/h	51	128	5	6	295	48	6	4	1	36	20	140
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	84	42	50	86	86	38	33	25	60	63	85
Heavy Vehicles, %	5	5	25	25	3	0	0	0	100	3	6	2
Mvmt Flow	80	152	12	12	343	56	16	12	4	60	32	165

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	399	0	0	164	0	0	812	741	158	721	719	371
Stage 1	-	-	-	-	-	-	318	318	-	395	395	-
Stage 2	-	-	-	-	-	-	494	423	-	326	324	-
Critical Hdwy	4.15	-	-	4.35	-	-	7.1	6.5	7.2	7.13	6.56	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.56	-
Follow-up Hdwy	2.245	-	-	2.425	-	-	3.5	4	4.2	3.527	4.054	3.318
Pot Cap-1 Maneuver	1144	-	-	1286	-	-	300	347	684	341	349	675
Stage 1	-	-	-	-	-	-	698	657	-	628	598	-
Stage 2	-	-	-	-	-	-	561	591	-	684	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1144	-	-	1286	-	-	197	320	684	310	322	675
Mov Cap-2 Maneuver	-	-	-	-	-	-	197	320	-	310	322	-
Stage 1	-	-	-	-	-	-	649	611	-	584	593	-
Stage 2	-	-	-	-	-	-	398	586	-	620	598	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.2	20.9	20.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	258	1144	-	-	1286	-	-	478
HCM Lane V/C Ratio	0.124	0.07	-	-	0.009	-	-	0.537
HCM Control Delay (s)	20.9	8.4	-	-	7.8	-	-	20.9
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	3.1

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	120	284	9	3	213	42	5	5	1	30	17	76
Future Vol, veh/h	120	284	9	3	213	42	5	5	1	30	17	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	88	56	75	81	75	31	63	25	83	85	76
Heavy Vehicles, %	1	0	0	0	0	6	0	0	0	4	0	0
Mvmt Flow	124	323	16	4	263	56	16	8	4	36	20	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	319	0	0	339	0	0	938	906	331	884	886	291
Stage 1	-	-	-	-	-	-	579	579	-	299	299	-
Stage 2	-	-	-	-	-	-	359	327	-	585	587	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.3
Pot Cap-1 Maneuver	1247	-	-	1231	-	-	247	278	715	264	286	753
Stage 1	-	-	-	-	-	-	504	504	-	706	670	-
Stage 2	-	-	-	-	-	-	663	651	-	494	500	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1247	-	-	1231	-	-	186	250	715	236	257	753
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	250	-	236	257	-
Stage 1	-	-	-	-	-	-	454	454	-	636	668	-
Stage 2	-	-	-	-	-	-	556	649	-	435	451	-

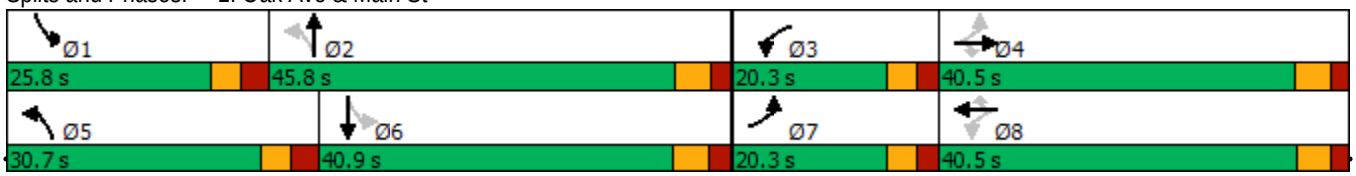
Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0.1	23.2	18.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	226	1247	-	-	1231	-	-	429
HCM Lane V/C Ratio	0.124	0.099	-	-	0.003	-	-	0.364
HCM Control Delay (s)	23.2	8.2	-	-	7.9	-	-	18.1
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0.3	-	-	0	-	-	1.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	221	203	51	304	81	238	258	43	52	224	20
Future Volume (vph)	56	221	203	51	304	81	238	258	43	52	224	20
Satd. Flow (prot)	1770	1827	1599	1687	1863	1538	1770	1814	0	1641	1783	0
Flt Permitted	0.285			0.471			0.312			0.537		
Satd. Flow (perm)	531	1827	1599	836	1863	1538	581	1814	0	928	1783	0
Satd. Flow (RTOR)			236			115		10			4	
Peak Hour Factor	0.64	0.85	0.86	0.75	0.92	0.92	0.88	0.85	0.57	0.65	0.85	0.71
Heavy Vehicles (%)	2%	4%	1%	7%	2%	5%	2%	2%	0%	10%	5%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	260	236	68	330	88	270	379	0	80	292	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Total Split (s)	20.3	40.5	40.5	20.3	40.5	40.5	30.7	45.8		25.8	40.9	
Total Lost Time (s)	5.3	5.5	5.5	5.3	5.4	5.4	5.7	5.8		5.8	5.9	
Act Effct Green (s)	29.2	22.2	22.2	26.8	21.1	21.1	42.8	32.2		27.7	19.8	
Actuated g/C Ratio	0.34	0.26	0.26	0.31	0.24	0.24	0.49	0.37		0.32	0.23	
v/c Ratio	0.29	0.56	0.40	0.21	0.73	0.19	0.53	0.56		0.22	0.71	
Control Delay	21.4	35.2	6.4	20.5	42.8	4.2	19.3	29.2		17.8	44.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	21.4	35.2	6.4	20.5	42.8	4.2	19.3	29.2		17.8	44.6	
LOS	C	D	A	C	D	A	B	C		B	D	
Approach Delay		21.5			32.7			25.1			38.8	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	28	118	0	22	160	0	86	168		23	145	
Queue Length 95th (ft)	53	239	51	52	335	23	182	315		44	287	
Internal Link Dist (ft)		987			459			665			1008	
Turn Bay Length (ft)	100			300		100	150			225		
Base Capacity (vph)	431	797	830	472	812	735	656	918		605	777	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.33	0.28	0.14	0.41	0.12	0.41	0.41		0.13	0.38	

Intersection Summary	
Cycle Length: 132.4	
Actuated Cycle Length: 86.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 28.3	Intersection LOS: C
Intersection Capacity Utilization 64.9%	ICU Level of Service C
Analysis Period (min) 15	

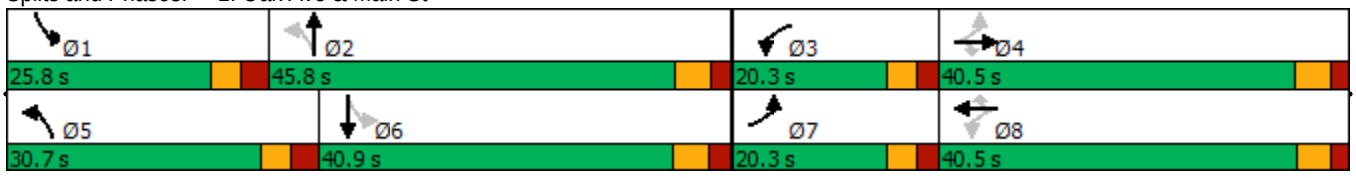
Splits and Phases: 1: Oak Ave & Main St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	352	307	97	298	126	248	351	37	143	400	39
Future Volume (vph)	109	352	307	97	298	126	248	351	37	143	400	39
Satd. Flow (prot)	1805	1881	1615	1805	1863	1583	1770	1870	0	1787	1835	0
Flt Permitted	0.311			0.167			0.127			0.283		
Satd. Flow (perm)	591	1881	1615	317	1863	1583	237	1870	0	532	1835	0
Satd. Flow (RTOR)			302			115		5			4	
Peak Hour Factor	0.85	0.81	0.95	0.81	0.92	0.88	0.98	0.85	0.77	0.76	0.93	0.89
Heavy Vehicles (%)	0%	1%	0%	0%	2%	2%	2%	0%	0%	1%	2%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	435	323	120	324	143	253	461	0	188	474	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Total Split (s)	20.3	40.5	40.5	20.3	40.5	40.5	30.7	45.8		25.8	40.9	
Total Lost Time (s)	5.3	5.5	5.5	5.3	5.4	5.4	5.7	5.8		5.8	5.9	
Act Effct Green (s)	41.0	30.4	30.4	39.5	29.8	29.8	56.0	38.6		44.9	32.7	
Actuated g/C Ratio	0.36	0.27	0.27	0.35	0.26	0.26	0.49	0.34		0.39	0.29	
v/c Ratio	0.40	0.87	0.50	0.51	0.67	0.29	0.70	0.72		0.55	0.89	
Control Delay	26.9	59.3	8.2	31.0	46.4	11.8	34.0	41.7		24.4	60.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.9	59.3	8.2	31.0	46.4	11.8	34.0	41.7		24.4	60.8	
LOS	C	E	A	C	D	B	C	D		C	E	
Approach Delay		36.0			34.9			39.0			50.5	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	62	313	12	58	219	16	116	301		79	344	
Queue Length 95th (ft)	105	424	92	94	354	68	223	448		112	#624	
Internal Link Dist (ft)		987			459			665			1008	
Turn Bay Length (ft)	100			300		100	150			225		
Base Capacity (vph)	396	595	717	324	589	579	463	696		471	581	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.32	0.73	0.45	0.37	0.55	0.25	0.55	0.66		0.40	0.82	

Intersection Summary	
Cycle Length: 132.4	
Actuated Cycle Length: 113.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 39.9	Intersection LOS: D
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Oak Ave & Main St



Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Vol, veh/h	0	315	363	0	100	73
Future Vol, veh/h	0	315	363	0	100	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	76	94	100	83	91
Heavy Vehicles, %	0	4	3	0	1	2
Mvmt Flow	0	414	386	0	120	80

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	800	386
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	414	-
Critical Hdwy	-	-	-	-	6.41	6.22
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	-	-	3.509	3.318
Pot Cap-1 Maneuver	0	-	-	0	356	662
Stage 1	0	-	-	0	689	-
Stage 2	0	-	-	0	669	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	356	662
Mov Cap-2 Maneuver	-	-	-	-	472	-
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	669	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	472	662
HCM Lane V/C Ratio	-	-	0.255	0.121
HCM Control Delay (s)	-	-	15.2	11.2
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1	0.4

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Vol, veh/h	0	534	397	0	133	125
Future Vol, veh/h	0	534	397	0	133	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	86	88	100	79	87
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	621	451	0	168	144

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1072	451
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	621	-
Critical Hdwy	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	-	-	0	246	613
Stage 1	0	-	-	0	646	-
Stage 2	0	-	-	0	540	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	246	613
Mov Cap-2 Maneuver	-	-	-	-	379	-
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	540	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	379	613
HCM Lane V/C Ratio	-	-	0.444	0.234
HCM Control Delay (s)	-	-	21.9	12.7
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	2.2	0.9

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	330	84	81	349	15	78
Future Vol, veh/h	330	84	81	349	15	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	84	70	91	47	81
Heavy Vehicles, %	4	3	3	3	8	5
Mvmt Flow	429	100	116	384	32	96

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	529	0	1095	479
Stage 1	-	-	-	-	479	-
Stage 2	-	-	-	-	616	-
Critical Hdwy	-	-	4.13	-	6.48	6.25
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	-	-	2.227	-	3.572	3.345
Pot Cap-1 Maneuver	-	-	1033	-	230	581
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	527	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1033	-	204	581
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	332	581	-	-	1033	-
HCM Lane V/C Ratio	0.096	0.166	-	-	0.112	-
HCM Control Delay (s)	17	12.4	-	-	8.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.6	-	-	0.4	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	598	70	57	368	29	144
Future Vol, veh/h	598	70	57	368	29	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	76	84	85	66	78
Heavy Vehicles, %	1	0	2	1	0	0
Mvmt Flow	687	92	68	433	44	185

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	779	0	1302	733
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	569	-
Critical Hdwy	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	838	-	179	424
Stage 1	-	-	-	-	479	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	838	-	165	424
Mov Cap-2 Maneuver	-	-	-	-	304	-
Stage 1	-	-	-	-	479	-
Stage 2	-	-	-	-	524	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	19.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	304	424	-	-	838	-
HCM Lane V/C Ratio	0.145	0.435	-	-	0.081	-
HCM Control Delay (s)	18.8	19.9	-	-	9.7	-
HCM Lane LOS	C	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	2.2	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	86	324	430	29	0	0
Future Vol, veh/h	86	324	430	29	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	76	96	66	100	100
Heavy Vehicles, %	1	5	3	4	0	0
Mvmt Flow	100	426	448	44	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	492	0	-	0	1096	470
Stage 1	-	-	-	-	470	-
Stage 2	-	-	-	-	626	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1077	-	-	-	238	598
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1077	-	-	-	216	598
Mov Cap-2 Maneuver	-	-	-	-	352	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	537	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1077	-	-	-	-
HCM Lane V/C Ratio	0.093	-	-	-	-
HCM Control Delay (s)	8.7	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	125	615	425	61	0	0
Future Vol, veh/h	125	615	425	61	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	25	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	92	86	80	100	100
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	140	668	494	76	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	570	0	-	0	1480	532
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	948	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1013	-	-	-	140	551
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	380	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1013	-	-	-	121	551
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	380	-

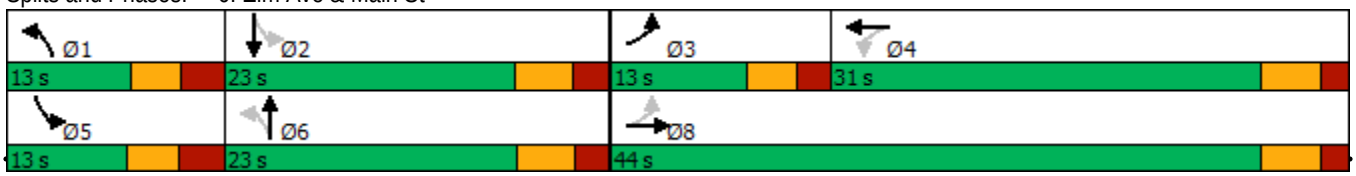
Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1013	-	-	-	-
HCM Lane V/C Ratio	0.139	-	-	-	-
HCM Control Delay (s)	9.1	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.5	-	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	221	35	42	328	43	71	133	48	21	165	60
Future Volume (vph)	65	221	35	42	328	43	71	133	48	21	165	60
Satd. Flow (prot)	1736	1768	0	1805	1804	0	1805	1778	0	1805	1792	0
Flt Permitted	0.206			0.548			0.459			0.621		
Satd. Flow (perm)	376	1768	0	1041	1804	0	872	1778	0	1180	1792	0
Satd. Flow (RTOR)		21			11			24			19	
Peak Hour Factor	0.96	0.77	0.51	0.81	0.93	0.72	0.74	0.85	0.75	0.58	0.86	0.94
Heavy Vehicles (%)	4%	3%	10%	0%	3%	3%	0%	1%	5%	0%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	356	0	52	413	0	96	220	0	36	256	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Total Split (s)	13.0	44.0		31.0	31.0		13.0	23.0		13.0	23.0	
Total Lost Time (s)	5.0	5.3		5.3	5.3		5.6	5.7		5.8	5.8	
Act Effct Green (s)	25.8	25.4		19.3	19.3		25.2	22.7		21.7	17.2	
Actuated g/C Ratio	0.40	0.40		0.30	0.30		0.39	0.35		0.34	0.27	
v/c Ratio	0.23	0.50		0.17	0.75		0.21	0.34		0.08	0.52	
Control Delay	13.3	15.8		20.5	31.1		16.2	21.3		15.7	28.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.3	15.8		20.5	31.1		16.2	21.3		15.7	28.1	
LOS	B	B		C	C		B	C		B	C	
Approach Delay		15.4			29.9			19.8			26.6	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	16	95		17	160		27	58		10	97	
Queue Length 95th (ft)	38	133		40	275		50	145		19	175	
Internal Link Dist (ft)		446			581			629			535	
Turn Bay Length (ft)	175			150			65			60		
Base Capacity (vph)	336	1142		457	799		459	664		489	540	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.31		0.11	0.52		0.21	0.33		0.07	0.47	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 64.3	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 23.0	Intersection LOS: C
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	

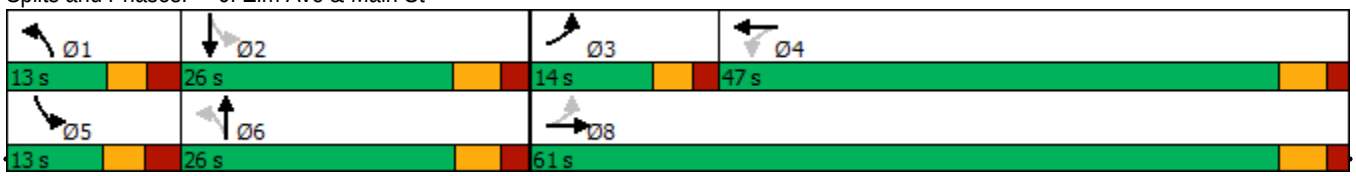
Splits and Phases: 6: Elm Ave & Main St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	415	60	25	362	37	53	123	73	36	97	70
Future Volume (vph)	139	415	60	25	362	37	53	123	73	36	97	70
Satd. Flow (prot)	1805	1841	0	1805	1834	0	1805	1797	0	1805	1770	0
Flt Permitted	0.191			0.458			0.576			0.498		
Satd. Flow (perm)	363	1841	0	870	1834	0	1094	1797	0	946	1770	0
Satd. Flow (RTOR)		15			8			26			33	
Peak Hour Factor	0.87	0.89	0.71	0.69	0.83	0.62	0.88	0.83	0.87	0.64	0.84	0.83
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	160	551	0	36	496	0	60	232	0	56	199	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Total Split (s)	14.0	61.0		47.0	47.0		13.0	26.0		13.0	26.0	
Total Lost Time (s)	5.0	5.3		5.3	5.3		5.6	5.7		5.8	5.8	
Act Effct Green (s)	39.8	39.5		26.2	26.2		21.1	17.3		20.8	17.2	
Actuated g/C Ratio	0.53	0.53		0.35	0.35		0.28	0.23		0.28	0.23	
v/c Ratio	0.46	0.57		0.12	0.77		0.16	0.53		0.17	0.46	
Control Delay	14.5	14.9		19.0	30.9		21.5	31.9		21.8	29.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.5	14.9		19.0	30.9		21.5	31.9		21.8	29.1	
LOS	B	B		B	C		C	C		C	C	
Approach Delay		14.8			30.1			29.8			27.5	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	40	173		12	215		19	93		18	73	
Queue Length 95th (ft)	76	291		26	315		54	179		37	152	
Internal Link Dist (ft)		446			581			629			535	
Turn Bay Length (ft)	175			150			65			60		
Base Capacity (vph)	376	1419		515	1090		383	536		350	531	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.43	0.39		0.07	0.46		0.16	0.43		0.16	0.37	

Intersection Summary			
Cycle Length: 100			
Actuated Cycle Length: 75.1			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 23.6		Intersection LOS: C	
Intersection Capacity Utilization 68.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Elm Ave & Main St



HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	AM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Grove Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Grove Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.86
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	89	174	25	0	14	249	115	0	29	131	16	0	35	265	135
Percent Heavy Vehicles, %	3	3	3	0	0	7	4	6	3	0	1	0	3	4	4	3
Flow Rate (v_{PCE}), pc/h	0	107	208	29	0	17	301	142	0	34	154	19	0	42	320	162
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		344			460			207			524	
Entry Volume, veh/h		335			439			205			505	
Circulating Flow (v_c), pc/h	379			295			357			352		
Exiting Flow (v_{ex}), pc/h	269			497			403			366		
Capacity (c_{pce}), pc/h		938			1021			959			964	
Capacity (c), veh/h		913			975			952			929	
v/c Ratio (x)		0.37			0.45			0.22			0.54	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.0			8.9			5.9			11.1	
Lane LOS		A			A			A			B	
95% Queue, veh		1.7			2.4			0.8			3.4	
Approach Delay, s/veh	8.0			8.9			5.9			11.1		
Approach LOS	A			A			A			B		
Intersection Delay, s/veh | LOS	9.1						A					

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HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	PM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Grove Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Grove Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.96
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	138	338	48	0	7	256	62	0	55	146	19	0	43	188	113
Percent Heavy Vehicles, %	3	0	1	3	0	0	1	0	3	2	0	0	0	0	0	1
Flow Rate (v_{PCE}), pc/h	0	144	356	52	0	7	269	65	0	58	152	20	0	45	196	119
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		552			341			230			360	
Entry Volume, veh/h		547			338			229			359	
Circulating Flow (v_c), pc/h	248			354			545			334		
Exiting Flow (v_{ex}), pc/h	421			446			361			255		
Capacity (c_{pce}), pc/h		1072			962			792			982	
Capacity (c), veh/h		1062			954			788			978	
v/c Ratio (x)		0.52			0.35			0.29			0.37	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.5			7.6			7.9			7.6	
Lane LOS		A			A			A			A	
95% Queue, veh		3.0			1.6			1.2			1.7	
Approach Delay, s/veh	9.5			7.6			7.9			7.6		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	8.4						A					

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HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	AM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Lincoln Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Lincoln Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.86
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	10	102	55	0	74	278	81	0	115	109	22	0	55	199	21
Percent Heavy Vehicles, %	3	13	5	0	0	1	3	2	3	8	10	9	0	2	1	0
Flow Rate (v_{PCE}), pc/h	0	13	125	64	0	87	333	96	0	144	139	28	0	65	234	24
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		202			516			311			323	
Entry Volume, veh/h		195			504			285			319	
Circulating Flow (v_c), pc/h	386			296			203			564		
Exiting Flow (v_{ex}), pc/h	218			501			248			385		
Capacity (c_{pce}), pc/h		931			1020			1122			776	
Capacity (c), veh/h		897			996			1029			768	
v/c Ratio (x)		0.22			0.51			0.28			0.42	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.2			9.8			6.2			10.1	
Lane LOS		A			A			A			B	
95% Queue, veh		0.8			2.9			1.1			2.1	
Approach Delay, s/veh	6.2			9.8			6.2			10.1		
Approach LOS	A			A			A			B		
Intersection Delay, s/veh | LOS	8.5						A					

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HCS Roundabouts Report

General Information

Analyst	Blake Andert
Agency or Co.	SEH
Date Performed	2/10/2022
Analysis Year	2045
Time Analyzed	PM Peak Hour
Project Description	CSAH 48 (Main St) Corridor...

Site Information

Intersection	CSAH 48 at Lincoln Ave
E/W Street Name	CSAH 48 (Main St)
N/S Street Name	Lincoln Ave
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	Steele County

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	9	289	122	0	31	202	63	0	74	112	45	0	82	113	11
Percent Heavy Vehicles, %	3	0	1	0	0	0	0	0	3	3	0	0	0	0	0	0
Flow Rate (v_{PCE}), pc/h	0	10	317	133	0	34	220	68	0	83	122	49	0	89	123	12
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		460			322			254			224	
Entry Volume, veh/h		457			322			252			224	
Circulating Flow (v_c), pc/h	246			215			416			337		
Exiting Flow (v_{ex}), pc/h	455			315			200			290		
Capacity (c_{pce}), pc/h		1074			1108			903			979	
Capacity (c), veh/h		1066			1108			894			979	
v/c Ratio (x)		0.43			0.29			0.28			0.23	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.0			6.0			7.0			5.9	
Lane LOS		A			A			A			A	
95% Queue, veh		2.2			1.2			1.2			0.9	
Approach Delay, s/veh	8.0			6.0			7.0			5.9		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	6.9						A					

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Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	128	5	6	295	48	6	4	1	36	20	140
Future Vol, veh/h	51	128	5	6	295	48	6	4	1	36	20	140
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	84	42	50	86	86	38	33	25	60	63	85
Heavy Vehicles, %	5	5	25	25	3	0	0	0	100	3	6	2
Mvmt Flow	80	152	12	12	343	56	16	12	4	60	32	165

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	399	0	0	164	0	0	812	741	158	721	719	371
Stage 1	-	-	-	-	-	-	318	318	-	395	395	-
Stage 2	-	-	-	-	-	-	494	423	-	326	324	-
Critical Hdwy	4.15	-	-	4.35	-	-	7.1	6.5	7.2	7.13	6.56	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.56	-
Follow-up Hdwy	2.245	-	-	2.425	-	-	3.5	4	4.2	3.527	4.054	3.318
Pot Cap-1 Maneuver	1144	-	-	1286	-	-	300	347	684	341	349	675
Stage 1	-	-	-	-	-	-	698	657	-	628	598	-
Stage 2	-	-	-	-	-	-	561	591	-	684	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1144	-	-	1286	-	-	197	320	684	310	322	675
Mov Cap-2 Maneuver	-	-	-	-	-	-	197	320	-	310	322	-
Stage 1	-	-	-	-	-	-	649	611	-	584	593	-
Stage 2	-	-	-	-	-	-	398	586	-	620	598	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.2	20.9	20.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	258	1144	-	-	1286	-	-	478
HCM Lane V/C Ratio	0.124	0.07	-	-	0.009	-	-	0.537
HCM Control Delay (s)	20.9	8.4	-	-	7.8	-	-	20.9
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	3.1

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	120	284	9	3	213	42	5	5	1	30	17	76
Future Vol, veh/h	120	284	9	3	213	42	5	5	1	30	17	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	88	56	75	81	75	31	63	25	83	85	76
Heavy Vehicles, %	1	0	0	0	0	6	0	0	0	4	0	0
Mvmt Flow	124	323	16	4	263	56	16	8	4	36	20	100

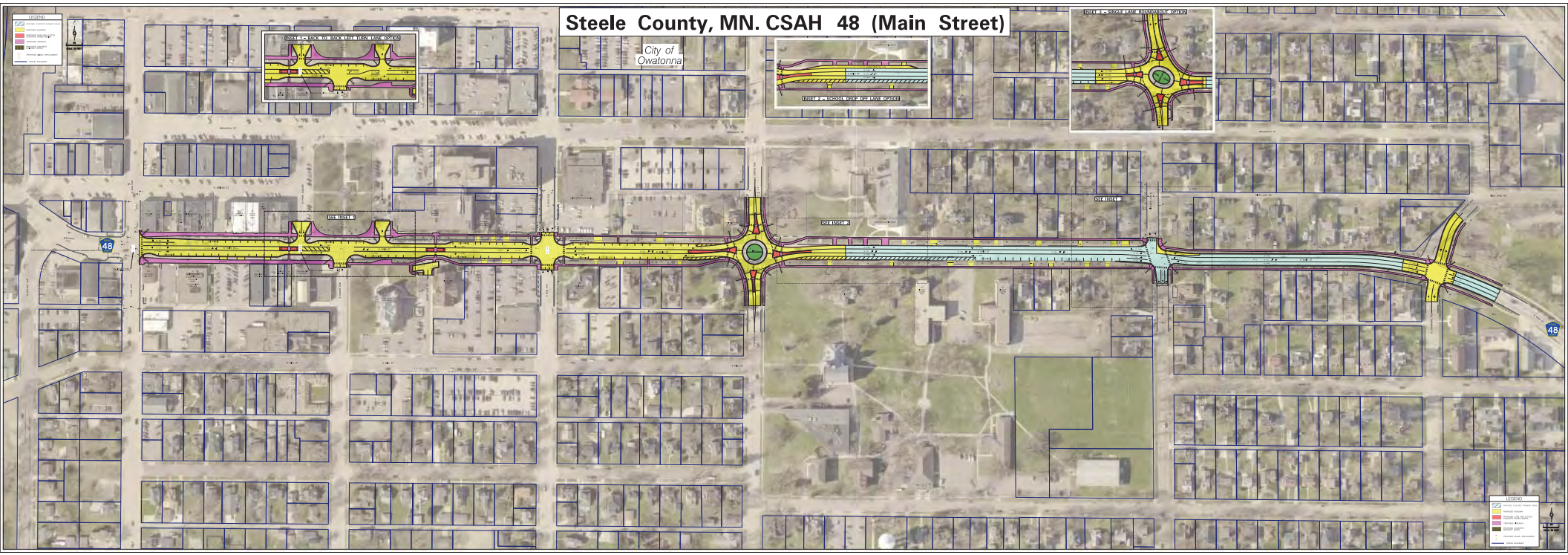
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	319	0	0	339	0	0	938	906	331	884	886	291
Stage 1	-	-	-	-	-	-	579	579	-	299	299	-
Stage 2	-	-	-	-	-	-	359	327	-	585	587	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.3
Pot Cap-1 Maneuver	1247	-	-	1231	-	-	247	278	715	264	286	753
Stage 1	-	-	-	-	-	-	504	504	-	706	670	-
Stage 2	-	-	-	-	-	-	663	651	-	494	500	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1247	-	-	1231	-	-	186	250	715	236	257	753
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	250	-	236	257	-
Stage 1	-	-	-	-	-	-	454	454	-	636	668	-
Stage 2	-	-	-	-	-	-	556	649	-	435	451	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0.1	23.2	18.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	226	1247	-	-	1231	-	-	429
HCM Lane V/C Ratio	0.124	0.099	-	-	0.003	-	-	0.364
HCM Control Delay (s)	23.2	8.2	-	-	7.9	-	-	18.1
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0.3	-	-	0	-	-	1.6

Appendix C

Preliminary Layout


Steele County, MN. CSAH 48 (Main Street)
City of Owatonna
INSET 1 - MOVE TO BACK OF CURB LANE OPTION
INSET 2 - SCHOOL DROP OFF LANE OPTION
INSET 3 - SINGLE LANE ROUNDABOUT OPTION
INSET 1
INSET 2
INSET 3
48
LEGEND

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Appendix C

Public Open House Summaries

Building a Better World for All of Us®

MEMORANDUM

TO: Kyle Skov (Owatonna), Andrew Sorenson (Owatonna), Greg Ilkka (Steele County), Paul Sponholz (Steele County)

FROM: Kristin Petersen (SEH), Chad Jorgenson (SEH)

RE: Summary of **Open House 1 – February 17, 2022**

This memo documents the details and comments received during the in-person open house for the **Steele County – CSAH 48 (Owatonna, MN - Main St) Public Open House #1** that took place on Thursday, February 17, 2022.

Meeting Information

- Audience: Adjacent property owners, commuters, and residents surrounding the project area
- Date of event: Thursday, February 17, 2022, from 4:00 pm to 6:00 pm at Owatonna Fire Station
- Format: In-person open house style meeting with staff available to discuss the project 1-on-1 with attendees. Presentation boards included background information, schedule, and project goals. A large plot of the corridor was also available for attendees to view and provide comments about issues and opportunities.
- Comment cards were provided.

Meeting Notifications

- Postcard/flier invitations were mailed directly to properties surrounding the project area.
- Meeting information was posted on the County and City website
- Meeting announced in Owatonna People's Press on February 15, 2022:

> *Steele County and the City of Owatonna are holding an open house meeting to gather public input on a proposed project that will rehabilitate and make improvements on Main Street from Oak Avenue to Chambers Avenue. Construction is currently scheduled for 2023.*
>
> *The meeting will take place Thursday, February 17, 4–6 p.m. at the Owatonna Fire Department, 107 W Main Street Owatonna, MN 55060.*
>
> *For more information about the project, or if you are unable to make the open house, check out the following webpage: www.bit.ly/OwatonnaMainSt. Also available at that web page is an interactive map you may provide comments about the project.*
>
> *Steele County advises motorists to drive with caution and slow down through work zones for their safety and for the safety of the construction crews. For updates on this or other Steele County Highway construction projects or to sign up for project email updates, visit: https://www.co.steele.mn.us/highway/index.php*

Attendance

- A total of 21 attendees signed in, a couple of attendees did not sign in.
- The following staff members/elected officials were present to facilitate the event and address questions and comments:

    1) Kyle Skov - Owatonna
    2) Andrew Sorenson - Owatonna
    3) Greg Ilkka - Steele County
    4) Paul Sponholz - Steele County
    5) Chad Jorgenson - SEH
    6) Kristin Petersen – SEH
    7) Doug Voss – Councilmember

Comments

The following (4) written comments were received during the open house:

Comment Cards

1. Gary Moore, 10236 610 St Claremont

   I see problems with the curb extensions already at Cedar and Rose St and in Waseca. Many people are driving over the corner and snow removal is difficult. Raised islands at key intersections seem like a more viable means for pedestrians and traffic safety. I don't like roundabouts in restricted area city streets.

   Thank you

2. Scott Tuchtenhagen, 626 12th St SE

   Requesting roundabout @ Lincoln

3. Randy Moore, 140 W. School St. Apt. 1.

   The pedestrian crosswalk (Fire Station side) – push button so far from crossing, walk light sometimes already on and I don't get across before red. Can it include a post with button next to entry point. Concrete is also rough – needs better cut-out.

   Thanks

4. Myrtle Schnader, 578 E. Main St

   I've been a resident of E. Main for 60 years! Rented 300 block, owner 54 years. Don't cut down our existing trees! Building bypass on S. edge of town was greatest improvement. Removing semaphores at Lincoln/Main big mistake. Put them back. Reroute the canning company trucks so they don't use Main St. June-October! Creates excessive weight and speed. Regular maintenance would take care of most cosmetic problems. Curb, sidewalk repair.

   Every time I receive one of these cards/letters, it results in a raise in my taxes (assessments) why does the city continue to spend money they don't have.

Please enforce the rules we already have. Speed. Clean up your property, eliminate junk cars/cars that don't run and have outdated licenses. Main St. can be attractive, without city involvement.

No roundabouts!!

The last major construction resulted in moving the nice street lite at the end of my driveway to the south side of the street. In fact, all street lites moved to S. side.

Please have next meeting at place for better parking – time so people can attend after they finish work.

Staff Comments

- Lighting – one-sided, dark on the other
- Lincoln and Main traffic back ups

Emailed Comment

3-3-22

Greetings!

Being as the website didn't work on the potential upcoming Main St. project from Oak to Chambers, I am responding by mail. I do agree that Main St. needs fixing, but then I think about how street repairs went last year! Truman Ave and downtown Cedar are still not complete, as you know. Hopefully this Main St. project will work out better.

I do want to comment on roundabouts. I do NOT think that there is enough room to do a proper roundabout within the city. My biggest concern on a roundabout is that it is very dangerous for pedestrians, especially handicapped, to use safely. Grove Ave. is a very busy intersection, as are most intersections downtown. Think about it!

Please make well thought out decisions for every ones benefit! Thank you!

Sincerely,

Karen La Fond

Email Sign Ups

1. kastenzel@fedins.com
2. bprick@frontier.com
3. Tmcmanimon72@gmail.com
4. Gary.deb.moore@gmail.com
5. Joshua.prokopec@owatonnautilities.com
6. carver@owatonnaleouyers.com
7. Kory.koziolek@owatonnautilities.com
8. Kyle.skov@ci.owatonna.mn.us
9. Dsch255@aol.com
10. 19ed@live.com
11. deorcomactuary@gmail.com
12. Jvogt830@gmail.com

Steel County Times 2/25/2022 Article:

Council member Doug Voss of Owatonna, right, makes a point on illustrations of Main Street to Greg Ikka, Steele County engineer, left, and Chad Jorgenson, traffic engineer with SEH in St. Paul, center, at an open house last Thursday. Dozens of people attended the open house to learn more about what the city and county are planning to do to improve Main Street in Owatonna. Staff photo

Officials Seek Input On Main In Owatonna

Wed, 02/23/2022 - 5:23pm admin

SHARE

BY: RICK BUSSLER, PUBLISHER

Officials couldn't have picked a better spot to illustrate the need for improvements to Main Street in Owatonna.

From the third floor window of the Owatonna Fire Station, which overlooks West Main Street at Central Park, it's apparent why something needs to be done to the roadway. There are many cracks and holes in the pavement on one of the city's busiest corridors.

Inside, officials made a pitch by showing diagrams, illustrations and charts to residents during an open house last week..

"The pavement is in pretty bad shape," said Paul Sponholz, assistant engineer for Steele County. "If we don't address it soon, it's really going to start falling apart."

Sponholz said officials are looking to do a full reconstruction or overall. However, he added, to do the latter would be just a Band-Aid.

Steele County and the City of Owatonna are teaming up on the project to repair Main Street from Oak Avenue to Chambers Avenue, which is a .79-mile stretch. About 10,000 vehicles travel on the roadway in the downtown area each day, according to Sponholz.

The project is expected to cost $2.4 million with the largest portion, $1.3 million, coming from sales tax revenue, Sponholz said. Other funding sources include local and state aid. Steele County will be providing 75% of the funding while Owatonna will kick in the rest. Utilities and streetscape would be covered by the city.

The most recent repairs to the roadway took place in 2005 when a mill and resurface happened from Oak to Elm Avenue. Prior to that, the curb and gutter was replaced in 1984 along with storm sewer repairs and existing concrete overlayed with bituminous asphalt.

In 1998, Elm Avenue to Chambers Avenue received reconstructed concrete pavement.

The city and county are currently conducting a feasibility study, which includes a thorough review of the corridor's pavement conditions. Officials are also utilizing the study to identify opportunities to improve walking, biking and rolling as well as a traffic and safety analysis of the entire corridor.

Sponholz said officials want feedback from the public to understand the issues of the roadway and potential problems. Citizens have until March 10 to share comments at www.bit.ly/OwatonnaMainSt.

Citizens at last week's open house shared how they want additional lighting in the neighborhoods while others were concerned about trees along the corridor.

Officials are also seeking to improve the pedestrian crosswalk by Federated Insurance. Chad Jorgenson, traffic engineer with SEH in St. Paul hired to help with the project, said one idea being tossed around is constructing bump-outs to cut down on the crosswalk, which would allow pedestrians to cross the street quicker in a shorter distance.

Engineers are considering roundabouts at two locations: Grove and Main and Lincoln and Main.

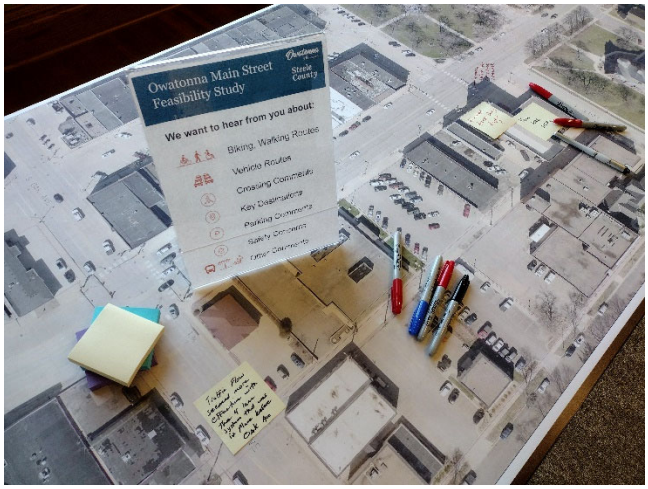
Crash statistics from 2017 to 2021 show there have been 86 crashes long the nearly one-mile stretch of Main Street. Of those crashes, one was a fatal pedestrian crash in December 2020. The worst areas along the corridor are Oak with 35 crashes, Grove with 22 and Elm with 6.

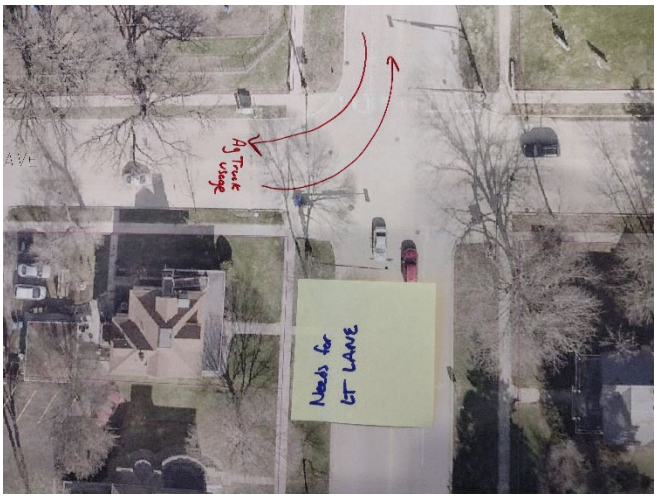
A second open house is planned for August when officials will present alternatives.

Owatonna Main Street Project

- Project involves E. Main Street from Oak to Chambers Avenue
- Feasibility Study soliciting comments from public
- Deadline: March 10
- Provide input at www.bit.ly/OwatonnaMainSt.

Event Photos


Owatonna Main Street Feasibility Study
We want to hear from you about:
Biking, Walking Routes
Vehicle Routes
Crossing Comments
Key Destinations
Parking Comments
Safety Comments
Other Comments


AJ Truck usage
Needs for LT LANE

Welcome!
Please Sign In
PUBLIC WORKS / UTILITIES

Building a Better World for All of Us®

MEMORANDUM

TO: Kyle Skov (Owatonna), Andrew Sorenson (Owatonna), Greg Ilkka (Steele County), Paul Sponholz (Steele County)

FROM: Kristin Petersen (SEH), Chad Jorgenson (SEH)

RE: Summary of **Open House 2 – August 25, 2022**

This memo documents the details and comments received during the in-person open house for the **Steele County – CSAH 48 (Owatonna, MN - Main St) Public Open House #2** that took place on Thursday, August 25, 2022.

Meeting Information

- Audience: Adjacent property owners, commuters, and residents surrounding the project area
- Event Date: Thursday, August 25, 2022, 4:00 pm to 6:00 pm at the Steele County Community Center
- Format: In-person open house style meeting with staff available to discuss the project 1-on-1 with attendees. Presentation boards included background information, schedule, and project goals. A large plot of the preliminary design was displayed on a table.
- Comment cards were provided.

Meeting Notifications

- Postcard/flier invitations were mailed directly to properties surrounding the project area.
- Meeting information was posted on the County and City website
- Posted on Social Media and Chamber of Commerce
- Meeting announced in Owatonna People's Press on August 18, 2022:

  Steele County and the City of Owatonna are holding a second open house meeting to gather public input on plan alternatives for a proposed project that will make improvements on Main Street from Oak Avenue to Chambers Avenue. Construction is currently scheduled within the next five years.

  The meeting date, time and location is: Thursday, Aug. 25, 4 – 6 p.m. at the Steele County Community Center 1380 S. Elm Avenue Owatonna, MN 55060

  For more information about the project, or if you are unable to make the open house, check out the following webpage: www.bit.ly/OwatonnaMainStreetStudy. Also available at that web page is an interactive map you may provide comments about the project.

  Steele County advises motorists to drive with caution and slow down through work zones for their safety and for the safety of the construction crews.

  For updates on this or other Steele County Highway construction projects or to sign up for project email updates, visit: co.steele.mn.us/highway/index.php

Attendance & Website Traffic

- A total of 18 attendees signed in, and approximately 5 attendees did not sign in.
- The following staff members/elected officials were present to facilitate the event and address questions and comments:

1) Kyle Skov - Owatonna
2) Andrew Sorenson – Owatonna
3) Sean Murphy – Owatonna
4) Greg Ilkka - Steele County
5) Paul Sponholz - Steele County
6) Chad Jorgenson – SEH
7) Jenna Obernolte – SEH
8) Kristin Petersen – SEH
9) Connor Burke – SEH
10) Doug Voss – Councilmember

- The StoryMap online open house has had 336 views between April – September 2022.

Comments

The following (6) written comments were received during the open house:

Comment Cards

1. Myrtle Schrader (578 E. Main St for over 50 years)
   1st – Nothing needs to be done from Grove St to the east. No roundabout!
   2nd – We need parking in front of our houses
   3rd -We need traffic enforcement of this street
   4th – City is so far into debt, why do we have to do anything that isn't absolutely necessary. Taxes going sky high, inflation (gas-groceries). Somehow the money drain needs to stop!

2. Machelle Drivdahl (546 E. Main St.)
   The manhole is making my house shake because its raised and trucks go by and jar it w/ rear axel and house shakes 100 times a day 24/7.

3. Andi Arnold (914 Saint Andrews Place)
   I think the safety aspect is important and if we are improving the streets please take this as an opportunity to improve the beauty – more green space, native plants and gardens.

4. Ryan Stensvold (537 E Main)
   Not being able to park in front of my home will not help me with a single lane driveway. Also the roundabout proposed at Lincoln in a horrible idea for my family.

5. Paula Even Tranda (121 W Main St)
   Not a big fan of green space along Main – hard to keep alive w/ salt from snow removal. Not a fan of raised center islands. Need to address turning lane from Elm to Oak and looking to improve traffic. Concern over tax assessments raising my rent when sales are low due to current economy.

6. Jon Foley (914 St. Andrews Place)
   I would love to see much more GREEN SPACE – especially near the park. This would greatly enhance the space downtown.
   Nice design being proposed. This looks promising!

Mailed Comment (1)

I, resident of 530 East Main Street, have concerns of the new street project, projected to be conducted in the near future. My concerns are as follows: and would like action to be taken due to the influx cars, big semi's and other large vehicle's and speeding motorcycles and trucks revving engine at all times of the day and night it is very upsetting for this loud noise's happening all day can a camera speeding trailer be set up on East Main street between Lincoln and Grove street to help this major issue for the residents of this area of street, this has been a problem since I have live at this resident for over 20 years and with more influx of traffic too that this new project could cause drivers using our back alley as new traffic flow and speeding. Which could be very dangerous due to kids that play in this alley and a day-care that is located in this alley too. I have stop on occasions drivers speeding down this alley with no regards of these kids playing in this area something Needs to be done! it should be for resident only traffic not to all drivers and my fear that this new road project could cause more traffic flow in this alley. Could a sign be erected to state this for resident only? and could speed bumps be put in place to for any speeders in this alley too? I hope you actually read this and understand our point of view as if this was in your own home area. I do understand that improving road ways need to be done but please consider these facts that have been already occurring and that a solution be put in place for us residents that will have to endure this new road project and with the New High School to start soon it will cause more traffic and H/S Kids to speed to class which can be another issue too. I plead to whom this concerns, please have some road ethics in place so the residents can enjoy just to be able to sit outside our front porches and not see and hear the speeding traffic roaring past our homes and in the our back alley too PLEASE!!!!

Thank-you for your time

Resident on East Main Street

Staff Comments (1)

Paul Sponholz: I spoke with Candace Smith at 554 Main St regarding her business Critter Comforts at 560 Main Street. She confirmed what her neighbors were saying last night that she has lots of customers using the parking lane to drop off and pick up pets. She was very concerned about losing parking.

Online Comments (3)

1) 8/26/2022

My name is Candace Smith 554 and 560 East Main Street. 507-451-7577: This is in response to the proposed changes of Main Street. I own a very busy business at 560 East Main that requires access daily to this property. Eliminating parking will eliminate access to my approximately 60 to 70 weekly customers which will effectively put me out of business. A business I have spent building for nearly 30 years. These changes will also decrease the value of my homes. Therefore, I will need to change the trajectory of my life and make some unexpected major life changes. The original proposal was to begin work next summer. At that time it appeared to me that the project was to re- do the existing road and curbs and that project would go May to October of 2023. I could work with that. My customers were willing to park at Jaycee Park and walk their dogs to the business. But this proposal does not allow me any alternatives. If construction is to begin next May I need to inform my customers of my immediate closing so they can make other arrangements for their dogs. I also need to put my properties on the market before construction begins. Is it the intention of the City of Owatonna to begin construction on the same timeline as earlier proposed? I would greatly appreciate a quick response by either email at crittercomforts@charter.net or by phone at 507-451-7577. In closing I would have very much enjoyed being at both meetings, however, both were held on a weekday during business hours which prevented my attendance. Thank you, Candace L. smith

2) 8/28/2022

Feedback for Study A 6th goal should have been considered in this feasibility study: Whatever work considered for East Main Street in the residential areas from Elm to Chambers Avenues should not have a significant negative impact to the taxpayers/property owners, which would include restrictions of property access, safety of

property owners and decreased property market valuation. We concur with repairing cracked, broken and buckled concrete on the sidewalks and pavement on East Main Street. We concur with the addition of updates to make the sidewalks accessible to those requiring mobility aids. We also concur that there is a need to update the utilities that run underground in the downtown area from Oak to Elm Avenues (because we understand that these have not been touched for over a century). We have concerns about the bump-outs that are being considered from Oak to Elm Avenues (the downtown area) as we have already seen that the snow plows cannot fully clean a bump-out area which causes a problem with vehicles and pedestrians crossing these areas. Additionally, bump-outs are causing near misses as larger vehicles try to navigate the Cedar corridor as we have personally witnessed. However, the most concerning is the consideration of constructing any roundabout on Main Street (in this 2nd session we understand a roundabout at Main Street and Grove Avenue is being presented to proceed and the roundabout potential on Main and Lincoln has been tabled for future consideration). Our country is currently facing the largest inflation rate that has been seen in over 40 years. Prices are skyrocketing, taxes increasing and wages not keeping up with the either. Owatonna has a huge debt load that is increasing significantly, especially increasing with the addition of a new high school. There are many areas in Owatonna that have extremely poor pavement conditions, huge potholes, and crumbling sidewalks that need to be repaired. This is not the time to spend money on construction like roundabouts, which are unnecessary expenses and will destroy the East Main Street neighborhoods. "Streetscaping" is an expense that the city and county should postpone and use taxpayer dollars on critical needs of the city (street/sidewalk maintenance and repair). Main and Grove Original point for study (#5): We will review pedestrian crossings of side streets for improvement opportunitites. How did this feasibility directive go from "pedestrian crossings" to removing the traffic signals and replacing with a roundabout? In the first 8 months of the Rose Street and Grove Avenue roundabout there 13 vehicle crashes and the source of many traffic stops by officers. There is more traffic on Main Street and the number of crashes and traffic stops at this location will be far larger. As much as we like to think we are Owatonna or Minnesota "nice", the majority of vehicles do not slow or stop to allow vehicles onto the street and a roundabout will intensify that problem. There are a few who do not know the mechanics of driving roundabouts. However, most drivers know the rules of driving roundabouts, which results in drivers speeding up to be first into the roundabout and beat others coming into the intersection. Even though pedestrians have the right of way, drivers get focused on getting through the roundabout first and fast, putting pedestrians and bikers at dangerous risk. The paraphernalia required for the roundabout (speed signs, direction signs, pedestrian crossing signs, stakes/markers to keep vehicles in the correct lane, stakes/markers to keep vehicles from driving over the top of the roundabout) are all ugly. Signs and stakes are knocked over and not fixed/replaced which impacts safety. But overall a roundabout will take this pretty and safe area of Main Street and make it ugly and dangerous. Main and Lincoln Original point of study (#6): The study will look at street alignments and may suggest ways to make intersections more easy to navigate. Original point of study (#7): Safety and access are primary concerns. We want to make Main Street accessible to all users including people who require mobility aids such as walkers, canes, and wheelchairs. We are very happy that the original prospect of a roundabout at Main and Lincoln has been moved to future consideration and will not happen at this time. And that the four-way stop remains. We still are unsure of the reasons why changes are needed between from Lincoln Avenue to Chambers Avenue (repainting the street to include a center turn lane). An explanation was that the center lane is to protect homeowners making left hand turn into their driveway, so their vehicles won't be rear-ended. In the more than 50 years that my family has lived on Main Street, none of my family or neighbors have had a vehicle rear-ended getting into or out of the driveway. This is a residential section and a center lane for left turns is unnecessary and solves no existing traffic problem. Additionally, with the center line street parking will be completely prohibited in this area between Lincoln and Chambers. We have need of street parking. There are delivery trucks of all kinds stopping along Main Street (with the pandemic we have seen many more deliveries in the neighborhood with all of the online ordering). The US Postal truck stops on Main Street to bring mail to this area. SMART buses pick up passengers in front of their homes (they are not allowed to pick up or drop off in alleys). Family and visitors park in the street, especially visiting those homeowners who do not have driveways onto Main Street. And those who have driveways on Main Street typically do not have alley parking for visitors. Because of fencing or houses in their backyards, they have no access from the back to get to their home. There are also school buses that let the kids off on Main Street. People pull over to park when their cars are in distress or they need to check directions. We and our neighbors hold rummage sales, those who stop in park in the street. There are many reasons that we have cars that park on Main. With this center turn lane, the two main traffic lanes (the through lanes) will be on the outside (closer to the curbs) of Main and will be an issue for bikers who use the street. There are also many small vehicles (not sure if they are street legal, but they frequently travel on Main) including 4-wheelers, riding

lawnmowers, golf carts, electric scooters, mini motor bikes, etc which usually travel on the far outside edges of the street which will no longer be available to them and put them directly in the main traffic lanes. This area does not have a traffic flow problem. There is a small window of time in the morning and afternoon when there are backups, but this is not a traffic flow problem. Those of us who live on Main Street are proud of how beautiful Main Street looks and is a reflection of who we are as people drive into Owatonna. We see many pedestrians including families walking together, baby carriages, children on trikes and bikes (not large enough to be safe in the street they pedal on the sidewalk), families walking their dogs. The four-way stop is critical for these pedestrians in crossing Main and Lincoln. There is no need to repaint this street into 3 lanes from the current 2 lanes. Main and Chambers Original point of study (#8): There are several corridor amenities that generate pedestrian and bicycle activity along Main Street, such as Jaycee Park. We are unsure of how point #8 of the study leads to the straightening out Chambers Avenue, especially concerning is taking land from Jaycee park. It would be interesting to know how many vehicle crashes have been caused in the last 10 years because this road is not considered "straight). Conclusion Our conclusion is that we ask Steele County and the City of Owatonna to be more judicious in the spending of taxpayers' dollars on street construction. Only those projects critical in nature such as repairing century old utilities in the downtown area (which requires street construction to access) or the maintenance/repair of cracked, broken and buckled concrete on the sidewalks and street pavement (which is dangerous to pedestrians and bikers or destructive to vehicles). Thank you.

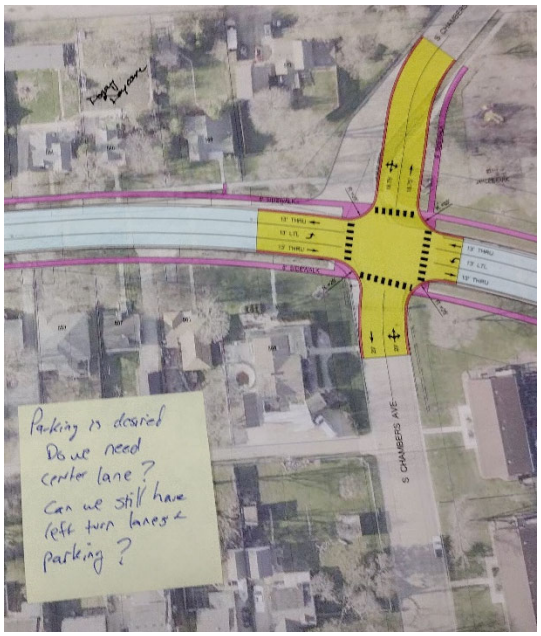
3) 8/28/2022

We attended both open houses. Can you please document on this website what the next steps are? Thank you!

Email Sign Ups (Open House 1, 2, and online combined)

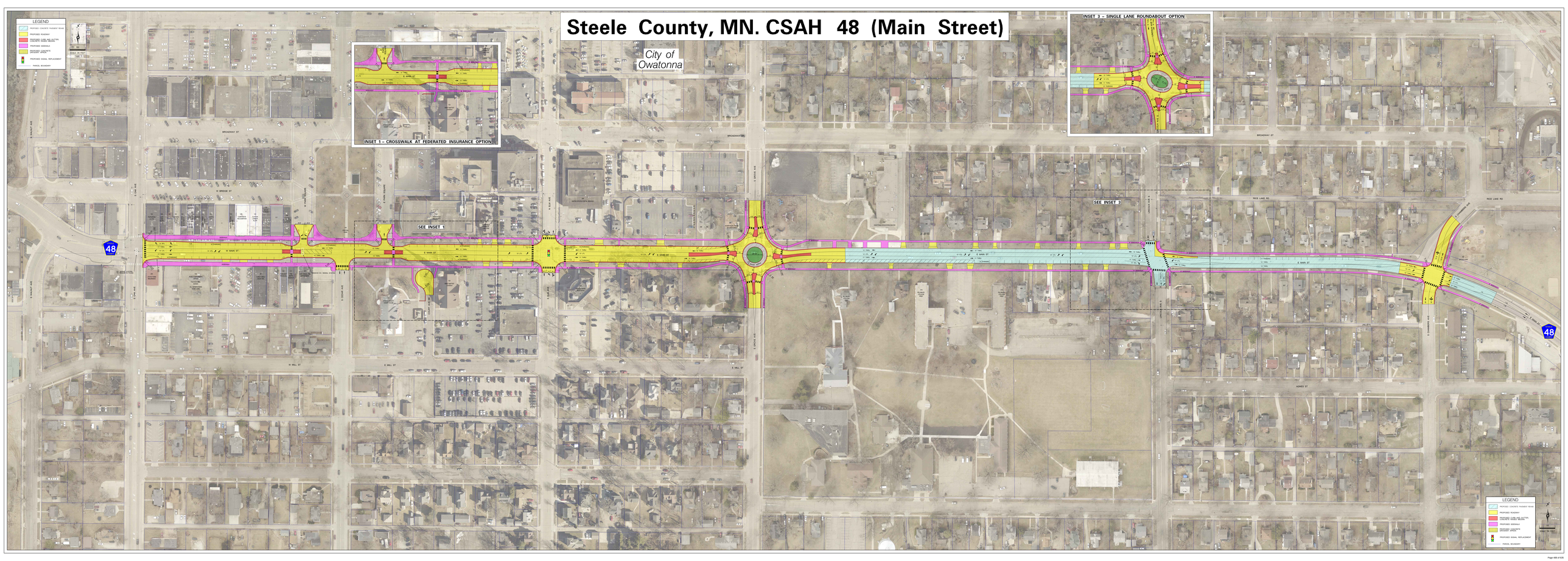
1. kastenzel@fedins.com
2. bprick@frontier.com
3. Tmcmanimon72@gmail.com
4. Gary.deb.moore@gmail.com
5. Joshua.prokopec@owatonnautilities.com
6. carver@owatonnaleouyers.com
7. Kory.koziolek@owatonnautilities.com
8. Kyle.skov@ci.owatonna.mn.us
9. Dsch255@aol.com
10. 19ed@live.com
11. deorcomactuary@gmail.com
12. Jvogt830@gmail.com
13. Drivdahlm@hotmail.com
14. Jfoley68@yahoo.com
15. Alynnarnold83@gmail.com
16. RyanStensvold@gmail.com
17. paula@curlygirlycandy.com
18. crittercomforts@charter.net
19. jjbikervet@hotmail.com
20. larry.brinkman@gmail.com
21. mulitia49@hotmail.com
22. tylerscochran@gmail.com
23. barry.cattadoris@gmail.com
24. kmmkrm@msn.com
25. sescamilla2010@gmail.com
26. tmgrems@yahoo.com
27. robinroseland@yahoo.com
28. sueb0306@gmail.com
29. Mrsarnesen@gmail.com
30. jmdixonp@charter.net
31. jwvogt@fedins.com
32. jenna0723@gmail.com
33. djmadden@fedins.com
34. drivdahlm@hotmail.com
35. tsblaze@q.com
36. mijomill@gmail.com
37. drmeganrogers@gmail.com
38. nednimble@gmail.com
39. jjbikervet@hotmail.com
40. lcochran@owatonna.org

Photos of Event


Parking is desired
Do we need
center lane?
Can we still have
left turn lanes +
parking?
S CHAMBERS AVE

Appendix D

Proposed Corridor Layout


Steele County, MN. CSAH 48 (Main Street)
City of Owatonna
INSET 1 – CROSSWALK AT FEDERATED INSURANCE OPTION
INSET 3 – SINGLE LANE ROUNDABOUT OPTION
SEE INSET 1
SEE INSET 3
LEGEND
PROPOSED CONCRETE PAVEMENT REHAB
PROPOSED ROADWAY
PROPOSED CURB AND GUTTER, CONCRETE MEDIAN
PROPOSED SIDEWALK
PROPOSED CONCRETE DRIVEWAY
PROPOSED SIGNAL REPLACEMENT
PARCEL BOUNDARY
SCALE: 1in = 50ft
BROADWAY ST
W BRIDGE ST
W MAIN ST
E MAIN ST
E BRIDGE ST
E MILL ST
RICE LAKE RD
ALLEY
AGNES ST
S BROADWAY AVE
S WALNUT AVE
S CEDAR AVE
S ELM AVE
S OAK AVE
S GRACE AVE
S DIVISION AVE
S DAMMEN AVE
48

Appendix E

Assessment Role

PIN	PARCEL ADDRESS	OWNER NAME	OWNER ADDRESS LINE 1	OWNER ADDRESS LINE 2	OWNER ADDRESS CITY, STATE, ZIP	ASSESSABLE FOOTAGE	ASSESSABLE NOTES	ESTIMATED ASSESSMENT	Footage 1	Footage 2	Footage 3	LGLDESC
171000118	151 BRIDGE ST W 55060	REDLINE DEVELOPMENT GROUP LLC	11401 SW 72ND AVE		ELLENDALE MN 56026	44	2.F	$ 2,270	43.66			BLK 1 W10 1/2' OF L13 & LOT 14 ORIG TN
171000117	149 BRIDGE ST W 55060	SPIN-TIN, INC	2523 COUNTY ROAD 45 SOUTH		OWATONNA MN 55060	0	2.E	$ -	22.31			BLK 1 LOT 13 EX W 10 1/2' ORIG TN
171000116	148 MAIN ST W 55060	CITY OF OWATONNA	540 WEST HILLS CIRCLE		OWATONNA MN 55060	22	2.E	$ 1,164	22.38			SOUTH 53.59' OF WEST 22' OF LOT 12 BLK 1 ORIGINAL
171000114	145 BRIDGE ST W 55060	TBB INVESTMENTS LLC	1626 WEDGEWOOD DR NE		OWATONNA MN 55060	0	2.E	$ -	22.06			BLK.1 W 1/3 OF L.11 & E 1/3 OF 12 ORIGINAL TOWN
171000113	143 BRIDGE ST W 55060	HAVELKA ENTERPRISE LLC	143 BRIDGE STREET W		OWATONNA MN 55060	0	2.E	$ -	21.56			BLK 1 E2/3 OF LOT 11 ORIGINAL TOWN
171000112	141 BRIDGE ST W 55060	D S B M T, LLC	141 WEST BRIDGE ST		OWATONNA MN 55060	0	2.E	$ -	22.63			BLK 1 W2/3 OF LOT 10 ORIGINAL TOWN
171000111	137 BRIDGE ST W 55060	BURR'S PROPERTY MANAGEMENT LLC	635 PAMELA PLACE		OWATONNA MN 55060	0	2.E	$ -	43.38			BLK 1 LOT 9 & E 1/3 OF LOT 10 ORIGINAL TOWN
171000109	135 BRIDGE ST W 55060	BURR'S PROPERTY MANAGEMENT LLC	635 PAMELA PLACE		OWATONNA MN 55060	0	2.E	$ -	22.88			BLK.1 W 2/3 LOT 8 ORIGINAL TOWN
171000108	131 BRIDGE ST W 55060	BURR'S PROPERTY MANAGEMENT LLC	635 PAMELA PLACE		OWATONNA MN 55060	0	2.E	$ -	43.13			BLK 1 LOT 7 & E1/3 OF 8 ORIG TN
171000107	129 BRIDGE ST W 55060	JOHNSON/BEN/&	MARK J SHERMAN	P O BOX 634	OWATONNA MN 55060	0	2.E	$ -	22.63			BLK.1 SUB L.9 OF LOT 6 ORIGINAL TOWN
171000106	125 BRIDGE ST W 55060	GSO PROPERTIES LLC	1835 CREEKSIDE DR NE		OWATONNA MN 55060	0	2.E	$ -	44.97			BLK.1 SUB L.8 OF 5 & 6 ORIGINAL TOWN
171000105	123 BRIDGE ST W 55060	DRAEGER/GREGG A & ANNE L	600 OAKWOOD LANE		OWATONNA MN 55060	0	2.E	$ -	18.28			BLK.1 SUB. L.7 OF 4 & 5 ORIGINAL TOWN
171000104	121 BRIDGE ST W 55060	DRAEGER/GREGG A & ANNE L	600 OAKWOOD LANE		OWATONNA MN 55060	0	2.E	$ -	21.59			SUB LOT 6 OF LOTS 3 & 4 BLOCK 1 ORIGINAL TOWN
171000103	119 BRIDGE ST W 55060	ONG/MINH H/&	LOAN N TRINH	625 SOUTH STREET	OWATONNA MN 55060	0	2.E	$ -	26.09			BLK.1 SUB L.4 & 5 OF LOT 3 ORIGINAL TOWN
171000102	117 BRIDGE ST W 55060	CITY OF OWATONNA	540 WEST HILLS CIRCLE		OWATONNA MN 55060	0	2.E	$ -	41.25			BLK.1 LOT 2 & W. 8' OF LOT 1 ORIGINAL TOWN
171000101	150 PARK SQUARE W 55060	PARK SQUARE PROPERTIES, LLC	PO BOX 249		WASECA MN 56093	25	2.F	$ 1,300	25.00	98.52		BLK 1 E25' OF LOT 1 ORIGINAL TOWN
171000001	100 MAIN ST E 55060	CITY OF OWATONNA	540 WEST HILLS CIRCLE		OWATONNA MN 55060	199	2.D	$ 10,330	198.66	334.51	334.50	BLK 1 CENTRAL PARK ORIGINAL TOWN
171000512	121 PARK SQUARE E 55060	FEDERATED MUTUAL INS CO	121 EAST PARK SQUARE	P O BOX 328	OWATONNA MN 55060	125	2.B	$ 6,476	264.54	76.34		BLK 5 LOTS 11, 12, 13 & 14 ORIGINAL TOWN
171000509	140 MAIN ST E 55060	WALBRAN/MARK MOONAN	PO BOX 273		OWATONNA MN 55060	66	2.A	$ 3,439	66.13			BLK 5 LOT 10 EX N23' ORIGINAL TOWN
171000506	MAIN ST E 55060	FEDERATED MUT IMP	& HDWE INS CO	PO BOX 328	OWATONNA MN 55060	66	2.A	$ 3,439	66.13			BLK.5 S1/2 OF LOT 9 ORIGINAL TOWN
171000505	152 MAIN ST E 55060	FEDERATED MUTUAL INS CO	121 EAST PARK SQUARE	P O BOX 328	OWATONNA MN 55060	66	2.F	$ 3,448	66.31	66.20		BLK.5 S1/2 OF LOT 8 ORIGINAL TOWN
171001301	209 BROADWAY E 55060	MINNESOTA JLS EQUITTIES LLC	C/O NPM	75 COLUMBIA AVE	CEDARHURST NY 11516	0	2.E	$ -	164.88	281.24		BLK 13 LOTS 1,2,&3 EXCEPT E20' OF LOT 3 AND LOTS
171001315	216 MAIN ST E 55060	PIRKL/KAREN A	216 E MAIN ST		OWATONNA MN 55060	40	2.A	$ 2,080	40.00			BLK 13 W 7' OF LOT 15 & E1/2 OF LOT 16 ORIG TWN
171001314	MAIN ST E 55060	FEDERATED MUTUAL INS CO	121 EAST PARK SQUARE		OWATONNA MN 55060	59	2.A	$ 3,070	59.03			BLK 13 E59' OF LOT 15 ORIGINAL TOWN
171001313	MAIN ST E 55060	FEDERATED MUTUAL INS CO	121 EAST PARK SQUARE		OWATONNA MN 55060	66	2.A	$ 3,432	66.00			BLK 13 LOT 14 ORIG TOWN
171001312	MAIN ST E 55060	FEDERATED MUTUAL INS CO	121 EAST PARK SQUARE		OWATONNA MN 55060	66	2.A	$ 3,434	66.03			BLK 13 LOT 13 ORIG TOWN
171001311	MAIN ST E 55060	FEDERATED MUTUAL INS CO	121 EAST PARK SQUARE		OWATONNA MN 55060	43	2.A	$ 2,236	43.00			BLK 13 W43' OF LOT 12 ORIG TOWN
171001310	246 MAIN ST E 55060	PROHASKI/CHRISTOPHER J	& ABRAMS, JAMES A	430 SOUTH CEDAR	OWATONNA MN 55060	89	2.A	$ 4,630	89.03			BLK 13 LOTS 11 & 12 EX W43' OF LOT 12 ORIGINAL TOWN
171001309	250 MAIN ST E 55060	HOSPITALITY HOUSE	OF OWATONNA INC	250 MAIN STREET E	OWATONNA MN 55060	66	2.B	$ 3,434	66.03	132.36		BLK 13 LOT 10 ORIGINAL TOWN
171001407	249 MAIN ST E 55060	JORGENSEN/GALE	249 E MAIN ST		OWATONNA MN 55060	58	2.B	$ 3,013	197.94	132.49		BLK 14 LOTS 7,8&9 ORIG TOWN
171001406	233 MAIN ST E 55060	HINNENKAMP/GEORGE & MELISSA	233 E MAIN ST		OWATONNA MN 55060	66	2.A	$ 3,430	65.97			BLK 14 LOT 6 ORIG TOWN
171001405	227 MAIN ST E 55060	KENITA ENTERPRISES, LLC	3375 E 151ST ST		FARIBAULT MN 55021	66	2.A	$ 3,430	65.97			BLK 14 LOT 5 ORIG TOWN
171001404	221 MAIN ST E 55060	SMITH VENTURES LLC	23770 NATCHEZ AVENUE		LAKEVILLE MN 55044	66	2.A	$ 3,430	65.97			BLK 14 LOT 4 ORIG TOWN
171001403	215 MAIN ST E 55060	PREMIER BANK METRO SOUTH	ATTN CHARLENE NUN	2866 WHITEBEAR AVE	MAPLEWOOD MN 55109	66	2.A	$ 3,432	66.00			BLK 14 LOT 3 ORIG TWN
171001401	209 MAIN ST E 55060	PREMIER BANK METRO SOUTH	ATTN CHARLENE NUN	2866 WHITEBEAR AVE	MAPLEWOOD MN 55109	132	2.B	$ 6,861	131.94	132.50		BLK 14 LOTS 1 & 2 ORIG TOWN
171000608	212 ELM AVE S 55060	FEDERATED MUTUAL INS CO	121 EAST PARK SQUARE	P O BOX 328	OWATONNA MN 55060	132	2.B	$ 6,880	132.32	215.67		BLK.6 LOTS 8 & 9 & N1/2 OF LOTS 10 & 11 EX. CITY OF
171000612	140 MILL ST E 55060	FEDERATED MUTUAL INS CO	121 EAST PARK SQUARE	P O BOX 328	OWATONNA MN 55060	99	2.G	$ 5,161	99.25			ALL OF L 7 & 12, AND E 2 RDS OF L 6, AND LOTS 13 & 14 EX
171000605	123 MAIN ST E 55060	REDEMPTION CHURCH	123 E MAIN ST		OWATONNA MN 55060	99	2.B	$ 5,160	99.22	169.35		BLK 6 LOT 5 & W33' OF LOT 6 & N20' OF LOT 14 & N20' OF
171000601	111 MAIN ST E 55060	STEELE COUNTY	630 FLORENCE AVE	PO BOX 890	OWATONNA MN 55060	232	2.F	$ 12,042	231.57	281.64	281.94	BLK 6 LOTS 1,2,3,4,15,16,17,18, & VACATED ALLEY ORIGINAL
171000701	107 MAIN ST W 55060	CITY OF OWATONNA	540 WEST HILLS CIRCLE		OWATONNA MN 55060	122	2.B	$ 6,365	122.41	133.63		BLK 7 LOT 1 & E 55' OF LOT 2 ORIG TOWN
171000702	111 MAIN ST W 55060	ZAPPA/STEVEN M	111 W MAIN ST		OWATONNA MN 55060	22	2.A	$ 1,144	22.00			BLK.7 W.11' OF L.2 & E. 11' OF LOT 3 TORRENS PROPERTY
171000703	113 MAIN ST W 55060	NATRLL LLC	113 W MAIN STREET		OWATONNA MN 55060	22	2.A	$ 1,144	22.00			BLK 7 W22' LOT 3 AND E2.25' LOT 4 ORIGINAL TOWN
171000704	MAIN ST W 55060	T & J EVANS PROPERTIES LLC	2325 HADDONSTONE LN NE		OWATONNA MN 55060	45	2.A	$ 2,330	44.81			BLK 7 LOT 4 EXCEPT E2.25' AND E11' LOT 5 ORIGINAL
171000705	121 MAIN ST W 55060	T & J EVANS PROPERTIES LLC	2325 HADDONSTONE LN NE		OWATONNA MN 55060	44	2.A	$ 2,288	44.00			BLK.7 E 2/3 OF L.6 & W.2/3 OF LOT 5 ORIGINAL TOWN
171000707	135 MAIN ST W 55060	STENDEL/BRIAN K & SUSAN L	27568 160TH STREET		NEW RICHLAND MN 56072	286	2.A	$ 14,872	286.01			BLK 7 W1/3 OF LOT 6 & ALL OF LOTS 7,8,9,10,11 12,13,14, &
171000716	203 OAK AVE S 55060	REGAN,/WILLIAM E/LLC	1138 IRONWOOD		OWATONNA MN 55060	55	2.B	$ 2,860	55.00			BLK.7 W. 2/3 OF L.15 & LOT 16 ORIGINAL TOWN
						2654		**$ 138,025**	**3472.0**			
						MAX ASSESSMENT RATE	**$ 52.00**					

Appendix F

Environmental Desktop Review

Building a Better World for All of Us®

June 22, 2022

RE: Environmental Desktop Review
CSAH 48 (Main Street) Feasibility Study
Owatonna, Minnesota
SEH No. STEEL 164362

Paul Sponholz, PE
Steele County Highway Department
PO Box 890
3000 Hoffman Drive Northwest
Owatonna, Minnesota 55060-0890

Dear Mr. Sponholz:

Short Elliott Hendrickson Inc. (SEH) was retained by the Steele County Highway Department complete a preliminary environmental desktop review for the CSAH 48 (Main Street) Feasibility Study project located in Owatonna, Minnesota.

Project Overview and Scope

The proposed project consists of a rehabilitation of CSAH 48 (Main Street) from Oak Avenue to South Chambers Avenue (**Figure 1**). The project scope of work includes a possible full depth roadway reconstruction and utility improvements from Oak Avenue to Elm Avenue, and possible concrete pavement rehabilitation from Elm Avenue to South Chambers Avenue. This report summarizes the environmental desktop review findings for the CSAH 48 (Main Street) Feasibility Study project.

The purpose of this desktop review was to identify potential soil, groundwater, and soil vapor contaminated sites that pose an environmental risk to the project. The area of interest will herein be referred to as “project corridor” and includes the proposed construction area and adjacent parcels. It was not within the scope of this desktop review to evaluate the level, extent, or confirm contamination. Summary information and conclusions from this report may be used to develop contingency planning for environmental issues associated with proposed construction within the project corridor.

This desktop review was limited to the following research tasks listed below.

- Environmental Database Review of Minnesota Pollution Control Agency (MPCA) What’s in my Neighborhood (WIMN) listings,
- Minnesota Department of Agriculture (MDA) WIMN listings,
- MPCA Spill listings,
- Review of located wells available on the Minnesota Department of Health (MDH) Minnesota Well Index (MWI) website.

A table for each database is included below. Listings were not reviewed to verify correct location data. Additionally, unlocated listings were not included in the following tables.

MPCA WIMN

Site Name	Location	Listing Type	Listing ID
Cashman Fertilizer Plant	Adjacent to the north of 208 Walnut Avenue South	Closed Leak.	LS0009835
Bridge Street Bridge	Intersection of Bridge Street and Main Street	Closed Leak.	LS0004012
Owatonna Public Utilities - Power Plant	208 Walnut Avenue South	Closed Leaks, active ASTs/USTs/RCRA Generator.	LS0004156 LS0008051 LS0019210 TS0009420 TS0051421 TS0009420 TS0051421 MNS000144063
Parts Dept Of Owatonna Inc	218 West Bridge Street	Inactive RCRA Generator.	MND022984751
Lyles Repair	Adjacent to the south of 218 West Bridge Street	Inactive RCRA Generator.	MND982212474
Printing House Inc	Adjacent to the north of 120 Oak Avenue South	Inactive RCRA Generator.	MND122707367
Rietz Property	120 Oak Avenue South	Close Leaks/USTs.	LS0013386 LS0014232 TS0017452
Firestone Complete Auto Care #655392	Adjacent to the east of 202 West Bridge Street	Active RCRA Generator.	MNS000101899
Central Communications	Adjacent to the east of 120 Oak Avenue North	Inactive RCRA Generator.	147363832
Benjamin Roger MD	Adjacent to the east of 120 Oak Avenue North	Inactive RCRA Generator.	147362537
Gilthvedt Eye Care Clinic Inc	Adjacent to the east of 120 Oak Avenue North	Inactive RCRA Generator.	MNS000216697
Harland Tire & Auto	Adjacent to the east of 202 Oak Avenue North	Closed Leak, active RCRA Generator.	LS0000369 MND052750411
Motor Supply Co	Adjacent to the West of 151 West Bridge Street	Inactive RCRA Generator.	147366991
Wayne Mfg Co	Intersection of West Bridge Street and South Oak Avenue	Inactive RCRA Generator.	MNNONGEN91
Andys Conoco Station	105 Oak Avenue South	Closed USTs	TS0009399
Owatonna Amoco	203 Oak Avenue South	Inactive RCRA Generator.	MND134128727
Photos Plus	105 Oak Avenue South	Inactive RCRA Generator.	713267383
Amoco Service Station #5061	135 West Main Street	Closed Leak/USTs.	LS0003845 TS0009452
Sears Outlet / Former Sears Owatonna	146 West Broadway Street	Closed Superfund/CERCLIS/VIC /Leak.	SR0001503 MN0001118934 VP3620

Site Name	Location	Listing Type	Listing ID
			LS0004431
Steele County Jail	135 West Main Street	Closed Leak/USTs.	LS0012099 TS0012769
P & H Auto Service	Adjacent to the north of 135 West Main Street	Inactive RCRA Generator.	147368104
CenturyLink - Owatonna CO	Adjacent to the south of 220 Cedar Avenue South	Active ASTs/USTs, inactive RCRA Generator.	TS0009455 MNS000322264
Nelson Mark DDS	Adjacent to the west of 100 East Main Street	Inactive RCRA Generator.	147362743
Styles By Sara	Adjacent to the west of 100 East Main Street	Inactive RCRA Generator.	147369276
REMAX Venture	Adjacent to the east of 104 West Broadway Street	Active RCRA Generator.	MNS000319536
Malm Jewelers Inc	100 East Main Street	Inactive RCRA Generator.	147366561
Elwood Star Cleaners	Intersection of North Cedar Street and West Broadway Avenue	Active RCRA Generator.	MND039800388
Norwest Bank Owatonna Na	100 East Main Street	Inactive RCRA Generator.	MN0000230277
William Kottke	Adjacent to the northeast of 100 East Main Street	Inactive RCRA Generator.	3334034
Federated Insurance	Adjacent to the east of 100 East Main Street	Inactive RCRA Generator.	MND071341283
Federated Mutual Insurance Co	Adjacent to the east of 100 East Main Street	Closed USTs.	TS0009378
Owatonna National Guard Armory	Adjacent to the north of 101 East Broadway Street	Inactive RCRA Generator.	MND980682462
Jostens Inc - Office Bldg	Adjacent to the north of 129 East Broadway Street	Inactive RCRA Generator.	MND006147136
Stahel Arnold	209 East Main Street	Inactive RCRA Generator.	713095610
Smith Dental Care PA	209 East Main Street	Active RCRA Generator.	MNS000216465
Baker Ronald L Dds	Adjacent to the west of 338 East Main Street	Inactive RCRA Generator.	MND985741230
Pillsbury College Prep & Camp/Pillsbury Baptist Bible College	315 South Grove Avenue	Closed Leaks/USTs.	LS0011435 TS0013533 TS0013534 TS0013535 MND985684711
ISD 761 Owatonna Education Center	338 East Main Street	Closed Leaks/USTs, active RCRA Generator.	LS0001691 TS0009428 MNS000125930
TRI-M Graphics	219 South Chambers Avenue	Active RCRA Generator.	MN0000876854
Flom Plumbing & Heating Inc	631 Rice Lake Road	Inactive RCRA Generator.	147364822

- A closed or inactive status indicates the MPCA has adequality assessed the extent of a release and does not indicate that remedial activities have occurred. Contamination is often present on sites that received regulatory closure.

Wells

Location	Well ID	Well Type	Well Name
Adjacent to the west of 211 West Main Street	00446086 00446087	135 West Main Street	MW-2 MW-3
211 West Bridge Street	00658935	Monitoring Well	AMW-8
Adjacent to the North of 211 West Bridge Street	00658901	135 West Main Street	AMW-3
211 West Main Street	00446085	135 West Main Street	MW-1
Adjacent to the North of 209 West Bridge Street	00658902	135 West Main Street	AMW-4
209 West Bridge Street	00658933 00658934	135 West Main Street	AMW-6 AMW-7
214 South Oak Avenue	00495385	135 West Main Street	MW-7
120 South Oak Avenue	00655998 00656000 00715877	135 West Main Street135 West Main Street	AMW-1 AMW-2 AMW-10
202 South Oak Avenue	00495384	135 West Main Street	MW-6
Adjacent to the south of 120 South Oak Avenue	00655999	135 West Main Street	AMW-5
Adjacent to the east of 202 South Oak Avenue	00560527	135 West Main Street	MW-14
Adjacent to the west of 203 South Oak Avenue	00476821	135 West Main Street	MW-2
Adjacent to the west of 151 West Bridge Street	00658931	135 West Main Street	MW
203 South Oak Avenue	00544134 00476820 00476823 00476824 00544133	Remediation Well Monitoring Well	RW-1 MW-1 MW-4 MW-5 MW12
103 North Oak Avenue	00497787 00497788 00497789	135 West Main Street	MW-1 MW-2 MW-3
215 South Oak Avenue	00495383	135 West Main Street	MW-8
135 West Main Street	00492792 00492793	135 West Main Street	MW-10 MW-11
Adjacent to the north of 135 West Main Street	00476822	135 West Main Street	MW-3

Spills

Location	Substance	Status	Incident ID
208 South Walnut Ave MN	unknown units Petroleum Other	Closed or Completed	88082

MDA WIMN

Location	Substance	Status	Listing ID
280 West Bridge Street	-	Closed	FY79I056

Findings and Opinions

Based on the findings of the desktop review, a majority of the listings identified exist within the western portion of the project corridor. These listings include closed Leaks, closed Tank Sites, active and inactive RCRA generators, and wells. A closed listing registered under the Superfund, Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), and Voluntary Investigation and Cleanup (VIC) programs was also identified in the western portion of the project corridor.

Additionally, an abandoned steam pipe was previously identified running along the project corridor and records of the pipe's location were lost in a flood. Municipal steam pipes were commonly insulated with an asbestos containing pipe wrap or the pipe itself is often transite (an asbestos containing material). If encountered during construction the pipe should be tested for asbestos and if it does contain asbestos, an asbestos abatement company will need to be contracted for proper handling/disposal.

SEH recommends at minimum that an Environmental Review be completed that includes Phase I Environmental Site Assessment (ESA) type research or a full Phase I ESA be completed for the project reconstruction corridor. This information would then be used as the basis in which to place Phase II ESA borings. Phase II ESA information would then be used to write special provisions for the project and assist with a cost estimate for properly dealing with contamination during construction.

Please feel free to contact me directly at 651.318.0354 or kaufdencamp@sehinc.com if you have any questions.

Sincerely,

Keri B. Aufdencamp

Keri Aufdencamp
Project Manager

Robert Hawkins, GIT (MN)
Graduate Scientist

rrh

Attachments

Figure 1 – Project Features

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References

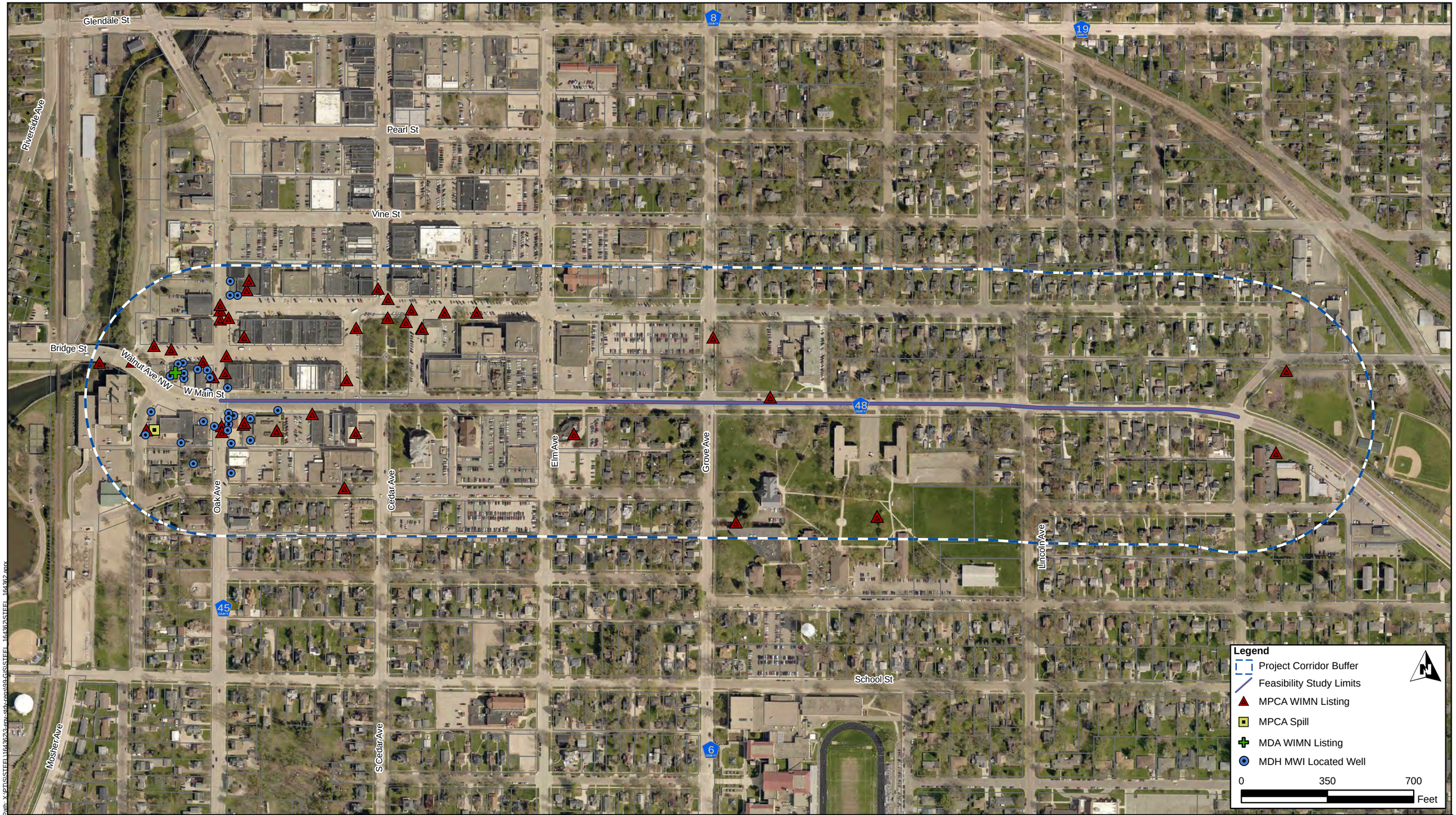
Minnesota Department of Agriculture (MDA), 2011, Steele *County Spill Report*

MDA, What's In My Neighborhood (WIMN) Interactive Map, https://app.gisdata.mn.gov/mda-agchem/

Minnesota Department of Health (MDH), Minnesota Well Index, https://mnwellindex.web.health.state.mn.us/

Minnesota Pollution Control Agency (MPCA) Groundwater Contamination Atlas Interactive Map, 2021, https://webapp.pca.state.mn.us/cleanup/search

MPCA WIMN Interactive Map, https://pca-gis02.pca.state.mn.us/wimn2/index.html



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SEH

3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

Project: STEEL 164362
Print Date: 6/7/2022

User Name: rhawkins
Projection: NAD 1983 UTM Zone 15N
Source: ESRI, Steele County, SEH Digi

Project Features

Environmental Desktop Review
CSAH 48 (Main Street) Feasibility Study
Owatonna, Minnesota

Figure 1

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.

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Community Development Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Sydnee Stroeing, Planning Specialist
SUBJECT: Resolution 41-23: CUP-5 Thompson Sanitation Outdoor Storage

Purpose:
Approve Conditional Use CUP-5 by April Paxton of Mohs Homes, on behalf of Thompson Sanitation Inc., to allow for the outdoor storage of recycling dumpsters, and semi-trailer and truck storage on the subject property.

Background:
See attached staff report.

Budget Impact:
None.

Staff Recommendation:
Staff and the Planning Commisison recommend approval.

Attachments:
1. Res 41-23 CUP-5 Thompson Sanitation Outdoor Storage
2. Staff Report with PC CUP-5 Thompson Sanitation Outdoor Storage

RESOLUTION NO. 41-23

A RESOLUTION APPROVING CONDITIONAL USE CUP-5

WHEREAS, Conditional Use CUP-5 by April Paxton of Mohs Homes, on behalf of Thompson Sanitation Inc., a request to allow for the outdoor storage of recycling dumpsters, and semi-trailer and truck storage on the subject property. and legally described as follows; and

Lot 1, Block 1, Thompson Corner Addition, Steel County, Minnesota

WHEREAS, The Planning Commission held a public hearing on May 9, 2023 and recommended approval of CUP-5; and

WHEREAS, on May 16, 2023, the City Council accepted and approved CUP-5, as the same was approved and recommended by the Planning Commission of the City; and

WHEREAS, the City Council concurs with all of the findings of the Planning Commission and hereby makes the identical findings as referenced in the CUP-5 Staff Report.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Owatonna, Minnesota:

1. That said conditional use permit is in accordance with and conformity to the plans and regulations established by the City and the comprehensive plan for the development of the City.

2. That said conditional use permit be and the same hereby is approved with the following conditions:

   a) All comments per the City Engineer's memo dated 4/30/2023 shall be met prior to any permits being issued.
   b) No outdoor storage within the required setbacks of 50' of the front and rear lot lines and 30' of the side lot lines.
   c) If privacy fencing is within the utility easements, applicant must apply for a zoning permit.
   d) Continued maintenance and upkeep of fencing and landscaping to ensure adequate screening of public rights-of-way.
   e) Dust control may be required to meet outdoor storage performance standards.
   f) Outdoor storage shall be maintained in an orderly fashion as determined solely by the City of Owatonna.
   g) Shall be contingent upon the approval of the final plat of Thompson Corner Addition.
   h) All permits shall be issued by the City of Owatonna prior to work commencing for that item.
   i) Routine debris and trash clean ups are conducted to ensure cleanliness of the site and the surrounding area.

3. That the Clerk cause a certified copy of this resolution to be filed in the office of the County Recorder of Steele County, Minnesota.

Passed and adopted this __ day of ___, 2023 with the following vote:

Aye __; No __; Absent __.

Approved and signed this ____day of _____, 2023.

_____
Thomas A. Kuntz, Mayor

ATTEST:

_____
Kris M. Busse, City Administrator/City Clerk

May 9, 2023

To: Mayor & City Council
From: Community Development Department
RE: Conditional Use No. CUP-5 by April Paxton of Mohs Homes, on behalf of Thompson Sanitation, Inc., a request to allow for the outdoor storage of recycling dumpsters and semi-trailer and truck storage on the subject property.

Application Review:

Applicant:	April Paxton
Owner:	Thompson Sanitation Inc.
Location of Property:	1255 Kilworth Drive NW
Zoning Map:	I-2, Heavy Industrial District
Zoning Ordinance:	Section 157.022 states that open and outdoor storage are permitted with a conditional use permit in the I-2, Industrial Districts
Report Attachments:	1. Location Map 2. Aerial Photo 3. Site Plan 4. Outdoor Storage Plan 5. Project Narrative 6. Engineering Comments

Proposed Development:

- Conditional Use No. CUP-5 by April Paxton of Mohs Homes, on behalf of Thompson Sanitation, Inc., a request to allow for the outdoor storage of recycling dumpsters and semi-trailer and truck storage on the subject property.
- Density and intensity regulations for conditional uses in the I-2 district include setbacks of 50’ from the front and rear lot lines, and 30’ from the side lot lines.
- The outdoor storage areas will consist of roll off and dumpster storage along the outer eastern edge of the property.
- Recycling dumpsters will be stored towards the front of the property, near the double driveway entrance on asphalt.
- A semi-trailer will be stored behind the building towards the outer western edge of the property. The trailer will be used for electronics and will be hauled away once full.
- Additional parking for trucks will be adjacent to the semi-trailer.
- Industrial districts require screening from abutting residential districts and view from a public right-of-way in the following instances: open and outdoor storage, service, sales and/or rentals; and all open, off-street parking areas of five or more spaces.

- ❖ There will be landscaping and a chain-link fence with privacy slats along the western and eastern sides of the property for required screening from the public right-of-way.

- In the case of outside storage or sales, the area must be grass or surfaced to control dust.
  - ❖ The areas of the property that include outdoor storage have planned surfaces of gravel and bituminous paving.
- According to the ordinance, a conditional use permit may be granted if the following findings are met:

  - ❖ The establishment or operation of the proposed conditional use will not be detrimental to or endanger the public health, safety, morals, comfort or general welfare.
  - ❖ The architectural appearance and functional plan of the building and site reflects the building character of the area and will not be so dissimilar to the existing buildings or area as to cause impairment in property values or constitute a blighting influence within a reasonable distance of the lot. The proposed development will be compatible with existing and planned use of the area and conflicts will not be created between the proposed use and existing and intended future uses of the surrounding area.
  - ❖ The traffic generated by this use shall be channelized and controlled in a manner that will avoid congestion on public streets, safety hazards or excessive traffic through residential areas. The traffic generated will not raise traffic volumes beyond the capacity of the surrounding streets. Vehicular access points will be limited and will create a minimum amount of conflict with through traffic movements and will be subject to the approval of the City Engineer. Vehicular drive up ingress lanes will be large enough to accommodate peak auto use on the same lot without requiring the stopping or waiting of vehicles on public right-of-way. Ingress lanes will be from the least heavily traveled street wherever possible.
  - ❖ Public services, including but not limited to sewer, water, gas, police, and fire protection, are available at an adequate level and capable of servicing the proposed land use. In addition, adequate access, drainage, and any other necessary support facilities shall be provided.
  - ❖ All such other or further factors as the City shall deem a requisite or consideration in determining the effect of such use on the general welfare, public health, and safety.

Staff Review:

Staff is recommending approval of this conditional use permit to allow for the outdoor storage of dumpsters, semi-truck trailers, and trucks with the following conditions:

1) See Engineering Department staff review comments for stormwater conditions.
2) No outdoor storage within the required setbacks of 50’ of the front and rear lot lines and 30’ of side lot lines.
3) If privacy fencing is within the utility easements, applicant must apply for a fencing

permit.

4) Continued maintenance and upkeep of fencing and landscaping to ensure adequate screening of public rights-of-way.
5) Dust control may be required to meet outdoor storage performance standards.
6) Outdoor storage shall be maintained and in good condition.
7) Shall be contingent upon the approval of the final plat Thompson Corner Addition.
8) All permits shall be issued by the City of Owatonna prior to work commencing for that item.
9) Routine debris and trash clean ups are conducted to ensure cleanliness of the site and surrounding areas.

Planning Commission

Conditional Use No. CUP-5, which is a request by April Paxton on behalf of Mohs Homes, on behalf of Thompson Sanitation, Inc. to allow for the outdoor storage of recycling dumpsters and semi-trailer and truck storage on the subject property at 1255 Kilworth Drive NW, was presented by Planning Specialist Stroeing. (Refer to report on file.)

Public hearing for both requests opened at 5:38 pm. John Schulte of Jones, Haugh, and Smith was present on behalf of Thompson Sanitation. He said that the applicant has one request. One of the engineer's comments were for a 10' easement on all sides of the proposed plat. There are already easements on all sides of this plat except the southeast side. Assuming that the request is due to either future utilities or drainage, the applicant would request that the requirement would be a 5 foot easement on their side and similarly the City could provide a 5 foot easement on their side of the lot line as is typically done. Andy Michaletz, who owns property on State Avenue near this request, handed out pictures he took about a half an hour ago. The pictures were of a similar facility that came before this very Commission a few years ago for a conditional use permit for the same type of business with outdoor storage and dumpsters. They were told to keep it neat and orderly; it's anything but that. He said he doesn't know what we can do with a conditional use permit to put some more teeth into it. He said it looks like a nice plan, but he doesn't know how the business will be run. He doesn't know if it's an unenforced conditional use permit, but that's what happens—there are mattresses piled up, appliances, roll-offs with garbage in them, stuff blowing around. He said he thinks of the existing recycling facility run by a different company. It's a disaster—especially on Monday mornings. There's stuff not attended to over the weekend and it piles up—it's like a garbage dump. We want to prevent that from happening. We have a wonderful commercial corridor out there on State Avenue. He wants to make sure what is decided today has more than just vague language. He said the submitted drawing shows that all of the dumpsters are placed within the required 50 foot setback. He said he just wants to clarify that the conditions are 50 feet, as the drawing is showing the storage within the 50 feet. He said it's a tough thing because the County wants this here. He said he thinks it should be out at the new County shop. He said the conditional use runs for the entire duration of the property, so what the Commission decides today can run in perpetuity. He said there has to be a way to balance the needs of the applicant and the neighbors and community. Public hearing closed at 5:44 pm. Eickhoff asked about the 50 foot setback and if that condition would change the set up. Kruschke said absolutely. They will have to slide the dumpsters back onto the paved area and there is plenty of space to accomplish that. The setbacks will have to be adhered to. Meier said the conditional use permit is based on several items

and asked if the permit can be retracted? Kruschke said that is correct—through a hearing process as laid out in the Zoning Ordinance, a conditional use permit can be reviewed and thus revoked if they are not meeting the conditions. Eickhoff said that overall this is a need in the community. Trash blowing around is definitely an issue, but he said he thinks they are doing some things to address that.

A motion was made by Eickhoff and seconded by Effertz to recommend City Council approval of this conditional use permit to allow for the outdoor storage of dumpsters, semi-truck trailers, and trucks with the following conditions:

1) See Engineering Department staff review comments for stormwater conditions.
2) No outdoor storage within the required setbacks of 50’ of the front and rear lot lines and 30’ of the side lot lines.
3) If privacy fencing is within the utility easements, applicant must apply for a fencing permit.
4) Continued maintenance and upkeep of fencing and landscaping to ensure adequate screening of public rights of way.
5) Dust control may be required to meet outdoor storage performance standards.
6) Outdoor storage shall be maintained and in good condition.
7) Shall be contingent upon the approval of the final plat of Thompson Corner Addition.
8) All permits shall be issued by the City of Owatonna prior to work commencing for that item.
9) Routine debris and trash clean ups are conducted to ensure cleanliness of the site and surrounding area.

All Commissioners voting Aye, the motion carried.

1255 Kilworth Drive NW
City of Owatonna

Site

April 25, 2023

1:6,000

1 in = 500 ft

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

1255 Kilworth Drive NW
City of Owatonna

Site

April 26, 2023

1:2,100

1 in = 175 ft

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

EARTHWORK NOTES:

1. CONTRACTOR TO FURNISH ON SITE GEOTECHNICAL CONSULTING ENGINEER AS REQUIRED.
2. SOIL CORRECTIONS UNDER THE PROPOSED CONCRETE & ASPHALTIC PAVEMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, REMOVAL OF ALL TOPSOIL AND VISIBLY ORGANIC FILL MATERIAL.
3. CONTRACTOR TO FURNISH ON SITE GEOTECHNICAL CONSULTING ENGINEER TO COORDINATE SOIL CORRECTIONS UNDER PAVEMENTS.
4. THE SITE SHALL BE GRADED TO THE CONTOURS SHOWN AND TO PROVIDE THE DRAINAGE PATTERN SHOWN.
5. GRADE ALL AREAS TO DRAIN.
6. THE ENGINEER MAY ORDER ADJUSTMENTS TO THE GRADES SHOWN ON THE PLAN TO ENSURE PROPER OR BETTER DRAINAGE OR UTILITY COVERAGE AS WORK INCIDENTAL TO THE CONTRACT.

TURF ESTABLISHMENT

1. PROVIDE A MINIMUM OF 6" OF TOPSOIL OVER ALL AREAS DESIGNATED TO RECEIVE TURF.
2. STABILIZE ALL OTHER DISTURBED AREAS OF THE SITE NOT SHOWN TO RECEIVE SPECIAL TREATMENT ON THIS PLAN IN ACCORDANCE WITH THE LANDSCAPE PLAN OF IF NOT SHOWN, WITH HYDROSEED MIXTURE AS MNDOT RAPID STABILIZATION METHOD 3 WITH:
   SEED MIX 25-131 @ 100 LB/ACRE,
   FERTILIZER 22-5-10 @ 300 LBS/ACRE
   TYPE 1 HYDRAULIC SOIL STABILIZER

WINTER STABILIZATION

IN THE EVENT THAT FINAL STABILIZATION OF THE SITE HAS NOT OCCURRED PRIOR TO WINTER CONDITIONS, THE FOLLOWING ACTIVITIES WILL OCCUR:

1. STABILIZE ALL AREAS DESIGNATED TO RECEIVE TURF WITH SODDING OR SEED MIX 22-112 @ 40 LB/ACRE WITH SEED MIX 21-112 (WINTER WHEAT) @ 100 LB/ACRE, AND TYPE 1 MULCH FROZEN TO GROUND WITH WATER
2. SPOT CHECK AND STABILIZE ALL AREAS ALREADY STABILIZED WITH THE ABOVE

KEYNOTES

1. 6" PVC SCHED. 40 SEWER SERVICE WITH CLEANOUTS. EXTEND TO WITHIN 5' OF BUILDING. COORD. WITH MECH.
2. 4" DI CL 52 WATER SERVICE. CONNECT TO G.V. @ R.W. EXTEND TO WITHIN 5' OF BUILDING. COORD. WITH MECH.
3. MONUMENT SIGN PER ARCH.

LEGEND

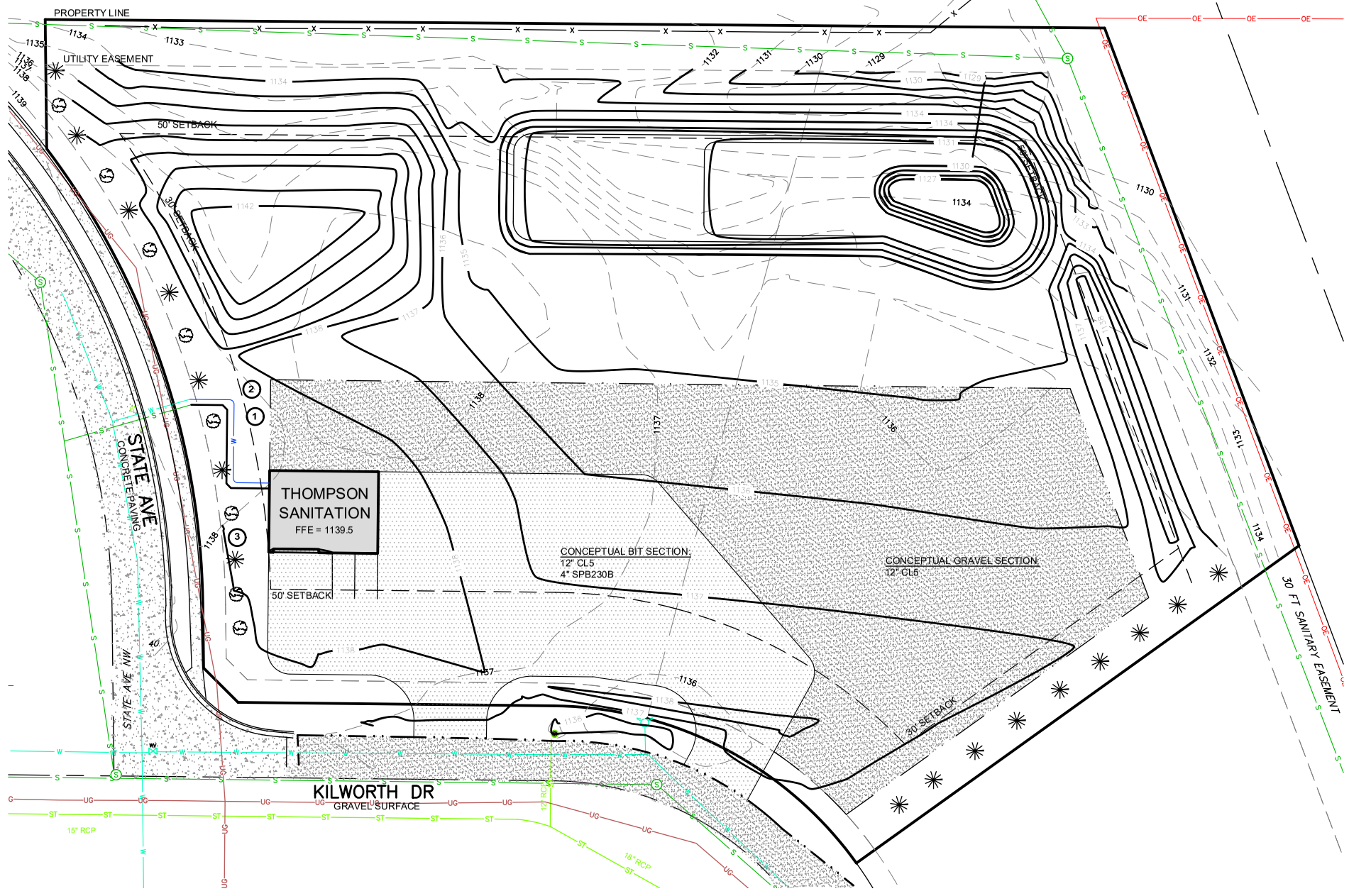
—848—	EXISTING ELEVATION CONTOUR LINE
—848—	PROPOSED ELEVATION CONTOUR LINE
FGXXXX.X	FINISH GRADE ELEVATION
EGXXXX.X	EXISTING GRADE ELEVATION
GLXXXX.X	GUTTER LINE ELEVATION
TCXXXX.X	TOP OF CURB ELEVATION
GRXXXX.X	GRATE ELEVATION
HP	HIGH POINT
LP	LOW POINT

GENERAL STORMWATER NOTES:

SITE AREA:	145814 SF
DISTURBED AREA:	125477 SF
EXISTING IMPERVIOUS SURFACE:	0 SF
PROPOSED IMPERVIOUS SURFACE:	54216 SF
FUTURE IMPERVIOUS SURFACE:	0 SF

PEAK STORMWATER FLOWS LEAVING SITE (CFS):

	2-YEAR	10-YEAR	100-YEAR
EXISTING	X	X	X
DESIGN	X	X	X



PRELIMINARY

30 0 30
HORIZ. SCALE FEET

DRAWINGS ON 11x17 SHEETS ARE HALF SCALE

BENCHMARKS:
DESCRIPTION
ELEVATION

BENCHMARKS:
DESCRIPTION
ELEVATION

REV.	BY	DATE	REVISION DESCRIPTION
-	-	-	-

JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 507-451-4598

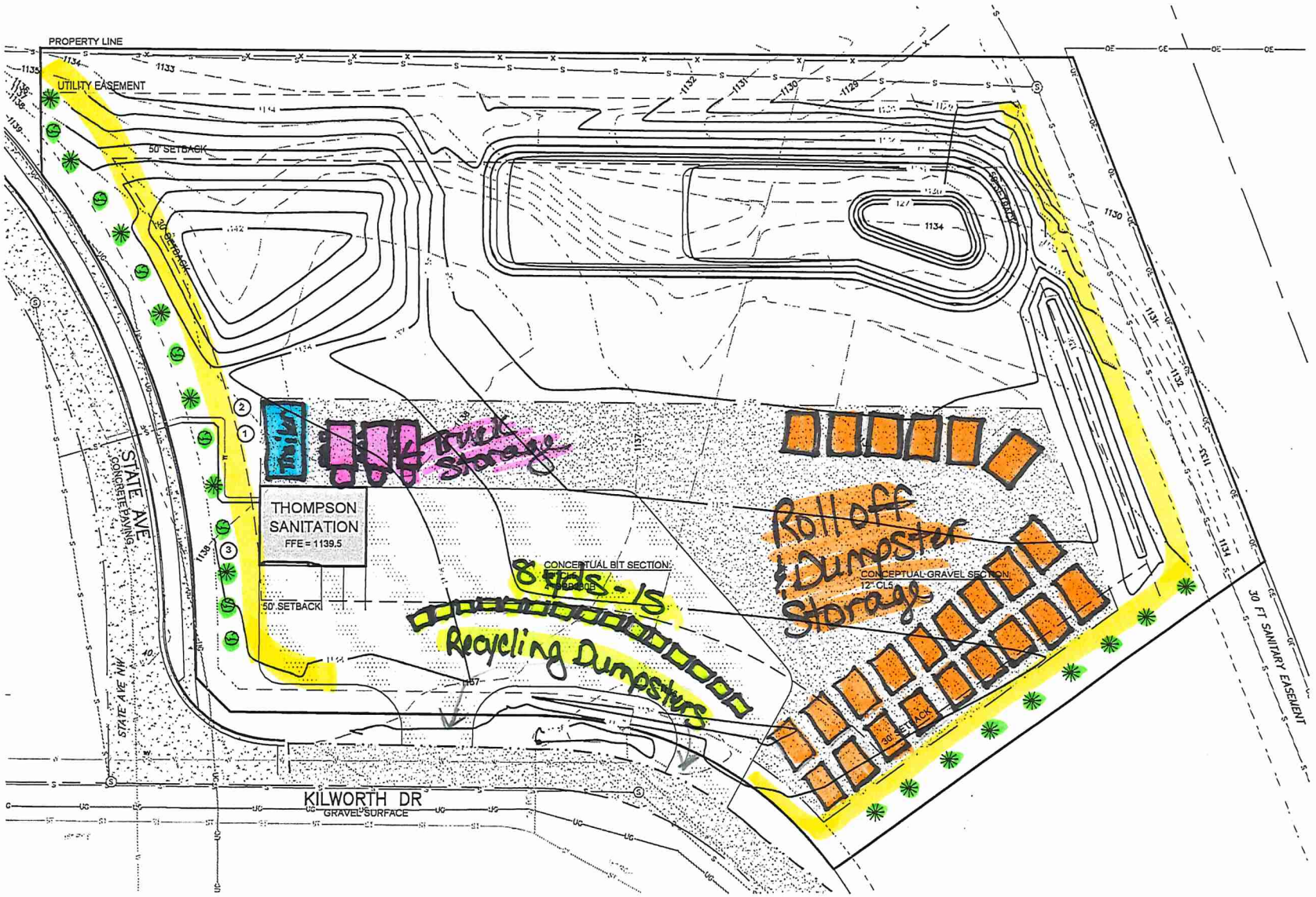
DESIGNED: JHS5
DRAWN: JHS5
CHECKED: BJJ
Date: 4/7/23
DWG: 23-1030

I hereby certify that this plan, specification, or 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.

John H. Schulte V
License No. 44639 Date: 4/7/23

THOMPSON SANITATION
1255 KILWORTH DR NW
LOT 1 BLOCK 1 THOMPSON CORNER ADDITION
CONCEPTUAL SITE PLAN

SHEET 1 OF 1



PRELIMIN

BENCHMARKS:

BENCHMARKS:

REV.	BY	DATE	REVISION DESCRIPTION

JONES HAUGH

DESIGNED: JHSS
DRAWN: JHSS

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws

THOMPSON SANITATION

Clarks Grove: 108 N. Independence Ave
PO Box 154
Clarks Grove, MN 56016
Phone: (507) 256-4370 Fax: (507) 256-0089

Austin: 709 11th Street NE
Austin, MN 55912
Phone: (507) 433-9047

Outdoor Storage Explanation and Hours:

The outdoor storage areas for Thompson Sanitation Inc and the Steele County Recycling Drop Site will consist of Roll off and dumpster storage to the outer edge of the property. The recycling dumpsters (15- 8yd dumpsters) will be stored up in front of the double driveway entrance on asphalt. We would also be looking at storing a Semi Trailer to the back side of the building for the Electronics to be placed in and hauled away once full. We would also be looking to store 3 trucks up there as well, maybe more in the future as we expand.

There will be landscaping and a chain-link fence with privacy slats alongside most of the property for screening. You can see this on the sketch uploaded to the site.

The hours of operation: Recycling drop site= 24hrs a day/7 days a week.

Thompson Sanitation Inc will have traffic on an average of 12 hrs. a day for the company and recycling pick up, 6am – 6pm Monday thru Friday, and 4 hrs. on Saturday's 8am-12pm.
The office and site will be manned Monday thru Friday 10am-4pm and Saturday's 8-12pm

Please feel free to contact me with any questions.

Kari Van Ravenhorst
Administrative Assistant
Thompson Sanitation Inc.
(507) 568-0755

Engineering Department

Date: 04/30/2023
Project: Thompson Corner addition
Conditional Use Permit Application #: CUP-5

Staff Review Comments:

Stormwater

1. All new development and redevelopment is subject the following provisions:
    a. City of Owatonna Stormwater Management Code 52.00.
    b. City of Owatonna Grading Permit is required.
    c. Minnesota Pollution Control Agency (MPCA) NPDES/SDS MS4 Permit MNR040000 post construction stormwater management criteria.
    d. MPCA NPDES/SDS Construction Stormwater General Permit MNR100001.
2. Long-Term Operations and Maintenance Plan will be required for all permanent stormwater facilities.
3. Recorded Stormwater Facility Maintenance Agreement is required.
4. Final topographic survey and as-built will be required.

Please resubmit any revised or updated documentation along with a response to all comments above. Should you have any questions, please call 507.444.4350.

Thank You

Sean Murphy, PE
Director of Public Works and City Engineer

Community Development Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Sydnee Stroeing, Planning Specialist
SUBJECT: Resolution 42-23: Preliminary and Final Plat - Thompson Corner Addition

Purpose:
Request the Council approve Resolution 42-23 to approve the Preliminary and Final Plat of Thompson Corner Addition.

Background:
See attached.

Budget Impact:
None.

Staff Recommendation:
Staff recommends approval as recommended by the Planning Commission.

Attachments:
1. Res 42-23 Prelminary & Final Plat - Thompson Corner Addition
2. Staff Report with PC PP-23-3 and FP-23-2 Thompson Corner Addition

RESOLUTION NO. 42-23

A RESOLUTION APPROVING
THE PRELIMINARY AND FINAL PLAT OF THOMPSON CORNER ADDITION

WHEREAS, on May 16, 2023, the City Council accepted and approved the preliminary and final plat of Thompson Corner Addition to the City of Owatonna, as the same was approved and recommended by the Planning Commission of the City.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Owatonna, Minnesota:

1. That said plat is in accordance with and conformity to the plans and regulations established by the City for a comprehensive plan for the development of the City.
2. That said plat be and the same hereby is approved with the following conditions:

    a) The title opinion shall be approved by the City Attorney prior to recording of the final plat.
    b) The final plat shall be recorded within 60 days of the date of approval.
    c) Perimeter drainage and utility easements shall be dedicated on the final plat as proposed.
    d) All comments per the City Engineer's memo dated 4/30/2023 shall be met prior to any permits being issued.
    e) No access allowed from State Avenue (CSAH 45). Access is only allowed from Kilworth Drive per Steele County approval.

3. That the Clerk cause a certified copy of this resolution to be filed in the office of the County Recorder of Steele County, Minnesota, and to be given to the applicants of said plat.

Passed and adopted this ___ day of ____ 2023 with the following vote:

Aye __; No __; Absent __.

Approved and signed this ___ day of ____ 2023.

_____
Thomas A. Kuntz, Mayor

ATTEST:

_____
Kris M. Busse, City Administrator/City Clerk

May 9, 2023

To: Mayor & City Council
From: Community Development Department
RE: Preliminary Plat and Final Plat of Thompson Corner Addition

Background

John Schulte of Jones Haugh Smith, and Thompson Sanitation Inc., are requesting preliminary and final plat approval of Thompson Corner Addition, a two-lot industrial plat. The applicants are platting the property to develop two lots in two different plats for use as the Steele County Recycling Center. This plat is required by Steele County to combine two lots in two different plats.

Application Review:

Applicant: John Schulte

Owner: Thompson Sanitation Inc.

Location of Property: 1255 Kilworth Drive NW

Existing Zoning: I-2, Heavy Industrial District

Existing Land Use: The lots are currently not being utilized.

Report Attachments:

1. Location Maps
2. Aerial Image
3. Preliminary Plat
4. Final Plat
5. Engineering Comments

Proposed Development:

Size of Subdivision: 3.35± acres

Number of Lots: To be platted into one lot.

Lot Configuration: The lots are generally rectangular in shape.

Street Pattern: The street pattern will not change from what exists today.

Services: Services are currently stubbed into the lot from State Avenue.

Timing/Financing of Development:	The applicant will record the plat this year
Outstanding Assessments:	None.
Floodplain:	0.2 PCT Annual Chance Flood Hazard. Small area in back corner in flood fringe with no proposed development within it. Slightly filling the flood fringe 123 CY. Permitted to go up to 1,000 CY.
Wetlands:	Submitted to soil and water conservation district for approval. Waiting on final determination.
Storm Water Drainage:	Wet pond to meet MPCA requirements. Final design under grading permit.
Easements:	The applicant will be required to dedicate perimeter easements.
County/MNDOT Review:	This plat has been sent to Steele County as it is adjacent to State Avenue (CSAH 45). Steele County has approved the plat.

Staff Review:

Staff recommends approval of the preliminary and final plat of Thompson Corner Addition with the following conditions:

1) The title opinion shall be approved by the City Attorney prior to recording of the final plat.
2) The final plat shall be recorded within 60 days of the date of approval.
3) Perimeter drainage and utility easements shall be dedicated on the final plat as proposed.
4) See Engineering comments for engineering and stormwater conditions.
5) No access allowed from State Avenue (CSAH 45). Access is only allowed from Kilworth Drive per Steele County approval.

Planning Commission:

Preliminary and Final Plat of Thompson Corner Addition, which is a 3.35± acre tract of land zoned I-2 Heavy Industrial District, owned by Thompson Sanitation Inc. and located at 1255 Kilworth Drive NW, was presented by Planning Specialist Sydnee Stroeing. (Refer to report on file.) She said that they have heard back from Soil and Water Conservation and they have found no evidence of wetlands on this property.

Public hearing for both requests opened at 5:38 pm. John Schulte of Jones, Haugh, and Smith was present on behalf of Thompson Sanitation. He said that the applicant has one request. One of the engineer's comments were for a 10' easement on all sides of the proposed plat. There are already easements on all sides of this plat except the southeast side. Assuming that the request is due to either future utilities or drainage, the applicant would request that the requirement would be a 5 foot easement on their side and similarly the City could provide a 5 foot easement on their side of the lot line as is typically done. Andy Michaletz, who owns property on State Avenue near this request, handed out pictures he took about a half an hour ago. The pictures were of a similar facility that came before this very Commission a few years ago for a conditional use permit for the same type of business with outdoor storage and dumpsters. They were told to keep it neat and orderly; it's anything but that. He said he doesn't know what we can do with a conditional use permit to put some more teeth into it. He said it looks like a nice plan, but he doesn't know how the business will be run. He doesn't know if it's an unenforced conditional use permit, but that's what happens—there are mattresses piled up, appliances, roll-offs with garbage in them, stuff blowing around. He said he thinks of the existing recycling facility run by a different company. It's a disaster—especially on Monday mornings. There's stuff not attended to over the weekend and it piles up—it's like a garbage dump. We want to prevent that from happening. We have a wonderful commercial corridor out there on State Avenue. He wants to make sure what is decided today has more than just vague language. He said the submitted drawing shows that all of the dumpsters are placed within the required 50 foot setback. He said he just wants to clarify that the conditions are 50 feet, as the drawing is showing the storage within the 50 feet. He said it's a tough thing because the County wants this here. He said he thinks it should be out at the new County shop. He said the conditional use runs for the entire duration of the property, so what the Commission decides today can run in perpetuity. He said there has to be a way to balance the needs of the applicant and the neighbors and community. Public hearing closed at 5:44 pm. Eickhoff asked about the 50 foot setback and if that condition would change the set up. Kruschke said absolutely. They will have to slide the dumpsters back onto the paved area and there is plenty of space to accomplish that. The setbacks will have to be adhered to. Meier said the conditional use permit is based on several items and asked if the permit can be retracted? Kruschke said that is correct—through a hearing process as laid out in the Zoning Ordinance, a conditional use permit can be reviewed and thus revoked if they are not meeting the conditions. Eickhoff said that overall this is a need in the community. Trash blowing around is definitely an issue, but he said he thinks they are doing some things to address that.

A motion was made by Eickhoff and seconded by Springer-Gasner to recommend City Council approval of this preliminary and final plat of Thompson Corner Addition with the following conditions:

1) The title opinion shall be approved by the City Attorney prior to recording of the final plat.
2) The final plat shall be recorded within 60 days of the date of approval.
3) Perimeter drainage and utility easements shall be dedicated on the final plat as proposed.
4) See Engineering comments for engineering and stormwater conditions.
5) No access allowed from State Avenue (CSAH 45). Access is only allowed from Kilworth Drive per Steele County approval.

All Commissioners voting Aye, the motion carried.

1255 Kilworth Drive NW
City of Owatonna

Site

April 25, 2023

1:6,000

1 in = 500 ft

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

1255 Kilworth Drive NW
City of Owatonna

Site

April 26, 2023

1:2,100

1 in = 175 ft

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VICINITY MAP

KEYNOTES

1. 6" PVC SCHED. 40 SEWER SERVICE WITH CLEANOUTS. EXTEND TO WITHIN 5' OF BUILDING. COORD. WITH MECH.
2. 4" DI CL 52 WATER SERVICE. CONNECT TO G.V. @ R.W. EXTEND TO WITHIN 5' OF BUILDING. COORD. WITH MECH.
3. MONUMENT SIGN

PARKING CALCULATION:

ZONED: B-2 CENTRAL BUSINESS DISTRICT

STALLS REQUIRED: 8 + 1 PER 2 EMPLOYEES + 1 PER 500 SF

STALLS PROVIDED: 8 + 1 + 4 = 13

FILL IN FLOOD FRINGE:

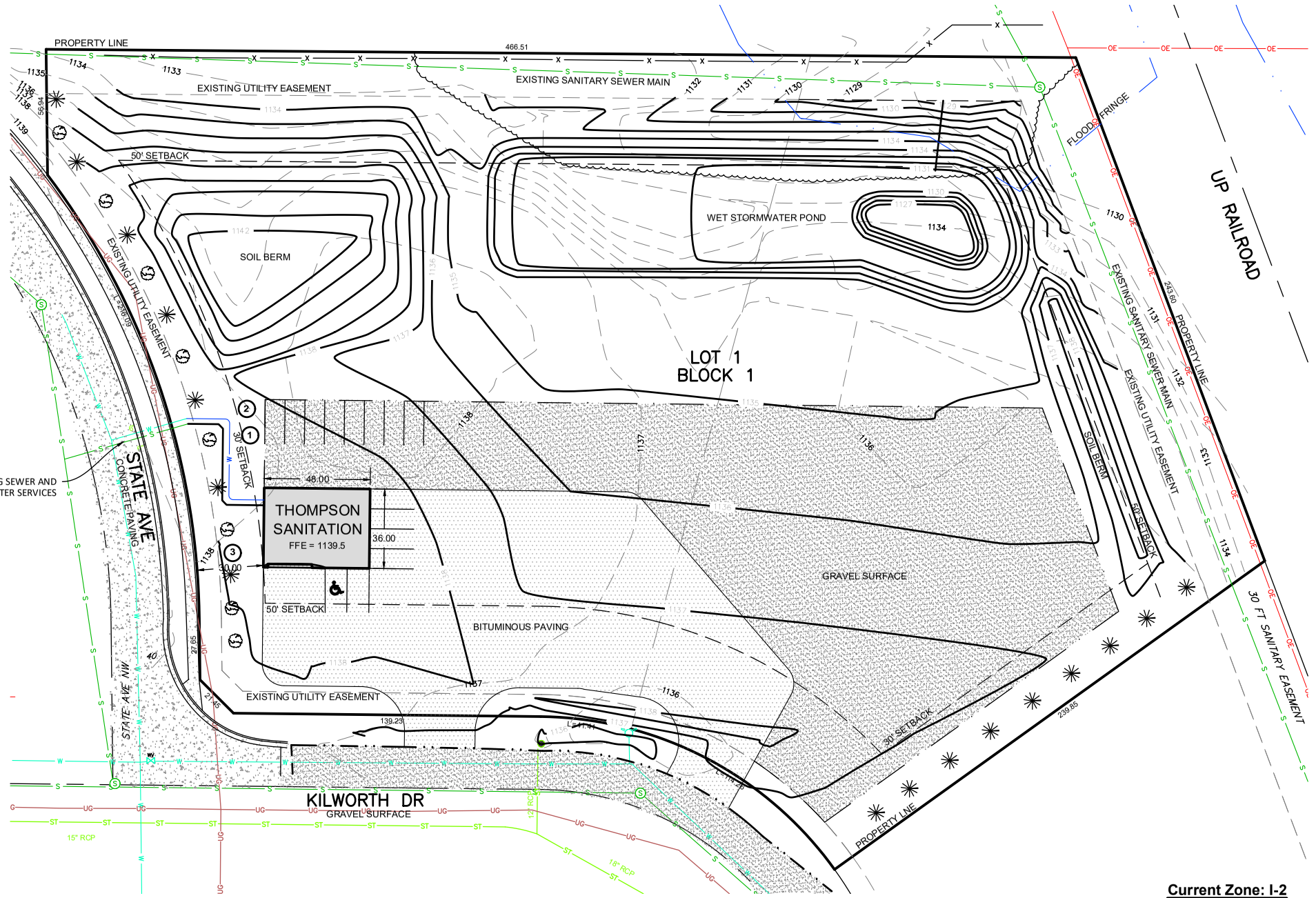
FILL BELOW ELEVATION 1130: 123 CY

GENERAL STORMWATER NOTES:

SITE AREA:	145814 SF
DISTURBED AREA:	125477 SF
EXISTING IMPERVIOUS SURFACE:	0 SF
PROPOSED IMPERVIOUS SURFACE:	54216 SF
FUTURE IMPERVIOUS SURFACE:	0 SF

PEAK STORMWATER FLOWS LEAVING SITE (CFS):

	2-YEAR	10-YEAR	100-YEAR
EXISTING	1.70	6.99	21.79
DESIGN	0.95	2.67	4.34



LEGEND

- = 5/8 inch X 16 inch iron monument (capped RLS 52646)-Placed
- = Iron monument-Found
- = Drill Hole
- P = Recorded Plat Distance
- D = Recorded Deed Distance
- M = Measured Distance
- W = Water Main
- S = Sanitary Sewer
- ST = Storm Sewer
- G = Gas Main
- UT = Underground Telephone
- OT = Overhead Telephone
- FO = Fiber-Optics
- UE = Underground Electric
- OE = Overhead Electric
- UTV = Underground TV
- = Soil Boring
- = Yard Hydrant
- E = Electric Meter
- G = Gas Meter
- F = Fiber-Optics Box
- T = Telephone Pedestal
- A = AC Unit
- R = Refrigeration Unit
- TV = Television Pedestal
- W = Water Meter
- = Power Pole
- = Catch Basin
- ST S = Manholes
- = Concrete Surface
- = Bituminous Surface
- = Gravel/Bituminous Surface

BENCHMARK

Top hydrant nut located at the center of the site on Kilworth Dr
Elevation = 1137.76

FLOOD ZONE DESIGNATION

THE SURVEYED PROPERTY LIES IN ZONE A, AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NO. 27147C0151C, EFFECTIVE DATE, December 2, 2011.

THE BASE FLOOD ELEVATION IS ELEVATION 1130.

LEGAL DESCRIPTIONS OF RECORD

Lot 15, Block 1, STATE AVENUE ADDITION NO. 2;
AND
Lot 11, Block 1, GAELIC ADDITION;

PROPOSED LEGAL DESCRIPTION

Lot 1, Block 1, THOMPSON CORNER ADDITION

Current Zone: I-2

Proposed Zone: B-2
Setbacks for Buildings:
Front Yard = 30'
Side Yard = 10'
Rear Yard = 20'

Address

1255 Kilworth Dr NW
Owatonna, MN 55060

30 0 30
HORIZ. SCALE FEET

DRAWINGS ON 11x17 SHEETS ARE HALF SCALE

REV.	BY	DATE	REVISION DESCRIPTION
-	-	-	-

JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 507-451-4598

DESIGNED: JHS5
DRAWN: JHS5
CHECKED: BJ
Date: 4/18/23
DWG: 23-1030

I hereby certify that this plan, specification, or 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.

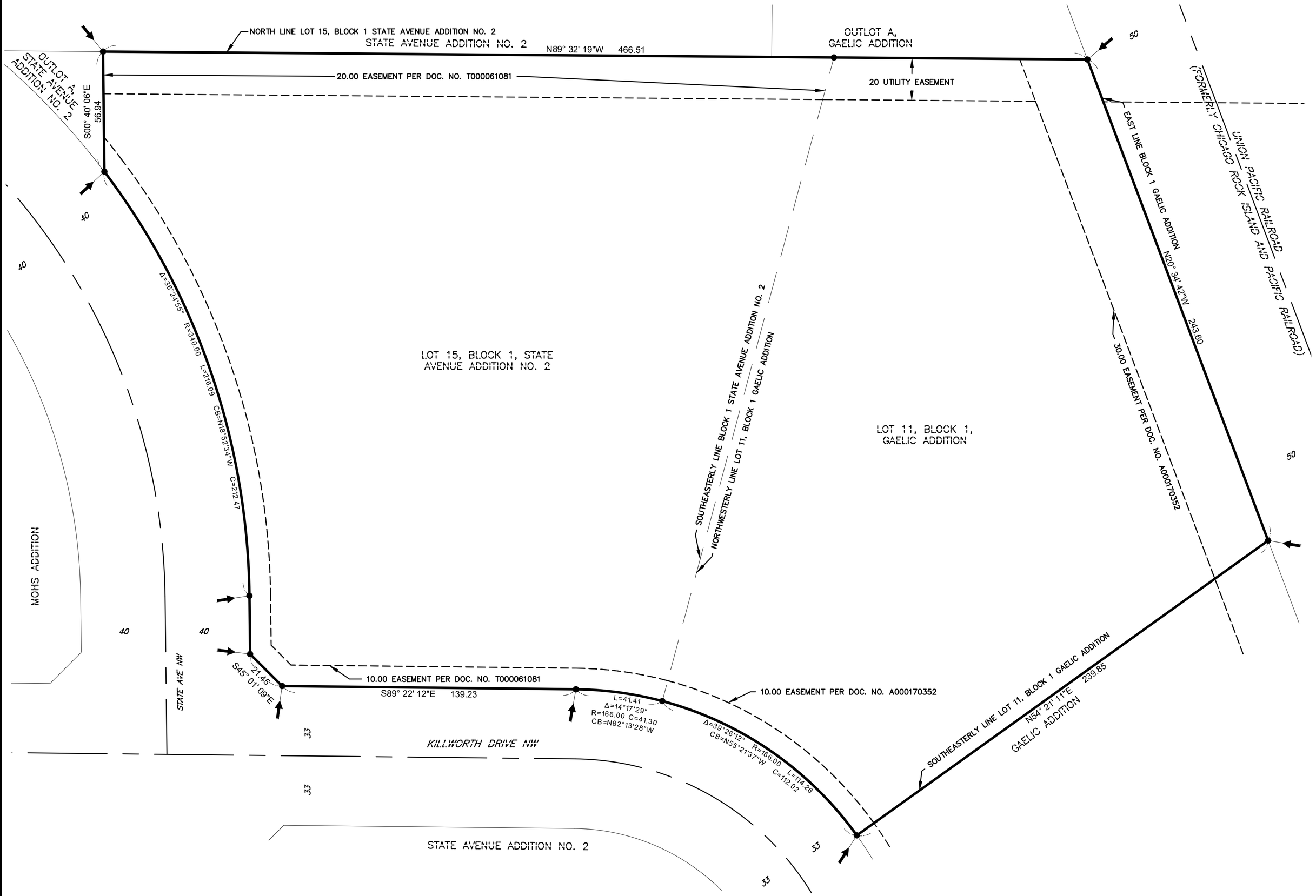
John H. Schulte V
License No. 44639 Date: 4/18/23

THOMPSON SANITATION
1255 KILWORTH DR NW
THOMPSON CORNER ADDITION
PRELIMINARY PLAT

SHEET 1 OF 1

OFFICIAL PLAT

THOMPSON CORNER ADDITION



LEGEND

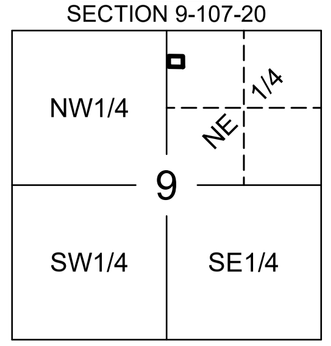
- = 5/8 inch x 16 inch iron monument (capped LS 52646)-Placed
- = Iron monument - Found
- = Addition Corner

BASIS OF BEARING SYSTEM

All bearings are based on the east line of State Avenue NW, which is assumed to be N00°24'49"W

VICINITY MAP

SECTION 9-107-20



KNOW ALL PERSONS BY THESE PRESENTS THAT: Thompson Sanitation Inc., a Minnesota Limited Liability Company, owner of the following described property:

Lot 15, Block 1, STATE AVENUE ADDITION NO. 2

AND

Lot 11, Block 1, GAELIC ADDITION, OWATONNA, MINNESOTA.

Has caused the same to be surveyed and platted as THOMPSON CORNER ADDITION, and does hereby dedicate to the public for public use the public ways and and utility and access easements as created herewith, as shown on this plat.

In witness whereof said Thompson Sanitation Inc, a Minnesota Limited Liability Company, has caused these presents to be signed by its proper officer this

_____ day of _____, 20____.

Thompson Sanitation Inc, a Minnesota Limited Liability Company

_____
Frank Thompson, President

STATE OF MINNESOTA

This instrument was acknowledged before me this _____ day of _____, 20____ by Frank Thompson, President of Thompson Sanitation Inc., LLC, a Minnesota Limited Liability Company.

_____
John Henry Schulte, Notary Public, State of Minnesota
My Commission Expires January 31, 2026

I, Scott A. Tuchtenhagen, hereby certify that this plat was prepared by me or under my direct supervision; that I am a duly Licensed Land Surveyor in the State of Minnesota; that this plat is a true and correct representation of the boundary survey; that all mathematical data and labels are correctly designated on this plat; that all monuments depicted on this plat have been, or will be set within one year; that all water boundaries and wet lands, as defined in Minnesota Statutes, Section 505.01, Subd. 3, as of the date of this certificate are shown and labeled on this plat; and all public ways are shown and labeled on this plat.

Dated this _____ day of _____, 20____.

_____
Scott A. Tuchtenhagen, Licensed Land Surveyor
Minnesota License No. 52646

STATE OF MINNESOTA

This instrument was acknowledged before me this _____ day of _____, 20____ by Scott A. Tuchtenhagen, a licensed land surveyor.

_____
John Henry Schulte, Notary Public, State of Minnesota
My Commission Expires January 31, 2026

This plat of THOMPSON CORNER ADDITION was approved and accepted by the City Council of the City of Owatonna, Minnesota at a regular meeting thereof held on the

_____day of _____, 20____, and said plat is in compliance with the provisions of Minnesota Statutes, Section 505.03 Subd. 2.1

_____
Kris M. Busse, City Administrator

I hereby certify that in accordance with Minnesota Statutes, Section 505.021, Subd. 11, this plat has been reviewed and approved this _____ day of

_____, 20____.

_____
Scott A. Tuchtenhagen, County Surveyor
Steele County, Minnesota

No delinquent taxes and transfer entered this _____ day of _____, 20____.

_____
Brenda Blood, County Auditor
Steele County, Minnesota

I hereby certify that taxes payable for the year 20____ on the land hereinbefore described have been paid this _____ day of

_____, 20____.

_____
Catherine Piepho, County Treasurer
Steele County, Minnesota

Filed in the Office of the Registrar of Titles, this _____ day of_____ 20____,

at ____O'clock ____M., in Book _____ of Plats, Page_____,

as Document Number_____

_____
Rick G. Kvien, County Registrar of Titles
Steele County, Minnesota

JONES HAUGH & SMITH, INC.
PROFESSIONAL ENGINEERS & LAND SURVEYORS

SHEET NO. 1 OF 1 SHEETS

Engineering Department

Date: 04/30/2023
Project: Thompson Corner addition
Preliminary and Final Plat Application #: PP-23-3 & FP-23-2

Staff Review Comments:

Engineering

1. 10’ drainage and utility easement will be required on all proposed lot lines.

Stormwater

2. All new development and redevelopment is subject the following provisions:
    a. City of Owatonna Stormwater Management Code 52.00.
    b. City of Owatonna Grading Permit is required.
    c. Minnesota Pollution Control Agency (MPCA) NPDES/SDS MS4 Permit MNR040000 post construction stormwater management criteria.
    d. MPCA NPDES/SDS Construction Stormwater General Permit MNR100001.
3. Long-Term Operations and Maintenance Plan will be required for all permanent stormwater facilities.
4. Recorded Stormwater Facility Maintenance Agreement is required.
5. Final topographic survey and as-built will be required.

Please resubmit any revised or updated documentation along with a response to all comments above. Should you have any questions, please call 507.444.4350.

Thank You

Sean Murphy, PE
Director of Public Works and City Engineer

Community Development Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Greg Kruschke, Community Development Manager
SUBJECT: Resolution 43-23: Preliminary Plat - Mineral Springs Estates

Purpose:
Approve the Preliminary Plat of Mineral Springs Estates.

Background:
See attached staff report.

Budget Impact:
None at this time. The City will have long term maintenance of the public street and other improvements to be defined in the development agreement.

Staff Recommendation:
Staff recommends approval as recommended by the Planning Commission.

Attachments:
1. Res 43-23 Preliminary Plat - Mineral Springs Estates - Copy
2. Mineral Springs Estates PP Staff Report

RESOLUTION NO. 43-23

A RESOLUTION APPROVING PRELIMINARY
PLAT OF MINERAL SPRINGS ESTATES

WHEREAS, on May 16, 2023, the City Council accepted and approved the preliminary plat of Mineral Springs Estates to the City of Owatonna, as the same was approved and recommended by the Planning Commission of the City.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Owatonna, Minnesota:

1. That said plat is in accordance with and conformity to the plans and regulations established by the City for a comprehensive plan for the development of the City.

2. That said plat be and the same hereby is approved with the following conditions:

   a) The final plat shall be approved within one year of the date of approval of the preliminary plat.
   b) The title opinion shall be approved by the City Attorney prior to recording of the final plat.
   c) The final plat is contingent upon the approval of the PUD referred to as RZ-2.
   d) The development agreement will contain provisions and timing with regards to the construction of Stoneridge Lane and the trunk main for the sanitary sewer.
   e) A development agreement will need to be recorded along with the final plat.
   f) A final decision on the Environmental Assessment Worksheet shall be made by the City Council prior to approval of the final plat.
   g) The plans shall adhere to the approved wetland delineation and replacement plan as determined by the Soil & Water Conservation District.
   h) Temporary turn arounds are required to be constructed at all dead end streets that do not connect immediately as required per fire code.
   i) All conditions included in the City Engineer’s memo shall be met.

3. That the Clerk cause a certified copy of this resolution to be filed in the office of the County Recorder of Steele County, Minnesota, and to be given to the applicants of said plat.

Passed and adopted this _____ day of _____, 2023 with the following vote:

Aye __; No __; Absent __.

Approved and signed this _____ day of ____, 2023.

_____
Thomas A. Kuntz, Mayor

ATTEST:

_____
Kris M. Busse, City Administrator/City Clerk

May 5, 2023

To: Planning Commission
From: Community Development Department
RE: Preliminary Plat of Mineral Springs Estates

Background

Stephen Wheeler, Prairie LaSalle Partners, and Chad Lange, Festal Farms are requesting preliminary plat approval of Mineral Springs Estates, a 13 lot and 12 outlot residential development of 82.72 acres east of River Springs Waterpark. The property is being replatted into a master planned neighborhood with a multitude of housing types.

The applicant is planning to construct 7th Avenue NE to extend into the property. The east / west street will be constructed with phase 1A as well. Mass grading will occur for all of Phase 1. The Developer has indicated that all construction traffic will be using Outlot D for the grading and infrastructure construction.

Outlots B, D, & G make up what will be called Stoneridge Lane NE. The City views this street as a local collector as well as a key utility corridor. The Sanitary Sewer Study shows a 24" trunk sanitary sewer main is proposed in this right of way. This trunk main is needed to service the land to the east. This main needs to be constructed through this development and will be a requirement of future phases within the development agreement.

The developer has requested a rezoning request for a PUD for all of this land. Details regarding the PUD and full development are included in staff report RZ-2.

Application Review:

Applicant/Owner: Prairie LaSalle Partners / Chad Lange, Festal Farms

Location of Property: East of St Paul Road and north of Lee Street

Existing Zoning: To be zoned PUD, Planned Unit Development

Existing Land Use: The land is currently vacant.

Report Attachments:
1. Location Maps
2. Preliminary Plat

Proposed Development:

Size of Subdivision: 82.72± acres

Number of Lots: 13 new lots and 12 Outlots

Lot Configuration:	The lots are generally rectangular in shape. The outlots are irregularly shaped to match future development areas or rights of way.
Street Pattern:	7th Avenue NE will be extended to service this subdivision. A new public street will be constructed east and west. A private driveway will be constructed for access to the units in Blocks 3 & 4. Temporary turn arounds will need to be constructed on all streets that are dead ends temporarily.
Services:	Services are available in 7th Avenue NE and will be extended north to service this phase.
Timing/Financing of Development:	The applicant is hoping to record the final plat soon and start construction this summer on phase 1.
Outstanding Assessments:	None.
Floodplain:	None.
Wetlands:	The property has numerous wetlands. Discussion is ongoing between approved delineations, and which one supersedes. The approved delineation and replacement plan will need to be adhered to. The developer is proposing to provide a minimum of a 20' setback from all wetlands.
Storm Water Drainage:	The applicant is proposing to construct stormwater facilities on site to meet the ordinance.
Easements:	The plat proposes perimeter lot easements throughout the development.
County/MNDOT Review:	This plat is not adjacent to a state or county ROW.

Staff Review:

Staff recommends approval of the preliminary plat of Mineral Springs Estates with the following conditions:

1) The final plat shall be approved within one year of the date of approval of the preliminary plat.
2) The title opinion shall be approved by the City Attorney prior to recording of the final plat.
3) The final plat is contingent upon the approval of the PUD referred to as RZ-2.
4) The development agreement will contain provisions and timing with regards to the construction of Stoneridge Lane and the trunk main for the sanitary sewer.

5) A development agreement will need to be recorded along with the final plat.
6) A final decision on the Environmental Assessment Worksheet shall be made by the City Council prior to approval of the final plat.
7) The plans shall adhere to the approved wetland delineation and replacement plan as determined by the Soil & Water Conservation District.
8) Temporary turn arounds are required to be constructed at all dead end streets that do not connect immediately as required per fire code.
9) All conditions included in the City Engineer's memo shall be met.

Planning Commission:

VACA-23-4, which is a request by Chad Lange, Festal Farms, and Prairie LaSalle Partners to vacate all rights of way and utility easements within Good Samaritan Addition, was presented by Community Development Manager Greg Kruschke. (Refer to report on file.) Back in the late 2000s there was a plat called Good Samaritan Addition as well as a PUD. With that final plat, it laid out these streets of 7th Avenue NE and Stoneridge Lane NE. At this time the applicant is requesting to vacate the streets as well as the easements. To date there are no utilities or anything that actually physically exists on this property.

Application RZ-2, which is a request by Prairie LaSalle Partners / Chad Lange, Festal Farms for a Planned Unit Development (PUD) of Mineral Springs Estates, a residential development with single family, two family and multi family units to be constructed, was presented by Community Development Manager Greg Kruschke. The total development consists of 328 units over the 82 acres for a total density of 3.96 units per acre. The development also consists of more than 16 acres of open space. (Refer to report on file.) Kruschke explained the different types of units within the development. There is single family detached around the outside transitioning to some heavier, more dense units in the center of the development and then transitioning back to single family detached units again. The intent of this development is to create a walkable neighborhood. They have sidewalks on both sides of all streets and a number of 10 foot wide trails. They are maintaining areas around the wetlands. The development has submitted an Environmental Assessment Worksheet that will be published by the Environmental Quality Board next Monday. The Planning Commission will be holding a hearing on that later. There will be a 30 day comment period and eventually the City Council will need to determine either a finding of no significant impact or a determination for an environmental impact statement. The plan is that they will all marry at the July 5 City Council meeting. The developer held a neighborhood meeting on Thursday, May 4, and his understanding was that 20-25 people attended. He said that there are a number of waivers that are being requested that vary from standard zoning requirements. They have a private street, which requires a PUD. They also have multiple principal buildings on one lot. They will come forward with a Common Interest Community plat so that they can individually sell these units separately. They'll have an association that maintains all of the common space. They're requesting that some units have a closer front yard setback of 20 feet because the parking will be in the back on the private drive. With that, they also want to balance the street, so they are requesting that the single family detached homes across the street have a 25 foot front yard setback. They are requesting a 15 foot setback on the corner lots. They're asking for a minimum side yard setback of 6 feet that will meet a total of 15 feet between structures. They're asking for a rear setback variance of 25 feet for Outlot K. With the detached garages, they will have 5 feet between garages. Phasing for the proposed

development is a four-phased development. Phase 1A allows them to start construction of units this fall. As they're grading this, they will mass grade Phase 1A and Phase 1B, but Phase 1B will probably be next spring. Phase 2 on the west and Phase 3 on the east and Phase 4 on the north end. They hope to finish this in 8 to 10 years but that will depend on the market. Some of the concerns will be addressed in a development agreement. They meet all of the density requirements. Overall parking is a minimum of two stalls per unit. The City has identified a sanitary sewer main on Stoneridge Lane NE. Stormwater will outlet into a pond for Phase 1A. He shared a number of photos of what the units will look like. Gable roofs are a theme as well as a front porch entrance area. Colors tend to be earth tones and the garages will be required to tie into the principal structures. He said that the City is requiring at least three species of trees throughout. The trash enclosure will need to be discussed. They do need a lighting plan for the private areas. They will also be providing sidewalks. There are more than 16 acres of open space. It's undecided if this will be privately owned. They are proposing a monument style sign at each of the six entrances. Staff is recommending that those signs be knocked down to 32 square feet which is our standard, and also that each of these signs is located outside of the public right of way. That takes away any ownership issues and keeps them away from the snowplows.

Preliminary Plat of Mineral Springs Estates, which is an 82.72± acre tract of land to be zoned PUD, Planned Unit Development, requested by Prairie LaSalle Partners, owned by Chad Lange, Festal Farms and located east of St. Paul Road and north of Lee Street NE, was presented by Community Development Manager Greg Kruschke. (Refer to report on file.) They did a traffic study and there weren't any issues and no recommendations for anything different.

Public hearing for all three requests opened at 6:18 pm. Gary Sigler, 2819 St. Paul Road NE, asked how they came up with the name Mineral Springs Estates when it's not anywhere close to Mineral Springs. Craig Britton with Widseth, representing the developer, was present and said even though the rights of way will vary, the street width will remain the same at 37 feet. The nice thing about the layout that is being proposed with parking in the rear of the multi-family units is that it eliminates curb cuts on the street. He said as for the name, the developers have been in this area for a long time and that name kind of grabbed them. He said it is something that will provide a need for the community with the mix of housing units. He thanked the Commission for their time. Jennifer and Chris Candulo, 670 Lee Street NE, said they were at the neighborhood meeting and had a few questions and a few concerns. Jennifer said the first question is about the safety around the water park. Widseth said they'd be bringing their construction equipment off St. Paul Road. There is a lot of traffic that goes to the water park and she wanted to know what was in place to ensure safety during construction and after the development is finished. Chris said that Phase 1A has 7th Avenue NE as the only point of access for a period of time, even into Phase 1B. It looks like there are several homes, so there will be a lot of traffic, maybe 60-100 cars, moving up through the neighborhood up 7th Avenue NE with no other point of access into this section. He said you have Hemlock Avenue, that's not built out yet until some point in Phase 1B, maybe. There is a choke point on 7th Avenue NE and 26th Street NE. He said that there are many neighborhoods in town that have many access points. Here there is one access point for a brand new neighborhood. There need to be more access points so we are not funneling through a neighborhood. He said when they were doing Lee Street NE, they had put speedbumps from 26th Street NE because people thought it was a speedway. He said they need some protection as there are a lot of kids. Jennifer said that one of the concerns is that Phase 1B is one of the denser areas, and you will have one access point for a while. Chris said that there was talk of the ponds

reconditioning the water and that was dependent on the ponds being maintained. He wanted to know who's going to be maintaining the ponds. There weren't too many answers at the neighborhood meeting. If they're only good for 10 years, what happens after that? Jennifer said that another concern is the impact of traffic on 26th Street NE and St. Paul Road. It's currently a four-way stop, and prior to the roundabout being done at Cedar Avenue North and 26th Street, there was always a huge traffic back-up. Now you're adding the apartment buildings. She wondered if they would have more back-ups at that intersection. She wondered what safety and traffic control would be put in place because now it's just a crosswalk. The builders have talked about matching the current neighborhoods. She said that the lots don't match up with the current design, as the 11 proposed lots don't match up with the 10 lots to the south fronting on Lee Street, stating they are staggered. Jennifer said another question was within the easement, there are some fairly mature trees and they were concerned about whether they'd be able to continue to be there or would they be torn out? She said they had a couple of different answers on that. Chris said that there is quite a bit of waterflow when it rains. You can actually see a river of water coming through between lot lines. He said he understands that the desire is to push the water north rather than push it to the south and he wanted to know that was the actual plan. Tom McInerny, 675 Willow Brook Drive NE, which is somewhat to the south of Lee Street NE. He wanted to reiterate the terrific choke point for a large number of potential people moving into the area. The access points are restricted to only one access point. He said he appreciates the comment that it is a speedway. Further down the line there is an elementary school. The idea of putting a high density into that area at the same time as the apartment building going on by the roundabout—you're creating all kinds of traffic situations that he doesn't know if they're ready to handle yet. You're talking about traffic lights and roundabouts. He said there is an awful lot of stuff going into a small space all at once and he's concerned about that. He said that the wetlands that exist are minimal and it would be interesting to see how the flow plan is going to work. He said to the south of Lee Street where they are, they get an awful lot of water sliding down the rather poorly situated storm drains. It's a funny situation. Why the big move to put high density into a place that's maybe not so high density appropriate? Maria Hove, 675 Lee Street NE, said that traffic is a huge concern. She said it's really upsetting to hear a City person say that we don't need big, wide streets. She said that her street isn't a big street. If you lived on Lee Street, you would know. People park on both sides of the street, and sometimes you can't drive side by side. Their street is narrow. It has not held up. She and her husband put a request in to put the street in. It's falling apart at the end of street mostly because there are water issues in the neighborhood. She said if they get a bad rainstorm, they have to wonder, is this going to be the storm that I get a wet basement? They have a lot of water issues. The drainage pond at the end of the road doesn't get taken care of. It rises and rises and rises when there is a bad storm, and maybe someone complains to the City and finally someone comes out and does something about it. We can't do that with this development; somebody needs to know who's dealing with these ponds and who's taking care of them. It's not fair to the rest of them. The water has a natural flow in that area. Knowing what happens in her backyard and Tom McInerny's backyard, you guys were supposed to handle that. We're the high spot and it's supposed to drain a certain way, but it doesn't. There has been sitting water for four days. The City's opinion is, after so many days, if the water recedes, they're not going to deal with it. These developments will increase the water in their backyards. She said that Hemlock will not happen until those people on that one lot will sell their house. They won't sell to put that road through. She said 7th Avenue is it. She wants to see safety and people in the neighborhood are really concerned about water issues. Donna Bong, 710 Willow Brook Drive NE, said this is her fourth year here in Owatonna. She lives one house off

of 7th Avenue NE. She said that at school time, there is a lot of traffic on 7th Avenue. She said they were promised by the builder that construction traffic will not go up and down 7th Avenue and she hopes that's true. She said she was told by the builder that this would not happen, that his truck would be the only truck going through 7th Avenue. She said she came from the Chicago area where, when you were done with construction for the day, the last hour or so was spent cleaning the street. She said she's concerned about the mud on the street. Crossing 26th Street from 7th is deadly – it's not an easy cross. You have traffic coming from the north and south. There are people turning onto 7th Avenue. She said that she spent four minutes waiting to turn onto 26th Street this morning. She said that that crossing is deadly. Tom McInerny said that the speed limit is listed at 45. Donna said that if they don't believe her, go at 7:45 or 8:00 and try to cross the street. That really needs to be addressed from a safety issue. She said that the builders also promised they'd be using Stoneridge as their way in and out of the area. If they have to come down 7th Avenue that will be a huge issue. It's going to be eight to ten years, and they have to put up with that for eight to ten years? There's got to be a better way. Amy Bong, 710 Willow Brook Drive NE, said she works from home and she sees a lot. 90% of this town has a recreational vehicle. Their street is not wide. Why is it when she has called the police non-emergency number numerous times, nobody comes by, because she was told that they're supposed to rotate days which side they can park. Not one time did a police officer stop or ask them to move. There are little kids up and down that street—it's going to take someone being killed. She's seen the little kids up and down the street—cars have to go way around because you have a trailer, or a boat. She said if you're going to do this, make people rent something so that they can put RVs somewhere other than the street. She said there are already traffic issues on 26th Street. She has a kid who just learned how to drive and it's scary for him. She's worried that he's going to get hit or he's going to hit something. She said she's worried about safety issues. She said she comes from Chicago and she knows all about safety. There are a lot of issues in town that need to be addressed. She doesn't see enough police officers, there's always something going on, there's a volunteer fire department. There is staff, but God forbid there's a major emergency. She witnessed an accident on 26th Street last winter—a car full of kids got thrown into Good Shepherd parking lot. It takes 10-15 minutes for the police officer to get down the road because this town doesn't believe in salt because they're worried about the water. What are you going to do to make the streets better? You Band-Aid the streets. This is a big huge impact on that side of town. She asked if any of the Commissioners live on that side of town, because she sees it all day long. Something needs to be done with the RVs parking up and down the street because it's frustrating. She asked what they're going to do about Wi-Fi. She said she is a freight broker—she provides everybody everything here—food, clothing, and everything else. If she can't get Wi-Fi, she can guarantee dozens don't get what they need. She said that now we get a cable company that's based in Evansville, Indiana. Have you been there? You can see flying saucers because there's nothing there. She said the biggest concern is safety and RVs and boats on the street. She never sees a cop going up and down the street, even when she's called. There are no street lights in this town. If you don't have street lights, how are you going to see the boats parked on the side of road? This is a recreational state—you have space issues now. What are you going to do when you're adding all these people here and there is nowhere for them to go? She said she never saw the builder once last week, and her office window faces the street. She said she's the crotchety neighbor that's going to call on you because she doesn't think it's appropriate or right that you have your big vehicles blocking everything and the kids can't go up and down the street. If you're going to do that, you need to provide those cones or those kids or have a flagger sit up and down at every corner so someone doesn't get hit. Kids are getting hit at

school and God forbid it happens again. You're going to have all these people—you don't have enough staff. Marie Hove, 675 Lee Street NE, said that 7th Avenue is the only street. All the high density housing will have a private drive and will take care of cleaning the back part. The City is responsible for cleaning up 7th Avenue in the winter. She said that this winter she had a storm and she didn't have her road cleaned until 1 pm in the afternoon. She said last winter there were two storms that her street didn't get plowed out until 11 or 12:30 pm. She said that these people are paying an awful lot of money to live in this neighborhood, and they won't even be able to go to work. They don't live by the hospital, the fire station, or the cop shop. She said she doesn't know if we have enough plows or enough people. She's from Northern Maine. It's not unusual to get a foot of snow overnight, but the streets are plowed and sanded, and in the morning you didn't even know they had a foot of snow. Don't wait until 10 minutes to five to start plowing the roads. The roads are a big deal. When you put in a development like this, it will add traffic and that's a big deal. She said she doesn't know if they get that. Public hearing closed at 6:49 pm.

Kruschke said that the Planning Commission is a volunteer commission appointed by the mayor and City Council to serve and discuss land use issues, to take public comment, and give a formal recommendation to the City Council who makes the final decision. All of these comments will go to City Council packets as they go forward to City Council. He said that their comments are heard and will be passed on and they will see them verbatim. He said they had a concern on 7th Avenue when they started meeting with the developer, that's where the construction coming off St. Paul Road came from. They will keep that traffic off 7th Avenue and off Lee Street. They will build a construction entrance at the future Stoneridge Lane. There will be a lot of truck traffic coming in there. As we know those items continue to go with the truck traffic as they move forward. As we look big picture, Steele County is the road jurisdiction of 26th Street or otherwise known as County State Aid Highway 34. Steele County did a corridor study in 2015 on how future access would look on 26th Street moving forward. Hemlock Avenue was identified as the through street going north and south as the connection point. When Hemlock is constructed, the County plans to close 7th Avenue and that will no longer connect. 7th Avenue was built as a convenience moving into that area because Hemlock Avenue wasn't able to be constructed at that time. The plan and the reason for some of those delays is the four-way stop at St. Paul Road. The idea is to push the traffic to St. Paul Road and Hemlock Avenue in the future. 7th Avenue would be a secondary local street in the future. Theoretically the traffic would come out Lee Street to St Paul Road and down to 26th Street. That isn't always what happens in action, but that is a way to reduce those wait times. The applicant was required to provide a traffic study. Working with traffic engineers, we had them study a number of intersections around the area, from Hemlock Avenue and 26th Street, St. Paul Road and 26th Street, Lee Street and St. Paul Road, as well as the future connection on Stoneridge Lane and St. Paul Road. They are not recommending any intersection buildout improvements. We also had them examine the first phase. I believe they defined it as a five year lookout on a 2028 intersection analysis of 7th Avenue and 26th Street. Within the traffic study, they have not seen any issues or have any formal recommendations of improvements that were not included in the Steele County Corridor Study. Thus you don't see any recommendations with regards to traffic in our staff reports or from the City Engineer. We do recognize the street width item, however, the City tries not to regulate people parking on the street and allow people to have as many rights as possible as they go through there. The City does have future maintenance concerns with the wider streets. The majority of our City streets are actually 37 feet wide. Our higher classification streets are wider

to allow for turn lanes and things like that. A 37 foot wide street allows for two lanes of travel as well as parking on both sides of the street. If there are winter enforcement issues, that's an enforcement issue as well as speed limits. Pond maintenance is required and monitored by the Minnesota Pollution Control Agency. There are annual checks that are required that the City has a Water Quality Specialist that performs a mandated checklist. If the water is going up and down in those ponds, the ponds are designed to take the water and fill up and take 48 hours to drain back down. There are standards to the design of how these ponds are made. As far as the overland drainage—this is designed to drain to the backyard and then drains off to the sides. As some of these homes are built, some people re-grade these areas and we end up with damming issues that have to be resolved. As we go through, we know Widseth isn't very happy with the City with the amount of requirements as far as stormwater calculations, detailed grading plans, house elevations, emergency overflows, and a very detailed package of how the stormwater will work through this development. That is a very regulated process and very designed process by the Civil Engineer society There are some very common standards. The City does recognize that Owatonna has had a number of drainage issues, however that is why we have strengthened our standards. The review on this stormwater side will be thorough and accurate. Does that mean that there will be cattails or long grass around those ponds. Absolutely. Some of that is a quality issue to take the sediment out and help filter into those ponds, as well as keeping people out of the ponds. That's not always how they look, but that's not feasible with these stormwater ponds. As far as pedestrian safety – they do have the trail on St. Paul Road. Construction traffic is going to have to stop as they're coming in and out of there. Stoneridge Lane will be a regular street and a four-way intersection from now going forward. There will be some stop signs on Stoneridge at St. Paul Road. We did not want the construction traffic going down Lee Street and up to 7th Avenue from the safety side of things. We know there are a lot of kids out there, and if we can keep the heavy equipment away from the kids and pedestrians, it makes things a lot easier. He said as far as the lot lines matching on the south side of the development, we don't get into how they match across. At the end of the day, the houses aren't going to match as far as building envelopes. There are areas around town that stagger. We keep them how they fit in so the lots measure out so they can fit a structure. As far as tree preservation in the wetland area. That area will be clear cut in the stormwater area, but the wetlands will be avoided and there will be buffers around that area. We see the advantage to keeping as many trees as possible, and the developer has an interest in that, but we do have to see where the ponds work out. As far a development stormwater, generally speaking, when we develop areas and are able to get it out of original agricultural drainage where water flows in its natural direction, we are able to see a little improvement. That's where the emergency overflows come in and we make sure they are not blocked or impeded. That has been significantly tightened down in the last 10 years. As far as density, there is some in the middle. Overall, this development is just shy of 4 units per acre. When you get into high density areas, it's a little bit subject to the eye of the beholder, but the City has no concerns. This Lee Street area has some smaller lots than standard single family areas. The Lee Street neighborhood is actually zoned R-2, which is a low density residential district. It's a step down from an R-1 Single Family Residential District as far as lot size. They can go down to 66 foot wide lots that are only 7,800 square feet in area. Comparatively speaking, the R-1 lots are required to be 75 feet wide and 9,000 square feet in area. Generally speaking around town, there are a lot of 80 – 90 foot wide lots, but with the costs of utilities, there are certainly some benefit to doing some smaller lots. As far as snow plowing, we recognize that everyone has a desire to be one of the first plowed out. The City Council adopts a Snow and Ice Policy every fall and goes through a public process. That is where they set their priorities and

allocate their resources as far as number of plows, types of plows, number of drivers, and overtime. Those are more budgetary decisions than this group deals with. OPU has a street lighting policy. OPU will install those lights at the developer's expense. There is a full section in the development agreement on street lighting.

Craig Britton, Widseth stated that all of the stormwater is regulated by City and MPCA. The goal for the overall grading plan is to keep the water away from the existing residential. The overall flow is to the northwest the pond will serve all of Phase 1A and most of Phase 1B. There is some on the south side. That direction of flow is straight to the west. As far as any trees – our first objective is to get the water away. They will try to preserve as many trees as they can. He said there was concern about the maintenance of the pond. There is a lot of runoff from the farm field. With the increased grass coverage and impervious surface less silt will be carried to the ponds. They're taking it and capturing it into the pond and gives them a chance to settle out. That should help the sediment. As far as the streets holding up, we have heavy clays in Owatonna which holds moisture. We're proposed a sub-drainage tile system behind the curb. We find that this helps in the long term condition of the street. With the traffic, we do have to meet requirements with the fire department. They have to have one outlet per 50 units. As Phase 1B begins to develop, they will have two outlets. Wilson asked when Phase 1B begins, Stoneridge Lane will be open. Craig said not until Phase 2 goes. Eickhoff wondered if the City could address the traffic. Kruschke said that if for some reason Stoneridge needed go earlier or doesn't go in, it could be negotiated. That is why they are being platted as outlots at this time. There's the importance of Stoneridge from the City side of things. From the developer side of things, Stoneridge serves no purpose. They don't have a lot of need for it. Phase 2 is the balance we found for getting this constructed. We asked for a five-year look within the traffic study and it shows no issues. We have some streets that are designed to carry everything. Eickhoff said he used to live in that area and that is a busy intersection. Kruschke said that Hemlock is outside of this developer's control. This commission could make a recommendation that CC needs to look at that. It would have to be acquired and annexed. Up until this point, there was no need to connect Hemlock. Steele County does have spacing guidelines across 26th Street. Eickhoff said with Phase 1A, all of these lots won't be built this year. Craig said correct. Eickhoff said that gives the City time to see how that's developing.

A motion was made by Wilson and seconded by Meier to recommend City Council approval of this vacation of a portion of all public rights of way and all utility easements within the plat of Good Samaritan Addition as described above with the following conditions:

1) Vacation is contingent upon approval of the plat of Mineral Springs Estates.

All Commissioners voting Aye, the motion carried.

A motion was made by Peake and seconded by Meier to recommend City Council approval of this PUD of Mineral Springs Estates with the following conditions:

1) The Good Samaritan PUD adopted as Z-302 is hereby repealed and replaced with the PUD of Mineral Springs Estates.

2) The PUD is contingent upon the approval and recording of the Mineral Springs Estates Plat.

3) The Developer and the City shall enter into a Development Agreement laying out the roles and expectations of the development.

4) A full photometrics plan shall be submitted and approved by the City.

5) All signs shall be issued sign permits.

6) All CIC plats and declarations shall be submitted and approved by the City.

7) A turn around area shall be provided on all temporary dead end streets.

8) A trash enclosure plan shall be submitted to the City prior to the Second Reading.

9) All permanent signs shall be reduced to 32 square feet and a maximum of 8 feet in height.

10) All signs shall be located outside of the public right of way and on private property.

11) All grading, utility, and stormwater work shall be approved by the City Engineer prior to commencing any construction.

All Commissioners voting Aye, the motion carried.

A motion was made by Effertz and seconded by Eickhoff to recommend City Council approval of this preliminary plat of Mineral Springs Estates with the following conditions:

1) The final plat shall be approved within one year of the date of approval of the preliminary plat.

2) The title opinion shall be approved by the City Attorney prior to recording of the final plat.

3) The final plat is contingent upon the approval of the PUD referred to as RZ-2.

4) The development agreement will contain provisions and timing with regards to the construction of Stoneridge Lane and the trunk main for the sanitary sewer.

5) A development agreement will need to be recorded along with the final plat.

6) A final decision on the Environmental Assessment Worksheet shall be made by the City Council prior to approval of the final plat.

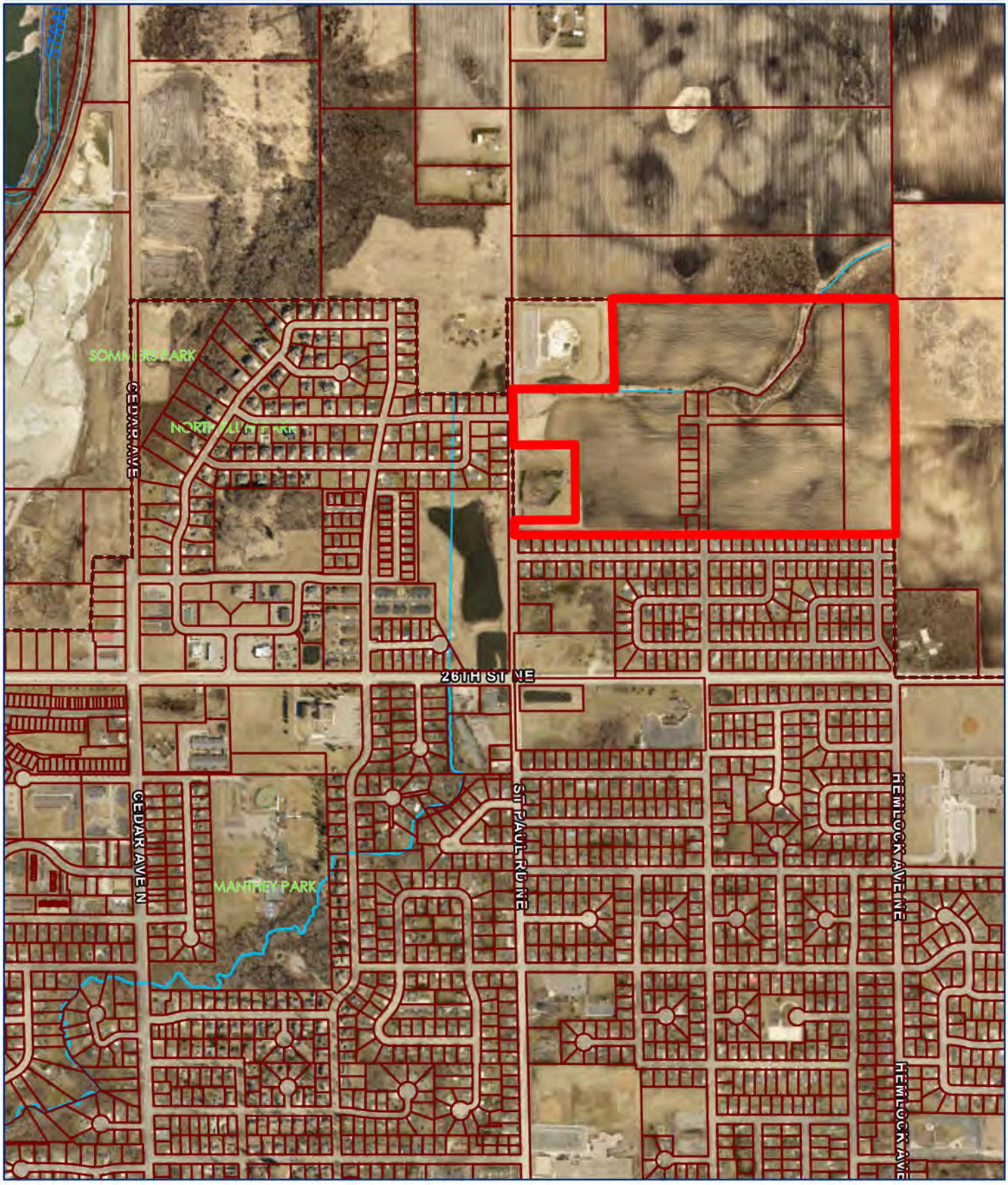
7) The plans shall adhere to the approved wetland delineation and replacement plan as determined by the Soil & Water Conservation District.

8) Temporary turn arounds are required to be constructed at all dead end streets that do not connect immediately as required per fire code.

9) All conditions included in the City Engineer's memo shall be met.

All Commissioners voting Aye, the motion carried.

Mineral Springs Estates
City of Owatonna



Site

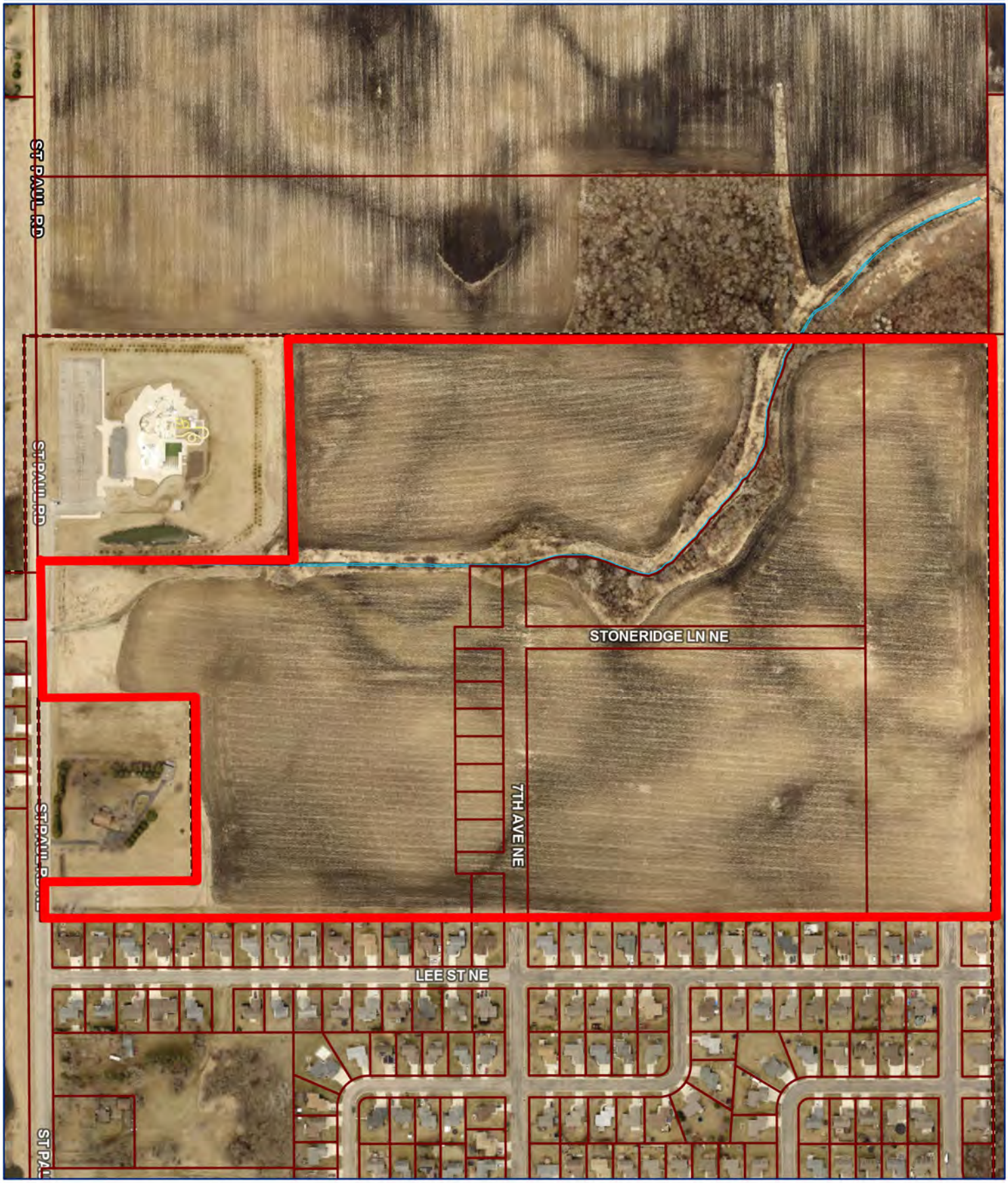
April 24, 2023

1:15,000

1 in = 1,250 ft

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

Mineral Springs Estates
City of Owatonna



Site

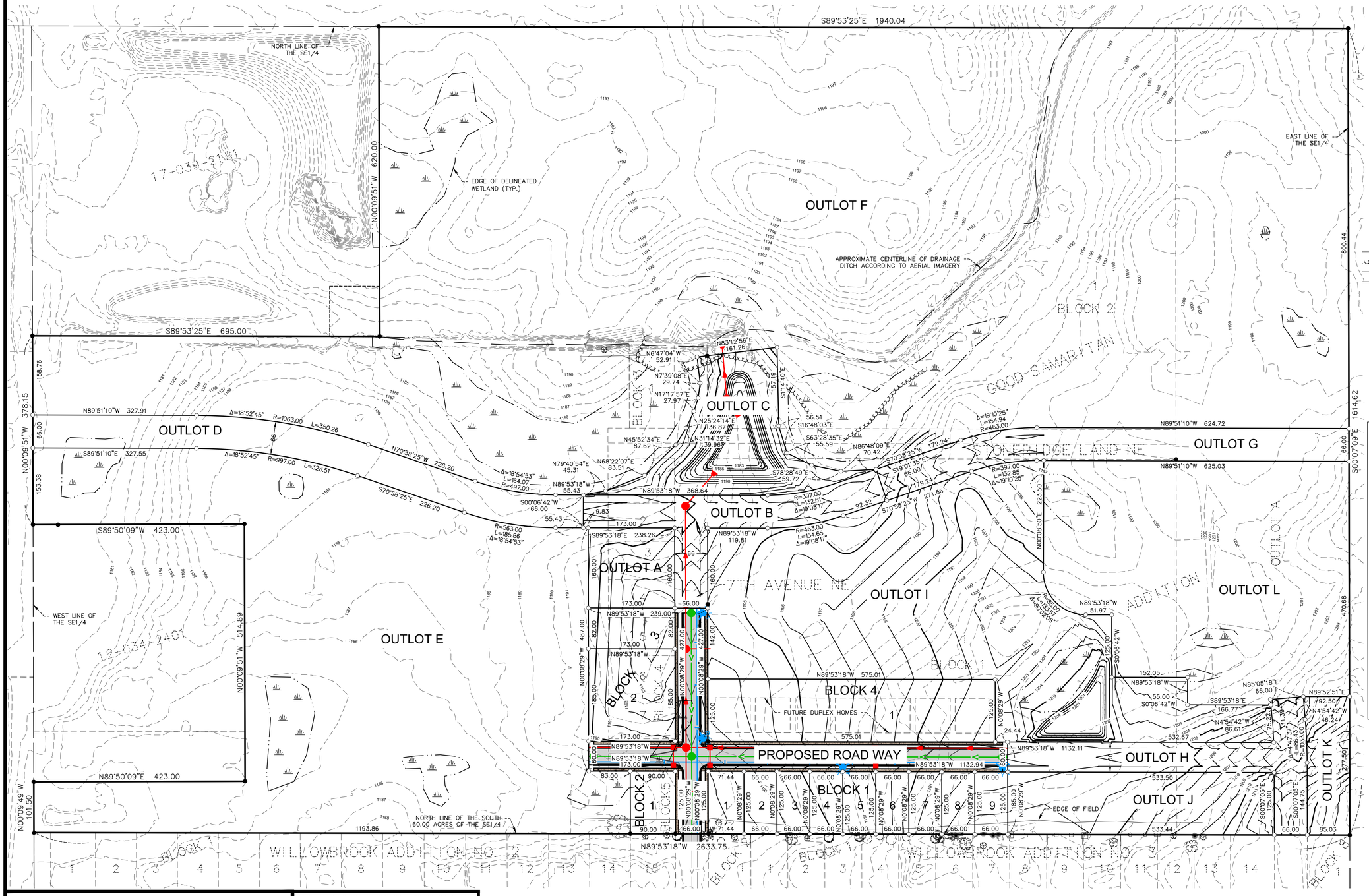
April 24, 2023

1:6,000

1 in = 500 ft

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This information is a compilation of records, information, and data located in various city, county, and state offices and other sources, affecting the area shown, and is to be used for reference purposes only.

PRELIMINARY PLAT OF
MINERAL SPRINGS ESTATES


S89°53'25"E 1940.04
NORTH LINE OF THE SE1/4
17-039-2100
N00°09'51"W 620.00
EDGE OF DELINEATED WETLAND (TYP.)
OUTLOT F
APPROXIMATE CENTERLINE OF DRAINAGE DITCH ACCORDING TO AERIAL IMAGERY
EAST LINE OF THE SE1/4
800.44
S89°53'25"E 695.00
158.76
378.15
N89°51'10"W 327.91
Δ=18°52'45" R=1063.00 L=350.26
OUTLOT D
66.00
N00°09'51"W
153.38
S89°51'10"E 327.55
Δ=18°52'45" R=997.00 L=328.51
N70°58'25"W 226.20
S70°58'25"E 226.20
N79°40'54"E 45.31
N68°22'07"E 83.51
N45°52'34"E 87.62
N25°24'14"E 36.87
N31°14'32"E 39.96
N6°47'04"W 52.91
N7°39'08"E 29.74
N17°17'57"E 27.97
N83°12'56"E 161.26
OUTLOT C
56.51
S16°48'03"E
S63°28'35"E 55.59
S78°28'49"E 59.72
N86°48'09"E 70.42
S70°58'25"W 179.24
S19°01'35"E 66.00
179.24
271.56
92.32
N89°53'18"W 55.43
N89°53'18"W 368.64
S00°06'42"W 66.00
9.83
55.43
OUTLOT B
R=397.00 L=132.61 Δ=19°08'17"
R=463.00 L=154.65 Δ=19°08'17"
R=563.00 L=185.86 Δ=18°54'53"
S89°50'09"W 423.00
S89°53'18"E 238.26
N89°53'18"W 119.81
66.00
OUTLOT A
160.00
173.00
N89°53'18"W 239.00
82.00
142.00
427.00
N00°08'29"W
487.00
185.00
125.00
BLOCK 4
BLOCK 3
BLOCK 2
BLOCK 5
WEST LINE OF THE SE1/4
12-039-2401
N00°09'51"W 514.89
OUTLOT E
OUTLOT I
7TH AVENUE NE
N89°53'18"W 51.97
R=25.00 Δ=90°00'00"
OUTLOT L
BLOCK 1
GOOD SAMARITAN ADDITION
N89°53'18"W 575.01
BLOCK 4
FUTURE DUPLEX HOMES
1
24.44
152.05
N89°53'18"W
55.00
S0°06'42"W
N85°05'18"E 66.00
S89°53'18"E 166.77
N89°52'51"E 92.50
N4°54'42"W 46.24
N4°54'42"W 86.61
75.25
311.39
532.67
N89°53'18"W 1132.11
N89°53'18"W 1132.94
PROPOSED ROAD WAY
OUTLOT H
OUTLOT J
533.50
533.44
EDGE OF FIELD
Δ=4°14'37" R=1033.00 L=76.52
Δ=4°11'43" R=1033.00 L=75.63

Engineering Department

Date: 05/05/2023
Project: Mineral Springs Estates
Preliminary Plat Application #: PP-23-4

Staff Review Comments:

Engineering

1. Easements shall be dedicated to the City for all municipal utilities not located within right-of-way.
2. East-West Roadway (Outlot D, B, and G) shall be designed to State Aid Standards.
3. The approximate location of Outlots D, B, and G are in the City's identified corridor for a future sanitary trunk main. Future development of this roadway will be required to include the trunk main and shall be designed to align with proposed elevations outlined in the "City of Owatonna Sanitary Sewer Study, 2004".
4. Proposed right-of-way widths are consistent with the City's requirements.
5. The City has no issue with the typical section dimensions. Pavement section will be reviewed with final plans and must meet City Standards.

Stormwater

1. All new development and redevelopment is subject the following provisions:
    a. City of Owatonna Stormwater Management Code 52.00.
    b. City of Owatonna Grading Permit is required.
    c. Minnesota Pollution Control Agency (MPCA) NPDES/SDS MS4 Permit MNR040000 post construction stormwater management criteria.
    d. MPCA NPDES/SDS Construction Stormwater General Permit MNR100001.
2. Stormwater BMPs shall be designed to meet all applicable requirements, both in the interim and ultimate buildout of each phase of the development.
3. Emergency overflows and routing for the development shall be shown in the preliminary plat. Easements in addition to what is outlined for drainage and utiltiies may be required as pad elevations have not been established.
4. Long-Term Operations and Maintenance Plan will be required for all permanent stormwater facilities not turned over to the City.
5. Recorded Stormwater Facility Maintenance Agreement is required for all facilities not turned over to the City.
6. Final topographic survey and As-built is required.

Sean Murphy, PE
Director of Public Works and City Engineer

City Attorney Office

PURPOSE MEMO

To: Mayor and City Council
From: Mark M. Walbran, City Attorney
Date: May 10, 2023
Subject: Parkview Heights-Revising Description of Utilities Easement

Purpose:

The purpose of Resolution 44-23 is to define the dimensions of a 1957 utilities easement.

Background:

In 1957 the City acquired a utility easement "along the south property line" of a 30 acre tract without any other specific description or dimensions. The Parkview Heights Apartments ("Parkview") at 1450 St. Paul Road NE are located within that original 30 acre tract. Parkview Heights, LLP ("Owner") has obtained financing of approximately 12 Million Dollars from the Minnesota Housing Finance Agency (MHFA) to rehabilitate the 48 apartments. The MHFA requires that the 1957 easement be described with particularity. The Owner has provided a survey of the utilities easement prepared by a licensed surveyor which has been reviewed and approved by the City Planning Department and the Owatonna Public Utilities.

Budget Impact:

There are no costs to the City.

Staff Recommendations:

Staff recommends adoption of Resolution 44-23.

Mark M. Walbran, City Attorney
140 E Main Street, PO Box 273, Owatonna MN 55060
Phone: 507-451-1173 Fax: 507-451-8916

RESOLUTION NO. 44-23
A RESOLUTION AUTHORIZING EXECUTION OF
AMENDED AND RESTATED UTILITY EASEMENT

WHEREAS, Parkview Heights, LLLP, the owner ("Owner"), of a 48-unit affordable housing project (the "Project") at 402-496 St. Paul Pl NE in Owatonna has obtained approximately $12,000,000 from the Minnesota Housing Finance Agency ("MHFA") to rehabilitate the Project to provide safe, quality, affordable housing for its current and future residents.

WHEREAS, in 1957, the City of Owatonna acquired an unconfined utility easement along the South property line of a 30-acre parcel, which included the Project area and which easement was not otherwise described.

WHEREAS, as a condition of obtaining the necessary financing the MHFA requires that the easement be specifically described.

WHEREAS, the City, the Owatonna Public Utilities, and the Owner all agree to the legal descriptions in the survey of the confined easements, which legal descriptions are set out in Exhibit B in the proposed Amended and Restated Utility Easement.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Owatonna, Minnesota as follows:

1. That the Mayor and City Administrator are hereby authorized to execute and deliver the Amended and Restated Utility Easement and, further, to execute and deliver any and all other documents and to do all other acts and things necessary and expedient to the Resolution.

Passed and adopted this ___ day of May, 2023 with the following vote:

Aye_____; No____; Absent____.

Approved and signed this ___ day of May, 2023.

_____
Thomas A. Kuntz, Mayor

ATTEST:

_____
Kris M. Busse, City Administrator/City Clerk/Treasurer

WINTHROP & WEINSTINE

May 10, 2023

Mr. Christian Fenstermacher
Director of Engineering and Field Operations
Owatonna Public Utilities
208 South Walnut Avenue
Owatonna, Minnesota 55060

Re: Parkview Heights - Revised Utilities Easement Areas Descriptions

Dear Mr. Fenstermacher:

We represent Parkview Heights, LLLP, a Minnesota limited liability limited partnership (the "Partnership").

The Partnership owns a 48-unit affordable housing project that is sited on property that is located, in general, at 402 – 496 St. Paul Place NE, Owatonna, Minnesota (the "Project"). The Partnership has closed on approximately $12,800,000 of financing for the rehabilitation of the Project to support the Project's ability to continue to provide safe, quality, affordable housing for the Project's current and future residents in the upcoming decades. The financing includes approximately $12,000,000 of debt financing from Minnesota Housing Finance Agency ("MHFA").

The Project site currently is subject to an easement for utilities (the "Original Easement") for the benefit of the City of Owatonna (the "City") and, in turn, Owatonna Public Utilities ("OPU"). The Original Easement was granted pursuant to an easement that was executed and recorded in 1957 by the then-site owner. The legal description of the easement area that is set forth in the Original Easement is not as definite and specific in its description of the area of the Project site to which the easement applies as is common for utility easements that are granted currently.

On behalf of the Partnership, we request that the utilities easement area on the Project site that is for the benefit of the City and, in turn, OPU be confined to the areas on the Project site that OPU needs for purposes of the electrical utilities that OPU provides. As we have discussed, the Partnership's request is based, in part, on MHFA's requesting in connection with its agreeing to close on the financing that it is providing for the Project's rehabilitation that the legal description of the utilities easement areas on the Project site be clarified.

Enclosed with this request letter is the draft of an Amended and Restated Utility Easement (the "Amended Easement") to which the Partnership and OPU, on behalf of the City, have agreed that includes the legal descriptions, and the related drawing, of the utilities easement areas on the

Project site that OPU has determined that it needs. The MHFA has reviewed the form of the Amended Easement and has confirmed that it approves the form.

On behalf of the Partnership, we respectfully request that the City, together with the Partnership, enter into, and execute, the Amended Easement.

If you have any questions or if we may provide any additional information or materials relating to this request, please contact either Ken Isaacson or me.

Kind regards.

Very truly yours,

WINTHROP & WEINSTINE, P.A.

Paul W. Markwardt

Paul W. Markwardt

Enclosure

cc: Mr. Ken Isaacson (w/enc.) (via email)

26228531v1

AMENDED AND RESTATED
UTILITY EASEMENT

KNOW ALL PERSONS BY THESE PRESENTS, that the undersigned, PARKVIEW HEIGHTS, LLLP, a Minnesota limited liability limited partnership (the "Owner"), for good and valuable consideration, the receipt whereof is hereby acknowledged, does hereby convey and warrant, free and clear of all encumbrances (except as noted below and on the attached Exhibit C), to the CITY OF OWATONNA, a Minnesota municipal corporation (the "Beneficiary"), an easement and the right to enter upon said described easement to place, lay and construct, operate, repair, maintain and replace electric utilities.

That said real property is located in the County of Steele, State of Minnesota, commonly known as 1450 St. Paul Road NE, Owatonna, Minnesota (also commonly known as 402 – 496 St. Paul Place NE, Owatonna, Minnesota), and is described as follows, to-wit:

See attached Exhibit A

The easements over, under and across the above-described real property, described below and shown on the attached drawing:

See attached Exhibit B for both the description and the drawing

The Owner covenants that it is the owner of the above-described lands and that the above-described lands are free and clear of encumbrances and liens of whatsoever character except those held by the following persons:

See attached Exhibit C

The Beneficiary's right to enter pursuant to this instrument shall be in a manner that reasonably is designed to minimize disturbance to the above-described real property, the Owner's property thereon, and the occupants of the improvements thereon. The Beneficiary agrees to repair, and/or to pay, or to reimburse the Owner, for the reasonable costs to repair, any damages caused by the Beneficiary's exercise of its right to enter. This paragraph does not limit the Beneficiary's direct access to the above-described real property in an emergency situation, but, in any such emergency situation, the Beneficiary must compensate the Owner for damages caused by directly accessing any of the easements granted pursuant to this instrument.

This instrument and the easements granted pursuant to this instrument are an amendment and restatement of the easement for electric transmission distribution and related purposes in favor of the Beneficiary, contained in Easement dated July 30, 1957, filed August 1, 1957, in Book 131, Page 4 (the "Original Easement"). By the Beneficiary's signing of this instrument, the Beneficiary acknowledges and agrees that this instrument, and the amended and restated easements granted pursuant to it, amend and restate the Original Easement and the easements granted pursuant thereto with respect to only that portion of the property to which the Original Easement applies that is described in the attached Exhibit A.

[THE REMAINDER OF THIS PAGE HAS BEEN LEFT BLANK INTENTIONALLY.
THE SIGNATURE / NOTARY PAGES FOLLOW.]

26067005v7

IN WITNESS WHEREOF, the undersigned has signed this instrument effective as of the _____ day of May, 2023.

OWNER:

PARKVIEW HEIGHTS, LLLP,
a Minnesota limited liability limited partnership

By: TCHDC Parkview Heights, LLC,
a Minnesota nonprofit limited liability company

By:_____
Barbara M. McQuillan
Chief Manager

ACKNOWLEDGMENT

STATE OF MINNESOTA)
) ss
COUNTY OF RAMSEY)

On this _____ day of May, 2023, before me, a notary public within and for said County, personally appeared Barbara M. McQuillan, the Chief Manager of to me personally known, who, being by me duly sworn, did say that she is the Chief Manager of TCHDC Parkview Heights, LLC, a Minnesota nonprofit limited liability company, the general partner of Parkview Heights, LLLP, a Minnesota limited liability limited partnership, named in the foregoing instrument as the Owner, and that said instrument was signed on behalf of said nonprofit limited liability company and said limited liability limited partnership by authority of the Board of Governors of the nonprofit limited liability company and said Chief Manager acknowledged said instrument to be the free act and deed of said nonprofit limited liability company and said limited liability limited partnership.

_____
Notary Public

IN WITNESS WHEREOF, the undersigned has signed this instrument effective as of the _____ day of May, 2023.

BENEFICIARY:

CITY OF OWATONNA,
a Minnesota municipal corporation

By:_____
Thomas A. Kuntz
Mayor

By:_____
Kris M. Busse
City Administrator

ACKNOWLEDGMENT

STATE OF MINNESOTA)
) ss
COUNTY OF STEELE)

On this _____ day of May, 2023, before me, a notary public within and for said County, personally appeared each of Thomas A. Kuntz and Kris M. Busse, to me personally known, who, being by me duly sworn, did say that he/she is the Mayor and the City Administrator, respectively, of the municipal corporation named in the foregoing instrument as the Beneficiary, and that said instrument was signed on behalf of said municipal corporation by appropriate authority pursuant to its municipal charter and said Mayor and said City Administrator, respectively, acknowledged said instrument to be the free act and deed of said municipal corporation.

_____
Notary Public

This instrument was drafted by:
Owatonna Public Utilities
208 S. Walnut Avenue
Owatonna, MN 55060

EXHIBIT A

Parcel 1:

All that part of the North 15 acres of the South Half of the Northeast Quarter of the Southwest Quarter of Section 3, Township 107 North, Range 20 West, Steele County, Minnesota, described by:

Commencing at the Northwest corner thereof; thence North 89 degrees 24 minutes East, assumed bearing, 480 feet along the North line thereof to the Northeast corner of Kubiatowicz Addition, being the True Point of Beginning; thence North 89 degrees 24 minutes East 135 feet along the North line thereof; thence South 0 degrees 36 minutes East 346 feet; thence North 89 degrees 24 minutes East 695.76 feet to the East line thereof; thence South 1 degree 55.5 minutes East 147.76 feet along the East line thereof to the Southeast corner thereof; thence South 89 degrees 15.5 minutes West 834.18 feet along the South line thereof to the Southeast corner of said Kubiatowicz Addition; thence North 0 degrees 36 minutes West 495.78 feet along the East line of said Kubiatowicz Addition to said True Point of Beginning.

Steele County, Minnesota
Abstract Property

Parcel 2:

All that part of the North 15 acres of the South Half of the Northeast Quarter of the Southwest Quarter of Section 3, Township 107 North, Range 20 West, Steele County, Minnesota, described by:

Commencing at the Northwest corner thereof; thence North 89 degrees 24 minutes East, assumed bearing, 940 feet along the North line thereof; thence South 0 degrees 36 minutes East 286 feet to the True Point of Beginning; thence North 89 degrees 24 minutes East 369.38 feet to the East line thereof; thence South 1 degree 55.5 minutes East 60.02 feet along the East line thereof to a point, last said point being North 1 degree 55.5 minutes West 147.76 feet from the Southeast corner thereof; thence South 89 degrees 24 minutes West 370.76 feet; thence North 0 degrees 36 minutes West 60 feet to said True Point of Beginning.

Steele County, Minnesota
Abstract Property

EXHIBIT B

Easement 1:

That part of the North 15 acres of the South Half of the Northeast Quarter of the Southwest Quarter of Section 3, Township 107 North, Range 20 West, Steele County, Minnesota, lying 15.00 feet easterly and northerly of a line described as commencing at the northwest corner of said South Half of the Northeast Quarter of the Southwest Quarter; thence South 89 degrees 43 minutes 41 seconds East, assumed bearing, along the north line of said North 15 acres, a distance of 482.36 feet to the east line of Kubiatowicz Addition as monumented, thence South 00 degrees 11 minutes 22 seconds West, along said east line Kubiatowicz Addition as monumented, 33.00 feet to the point of beginning; thence continuing South 00 degrees 11 minutes 22 seconds West 461.90 feet to the south line of said North 15 acres as monumented; thence South 89 degrees 53 minutes 53 seconds East along said south line as monumented 800.35 feet to the west line of the east 33.00 feet of said North 15 Acres and said line there terminating.

Steele County, Minnesota

Easement 2:

That part of the North 15 acres of the South Half of the Northeast Quarter of the Southwest Quarter of Section 3, Township 107 North, Range 20 West, Steele County, Minnesota, lying 15.00 feet southerly of a line described as commencing at a point on the East line of said North 15 acres 146.47 feet north of the southeast corner of said North 15 acres as monumented; thence North 01 degree 05 minutes 44 seconds West, assumed bearing, along said east line of the North 15 acres as monumented, a distance of 61.05 feet; thence North 89 degrees 43 minutes 41 seconds West 33.01 feet to the east line of the east 33.00 feet of said North 15 acres and the point of beginning; thence continuing North 89 degrees 43 minutes 41 seconds West 261.34 feet and said line there terminating.

Steele County, Minnesota

The above-described easements are described again and depicted on the Easement Description Sketch prepared by Sunde Land Surveying that follows this page and is included as part of this Exhibit B.

Easement Description Sketch For:
PARKVIEW HEIGHTS

That part of the North 15 acres of the South Half of the Northeast Quarter of the Southwest Quarter of Section 3, Township 107 North, Range 20 West, Steele County, Minnesota, lying 15.00 feet easterly and northerly of a line described as commencing at the northwest corner of said South Half of the Northeast Quarter of the Southwest Quarter; thence South 89 degrees 43 minutes 41 seconds East, assumed bearing, along the north line of said North 15 acres, a distance of 482.36 feet to the east line of Kubiatowicz Addition as monumented, thence South 00 degrees 11 minutes 22 seconds West, along said east line Kubiatowicz Addition as monumented, 33.00 feet to the point of beginning; thence continuing South 00 degrees 11 minutes 22 seconds West 461.90 feet to the south line of said North 15 acres as monumented; thence South 89 degrees 53 minutes 53 seconds East along said south line as monumented 800.35 feet to the west line of the east 33.00 feet of said North 15 Acres and said line there terminating.

AND

That part of the North 15 acres of the South Half of the Northeast Quarter of the Southwest Quarter of Section 3, Township 107 North, Range 20 West, Steele County, Minnesota, lying 15.00 feet southerly of a line described as commencing at a point on the East line of said North 15 acres 146.47 feet north of the southeast corner of said North 15 acres as monumented; thence North 01 degree 05 minutes 44 seconds West, assumed bearing, along said east line of the North 15 acres as monumented, a distance of 61.05 feet; thence North 89 degrees 43 minutes 41 seconds West 33.01 feet to the east line of the east 33.00 feet of of said North 15 acres and the point of beginning; thence continuing North 89 degrees 43 minutes 41 seconds West 261.34 feet and said line there terminating.

I hereby certify that this sketch, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Dated this 6th day of April, 2023

SUNDE LAND SURVEYING, LLC.

By: _____
Arlee J. Carlson, P.L.S. Minn. Lic. No. 44900

Sheet 1 of 2

2019-025-A T.107, R.20, S.03
2019025A-ESMT.dwg KDK

SUNDE LAND SURVEYING
9001 East Bloomington Freeway (35W) • Suite 118
Bloomington, Minnesota 55420-3435
952-881-2455 (Fax: 952-888-9526)
www.sunde.com

S89°43'41"E 135.00 [N89°24'E]

FOUND MAG NAIL

FOUND MAG NAIL

16TH ST. NE

33.00

33.00

STREET EASEMENT PER DOC. NO. 140458

N LINE OF THE N 15 ACRES OF S 1/2 OF NE 1/4 OF SW 1/4 OF SEC. 3

[N89°24'E 480] S89°43'41"E 482.36

S89°43'41"E 135.00

NW CORNER OF N 15 ACRES OF S 1/2 OF NE 1/4 OF SW 1/4 OF SEC. 3, TWP. 107, RGE. 20 AND NW CORNER OF S 1/2 OF NE 1/4 OF SW 1/4 OF SEC. 3

NE CORNER OF KUBIATOWICZ ADDN AS MONUMENTED FOUND 1/2" IRON WITH BROKEN CAP

FOUND IRON RLS NO 4423

[S89°24'W 362.76½'] N89°43'41"W 362.11

NE CORNER OF THE N 15 ACRES OF S 1/2 OF NE 1/4 OF SW 1/4 OF SEC. 3

15

10

ADDITION

11

S0°11'22"W 494.90

[N0°36'W 495.78½'] 461.90

312.11

S0°11'22"W 345.11

[S0°36'E 346.00]

WEST LINE OF SUBJECT PROPERTY AS MONUMENTED

EAST LINE OF SUBJECT PROPERTY AS MONUMENTED

[N1°55.5'W] N1°05'44"W 285.05

WEST LINE OF SUBJECT PROPERTY AS MONUMENTED

S0°16'19"W 344.97

[N89°24'E 369.38½'] N89°43'41"W 368.91

NORTH LINE OF SUBJECT PROPERTY AS MONUMENTED

261.34

335.90

15

15

UTILITY EASEMENT CONTAINS 3,923 SQ. FT.

33.01

E LINE OF S 1/2 OF NE 1/4 OF SW 1/4 OF SEC. 3

[S1°55.5'E 60.02]

61.05

207.62

S1°05'44"E

ST. PAUL ROAD NE

[S1°55.5'E 147.76] 146.47

S1°05'44"E 207.52

FOUND 1" IRON PIPE, TOP IS DESTROYED

[S89°24'W] S89°45'11"E 324.71

FOUND IRON RLS NO 15231

[S0°36'E] N0°16'19"E 60.00

KUBIATOWICZ

12

UTILITY EASEMENT CONTAINS 18,706 SQ. FT.

15

SE CORNER OF KUBIATOWICZ ADDN AS MONUMENTED FOUND 2" BRASS MONUMENT STAMPED RLS 4423

15

13

800.35

W LINE OF THE EAST 33.00 FEET OF THE N 15 ACRES OF S 1/2 OF NE 1/4 OF SW 1/4 OF SEC. 3 AS MONUMENTED

S1°05'44"E

SE CORNER OF THE N 15 ACRES OF S 1/2 OF NE 1/4 OF SW 1/4 OF SEC. 3 AS MONUMENTED SET MAG NAIL

33.01

S LINE OF THE N 15 ACRES OF S 1/2 OF NE 1/4 OF SW 1/4 OF SEC. 3 AS MONUMENTED

[S89°15.5'W 834.18½'] N89°53'53"W 833.36

S LINE OF THE N 3/4 OF S 1/2 OF NE 1/4 OF SW 1/4 OF SEC. 3

1 2 SAHF — ERICKSON 3 4 5 ADDITION 6 7

N

0 60 120

SCALE IN FEET

Sheet 2 of 2

2019-025-A T.107, R.20, S.03
2019025A-ESMT.dwg KDK

SUNDE LAND SURVEYING
9001 East Bloomington Freeway (35W) • Suite 118
Bloomington, Minnesota 55420-3435
952-881-2455 (Fax: 952-888-9526)
www.sunde.com

EXHIBIT C

1. Easement for street purposes, in favor of the City of Owatonna, contained in 16th Street Northeast Street Easement dated April 29, 1968, in Book 138 of Deeds, Page 563, as Document No. 140458; and as described in Warranty Deed dated November 15, 1977, filed November 21, 1977, as Document No. 167976; and as further evidenced on Owatonna Township Road Easement Map dated December 17, 1987, filed December 18, 1987, as Document No. 207189.

2. Terms, conditions and restrictions contained in Owatonna Municipal Airport Zoning Ordinance dated January 25, 1999, filed January 27, 1999, as Document No. 272485.

3. Subject to the right of way of St. Paul Road Northeast.

4. United States Department of Housing and Urban Development *(The following, described document relates to a Section 8 rental assistance contract that HUD and the Owner entered into as of December 1, 2020 that provides rental assistance to residents of the improvements that are located on the property that is identified in Exhibit A and that has a scheduled term of 20 years.)*

    a. HUD Section 8 Use Agreement dated December 1, 2020 and recorded on April 28, 2023 in the Office of the County Recorder for Steele County, Minnesota

5. Minnesota Housing Finance Agency *(All of the following, described documents relate to debt financing being provided to the Owner to finance the rehabilitation of the improvements that are located on the property that is identified in Exhibit A.)*

    a. Three Combination Mortgage Security Agreement, Assignment of Rents and Leases and Fixture Financing Statements dated April 27, 2023 and recorded on April 28, 2023 in the Office of the County Recorder for Steele County, Minnesota

    b. Three Regulatory Agreements dated April 27, 2023 and recorded on April 28, 2023 in the Office of the County Recorder for Steele County, Minnesota

    c. Four Declaration of Covenants, Conditions, and Restrictions dated April 27, 2023 and recorded on April 28, 2023 in the Office of the County Recorder for Steele County, Minnesota

    d. One Bond Compliance Agreement dated April 27, 2023 and recorded on April 28, 2023 in the Office of the County Recorder for Steele County, Minnesota

Miscellaneous

Administration Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Deanna Sheely, Communications Manager
SUBJECT: City's External Social Media Policy

Purpose:
Request City Council approve a new Social Media Policy for external audiences. The proposed policy does align with the current League of Minnesota Cities (LMC) recommendation.

Background:
The City of Owatonna utilizes various communication channels and has established a positive and informative social media presence.

Staff, with assistance from City Attorney Mark Walbran, has created a new policy based on the recommended LMC policy for external audiences. Per the LMC recommendation, the Public Notice will be posted on the website and linked to from all City of Owatonna existing and future social media platforms.

This policy is separate and different from section 17.4 of the City's Personnel Policy which specifically addresses employee use of social media platforms.

Budget Impact:
None

Staff Recommendation:
Staff recommends approval.

Attachments:
1. City of Owatonna External Social Media Policy

SOCIAL MEDIA POLICY

1. Purpose

Social networking in government serves two primary functions: to communicate and deliver messages directly to citizens and to encourage citizen involvement, interaction, and feedback. Information which is distributed via social networking must be accurate, consistent, and timely and meet the information needs of the City's intended audience. Social media is used for social networking and this policy seeks to ensure proper administration of the City of Owatonna' s social media sites by its representatives.

The City has limited control of social media accounts with third parties (e.g., Facebook Twitter, etc.). At the same time, there is a general expectation by the public that the City of Owatonna has a social media presence by which to share information about current City projects and City business. For municipal purposes, the City's social media accounts will be used for incidental, non-vital communication and general information only. It is not the purpose of the City's social media accounts to be a medium for transactions of City business. The one exception is in the case of a natural or man-made disaster, if it is determined by the City that the best means of communicating with the public through the social media account(s).

The City of Owatonna wishes to establish a positive and informative social media presence. City representatives have the responsibility to use the City's social media resources in an efficient, effective, ethical and lawful manner pursuant to all existing City policies.

2. Policy

The City of Owatonna will determine, at its discretion, how its web-based social media resources will be designed, implemented and managed as part of its overall communication and information sharing strategy.

The City of Owatonna's social media accounts are considered a City asset and administrator access to these accounts will be securely administered in accordance with the City's Computer Use policy. The City reserves the right to shut down any of its social media sites or accounts for any reason without notice.

All social media accounts created and utilized during the course and scope of an employee's performance of his/her job duties will be identified as belonging to the City of Owatonna including a link to the City's official website. The City of Owatonna does not create or maintain social media accounts for elected officials.

3. Scope

This policy applies to any existing or proposed social media accounts sponsored, established, registered, or authorized by the City of Owatonna. The City's social media accounts that are in

effect as of the date of the adoption of this Policy are listed in the attached Appendix A. The City may, from time to time, add, delete, or amend the accounts listed in the Appendix.

The City does not create, collect, disseminate, or regulate use of any other social media accounts, including the personal accounts of its elected officials and staff. Questions regarding the scope of this policy should be directed to the City Administrator or the Communications Manager.

4. Definition

Social media are internet and mobile-based applications, websites, and functions, other than email, for sharing and discussing information, where users can post photos, videos, comments and links to other information to create content on any imaginable topic. This may be referred to as ”user-generated content" or "consumer-generated media."

Social media include, but are not limited to:

- Social networking sites and apps such as Facebook, LinkedIn, Twitter and Nextdoor
- Blogs
- Social news sites such as Reddit and Buzzfeed
- Video and photo sharing sites and apps such as YouTube, Instagram, Snapchat and Flickr
- Wikis or shared encyclopedias such as Wikipedia
- An ever-emerging list of new web-based platforms generally regarded as social media or having many of the same functions as those listed above

As used in this policy, “employees and agents” means all City representatives including its employees and other agents of the City such as independent contractors or councilmembers. “Communications Manager” is the City employee who implements and manages the City’s Social Media Policy. “Social Media Agent” means any City employee or agent with administrator access who, when posting or responding to a post, appears to be the City social media account owner.

5. Rules of Use

The City’s Social Media Agents are responsible for managing the City’s social media accounts. Facilities or departments wishing to have a new social media presence must initially submit a request to the Communications Manager who will consult with the City Administrator in order to ensure social media accounts are kept to a sustainable number and policies are followed. All approved sites will be clearly marked as the City of Owatonna’s site and will be linked to the official City website (www.owatonna.gov or www.ci.owatonna.mn.us). The website displays icons linking to the City’s official social media sites. No one may establish social media accounts or websites on behalf of the City unless authorized in accordance with this policy.

The City’s social media page must conspicuously display or link to a public notice that informs the public of the purpose of the social media presence and the terms one agrees to in accessing, using, or posting to the City’s social media page.

Administration of all City social media accounts must comply with applicable laws, regulations, and policies as well as proper business etiquette.

City social media accounts covered by this policy will not be used by Social Media Agents for private or personal purposes or for the purpose of expressing private or personal views on

personal, political or policy issues or to express personal views or concerns pertaining to City employment relations matters.

No City social media account may be used by the City or any Social Media Agent to disclose private or confidential information. No social media account should be used to disclose sensitive information; if there is any question as to whether information is private, confidential or sensitive, contact the City Administrator.

Outside of situations of disaster, no City social media account will be used for transactions of City business. In the event a user initiates a request, application, or question through social media that affects City business or requires another City policy or process to be followed, follow up with that user by phone, email, or other channels. If comments are allowed, in the event of a question of general interest, a response may be given in comments, the initial post may be edited, or a subsequent post may be created to include the information.

The City of Owatonna's Social Media Agents will not edit any posted comments. However, comments posted by members of the public may be removed if they fall into at least one of the following categories:

- Potentially libelous comments
- Obscene or pornographic content
- Direct threats to persons or property
- Material asserted to violate the intellectual property of another person
- Private, personal information about a person published without his/her consent
- Information that compromises a public safety security system
- Statutorily private, confidential or nonpublic data
- Comments totally unrelated to the topic of the forum
- Commercial promotions or spam
- Hyperlinks to material that falls into one of the foregoing categories

A member of the public whose comment is removed may appeal the removal of the comment and seek reconsideration of its removal by contacting the City in writing and explaining how the comment does not fall into one of the categories for removal. A written response should be provided as soon as reasonably possible.

A member of the public who disputes the legality of any portion of this policy may dispute the particular portion in writing. The City should acknowledge the claim promptly and, upon consultation of the City Attorney, respond to the claim concerning legality of the policy portion as soon as reasonably possible under the circumstances.

6. Data Ownership and Retention

All communications or messages within social media accounts covered by this policy composed, sent, or received on City or personal equipment are the property of the City and will be subject to the Minnesota Government Data Practices Act. This law classifies certain information as available to the public upon request. As no transactions of City business shall be conducted through social media accounts (outside of disasters), in accordance with the City's records retention schedule, the City shall retain all social media messages only until read.

7. Adoption

This Social Media Policy shall be effective upon adoption by the Owatonna City Council. The date set in place for the Policy will be May 16, 2023.

PUBLIC NOTICE

May 16, 2023

The purpose of the City of Owatonna's social media presence is to provide members of the community with information in more places and more ways than were traditionally available. All content of this site is public and is subject to disclosure pursuant to the Minnesota Government Data Practices Act. Please be aware that anything you post may survive deletion, whether by you or others. Do not post sensitive or personally identifiable information, such as social security numbers.

Following or "friending" persons or organizations is not an endorsement by the City and is only intended as a means of broadening communication. The City is not responsible for content found at links to third parties, nor the views or opinions expressed by third-party comments.

Please be advised that comments falling into the following category or categories may be removed:

- Potentially libelous
- Obscene or pornographic content
- Direct threats to persons or property
- Material asserted to violate the intellectual property of another person
- Private, personal information about a person published without his/her consent
- Information that endangers the public by compromising a public safety security system
- Statutorily private, confidential, or nonpublic data
- Commercial promotions or spam
- Hyperlinks to material that falls into at least one of the foregoing categories

Should your comment be removed by the City and you believe it does not fall into one of the above categories, contact Deanna Sheely, Communications Manager, in writing to explain how the comment does not fall into one of these categories.

Should you wish to challenge the legality of any portion of this notice or the City's social media policy, you may contact the City Administrator or Communications Manager in writing and explain the basis for the challenge in detail.

If you have any other questions about the City of Owatonna's social media page, contact the City Administrator or Communications Manager. By accessing, using, or posting to the City of Owatonna social media page, you are acknowledging that you have been notified of the City's Social Media Policy.

Social Media Policy
Appendix A

The City of Owatonna's official social media sites are as follows.

Facebook:

- City of Owatonna City of Owatonna, MN Government | Owatonna MN | Facebook
- Owatonna Animal Shelter (6) Owatonna Animal Shelter | Owatonna MN | Facebook
- Owatonna Parks and Recreation Owatonna Parks and Recreation | Owatonna MN | Facebook
- Brooktree Golf Course (6) Brooktree Golf Course | Facebook
- River Springs Water Park River Springs Water Park | Owatonna MN (facebook.com)
- Owatonna Dog Park Owatonna Dog Park | Owatonna MN (facebook.com)
- West Hills Tennis and Fitness Center West Hills Tennis and Fitness Center | Owatonna MN (facebook.com)
- West Hills Social Commons (3) West Hills Social Commons | Owatonna MN | Facebook
  The Owls of Downtown Owatonna The Owls of Downtown Owatonna (facebook.com)
- Owatonna Public Library Owatonna Public Library | Owatonna MN (facebook.com)
- Owatonna Public Library Children's Services (3) Owatonna Public Library Children's Services | Owatonna MN | Facebook
- City of Owatonna Public Works City of Owatonna - Public Works | Owatonna MN | Facebook
- Owatonna Fire Department Owatonna Fire Department | Owatonna MN | Facebook
- Owatonna Degner Regional Airport Owatonna Degner Regional Airport | Owatonna MN | Facebook

Instagram:
Owatonna Fire Department https://www.instagram.com/owatonnafire/

-
- Owatonna Public Library https://www.instagram.com/owatonnapubliclibrary/
- West Hills Tennis and Fitness Center West Hills Tennis and Fitness Center on Instagram • Photos and videos

Twitter:

- Owatonna Partners for Economic Development @DevelopOwatonna (1) Owatonna Development (@DevelopOwatonna) / Twitter
- Owatonna Public Library https://twitter.com/owatonnalibrary/

Parks, Trails, Recreation & Facilities Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jenna Tuma, Parks, Trails, Recreation & Facilities Director
SUBJECT: Professional Services Agreement - Facilities Master Plan - ISC

Purpose:
Approve agreement with ICS to provide Professional Services for the Facilities Master Plan.

Background:
In the spring of 2022, a Facilities Task Force was created to explore and make recommendations to address the current state of city-owned facilities. In July, the Task Force brought forward their findings along with recommendations for next steps in the Action Plan. One of the action steps was to update the 2020 Building Assessment with recent findings, which was completed in December 2023. One of the outcomes of the updated Building Assessment was the need for a long-range strategic plan to address the back log of maintenance, and plan for upcoming maintenance and future facilities.

The Task Force identified the best approach to be through a city-owned facilities master plan. The plan will incorporate the existing facility immediate needs as well as evaluate options for the future growth of city facilities and needs. Taking this comprehensive approach along with creating a funding strategy, the road map will provide how best to meet the city's needs. The staff recommend utilizing ICS to facilitate this process.

The process will take into consideration the current and future use of land as we anticipate new and modified facilities to meet the needs of the city in the future. This will coincide well with Community Development's work on the long-range Community Comprehensive Plan.

Budget Impact:
This expense is not in the 2023 budget, staff recommends using the Building Maintenance Fund to cover the $45,000.

Staff Recommendation:
Staff recommends approval of this Facilities Master Plan.

Attachments:

1. ICS Facilities Master Plan Professional Services

PROFESSIONAL SERVICES AGREEMENT

PARTIES: ***City of Owatonna, MN***
540 West Hills Circle
Owatonna, MN 55060

And,

ICS
1331 Tyler Street NE, Suite 101
Minneapolis, MN 55413

1. **Overview**. The City of Owatonna, MN ("City") and ICS ("ICS") (collectively, "Parties") enter into this Professional Services Agreement ("Agreement") for professional services for the City pursuant to the terms and conditions of the Agreement including Attachments A, B and C. To develop and implement the Agreement in a timely manner, a two-phase approach will be used. Phase I ("PI") is for assessment and development of a Facility Plan or Project(s), and Phase II ("PII") is for implementation of the Plan or Project(s). This Agreement defines the responsibilities of both parties during each phase and constitutes a binding contract for Phase I and Phase II professional services to be provided by ICS.

2. **Scope of Professional Services**. The scope of professional services ("Services") for Phases I and II are defined in Attachments A and B to this Agreement. PI Services include ICS assisting the City in the development and adoption of the Facility Plan or Project(s). PII Services include ICS implementation of the improvements portion of the Facility Plan or Project(s) upon approval of the Facility Plan or Project(s) by the administration and/or governing board. The parties anticipate the Services shall include but are not be limited to the following project types: new construction, additions, remodeling, renovation, repairs, energy conservation measures, and other facilities improvements.

   For Phase II Services, ICS and the City shall enter a mutually-agreeable Project Specific Agreement ("PSA") utilizing AIA contract forms or other industry standard agreements modified to define the particular scope of work and other needs for each specific project or projects, unless another form of contract is mutually agreeable. The PSA shall supersede this Agreement with respect to the particular project or projects defined under the PSA.

ICS shall perform its Services under this Agreement consistent with the skill and care ordinarily provided by professional service providers in the same or similar locality under the same or similar circumstances. The cost of construction shall be only estimates and shall not constitute a representation or warranty regarding the actual cost of the construction. The cost of construction of any potential project will be determined based upon competitive or negotiated bids, where required by law, that are received from construction contractors for the work at issue according to the laws in the state where the specific project is located. In the event of procurement of construction services under a negotiated Energy Services Contract, which is not bound by competitive bidding requirements under MN Statute 471.375, a guaranteed maximum price may be established where applicable.

3. **Fee and Payments**.

PI Services: ICS will provide the services outlined in Phase I for a lump sum fixed fee of $45,000. PI Services shall be deemed completed upon receipt by the City of the Deliverable set forth in Attachment A. If the City terminates this Agreement for convenience pursuant to Section 7 below prior to the completion of PI, the City shall pay ICS within thirty (30) days of the date of termination a $25,000 fee in addition to any previously billed fees for PI services.

PII Services. The City and ICS shall negotiate a Professional Services Agreement (PSA) for each project undertaken in Phase II including a reasonable fee for PII Services within 30 days of the City's approval of the Plan utilizing the fee schedule in Attachment C. Payments shall be made within 30 days of the City receiving ICS's invoice. If the parties cannot reach agreement on a PSA including a reasonable fee for PII Services for any specific project or projects, either party may terminate this Agreement as to the specific project or projects, and the City shall pay ICS within thirty (30) days of the date of termination the unpaid portion of the $45,000 fee for PI services, if any. If the City and ICS have already entered into a PSA under Phase II, and the City terminates that Agreement prior to the completion of PII, the City shall pay ICS a fee of $25,000 in addition to any previously billed fees for PII services.

Change Orders. The Parties may request additions, deletions, or other revisions to the Services performed under this Agreement ("Change Order"). The price and payment terms and time for performance shall be adjusted by mutual written agreement of the parties no later than fourteen (14) days after submission of the Change Order in accordance with the Change Order. ICS shall not be required to perform any services under the Change Order until the parties have signed a mutual written agreement for these adjustments. If concealed or unknown conditions are encountered which affect

the performance of the Services under this Agreement that differ from the conditions represented by the City, the price and payment terms and time for performance shall be equitably adjusted. Claims for equitable adjustment must be asserted in writing within a reasonable time from the date ICS becomes aware of a change to the Services.

4. **Work Product**. The City and ICS agree that the Work Product ICS creates during performance of PI Services is proprietary information and may be copyrighted by ICS. The City shall not sell, share, or distribute ICS's work product to any party, individual or entity. The City has no right or title to the work product and shall not use the work product for any purpose other than those purposes directly benefitting the project described in this Agreement. ICS has the right to use, reproduce, and to make derivative works from documents and other data generated or collected during PI Services.

   The City is entitled to keep electronic and hard copies of ICS's Work Product, including plans, specifications, and construction documents, created pursuant to Project Specific Agreements. The City may, after receiving ICS's written approval, provide such documents to other professional service providers the City may retain after ICS's Services under this Agreement are completed to assist with the construction, repair, maintenance, and preservation of its properties. ICS's approval shall not be unreasonably withheld.

   The provisions of this section shall not apply if the City has removed a particular project from Phase II. Further, nothing in this Agreement shall be construed to limit the City's ability to fully comply with its obligations under the Minnesota Government Data Practices Act (MGDPA), including its obligations to respond to requests for data.

5. **Insurance**. Upon request of the City, ICS shall provide a certificate of insurance to the City identifying ICS's insurance coverage. ICS shall maintain the following insurance in full force and effect until the Services are completed:

Coverages	Limits of Liability
General Liability	$2,000,000 Each Occurrence $4,000,000 Aggregate
Automobile Liability	$1,000,000 Combined Single Limit
Umbrella Liability	$5,000,000
Workers Compensation	Statutory

Professional Liability	$1,000,000 Each Claim $3,000,000 Aggregate

The above limits may be procured through primary and excess policies. ICS shall include the City as an additional insured on its general liability and automobile liability insurance policies applicable to the Services and required by this Agreement.

6. **Indemnification.** To the fullest extent permitted by law, ICS agrees to indemnify the City and its employees, officers, board members, insurers, attorneys, and agents from and against any and all monetary damages including reasonable costs, judgments, or other forms of monetary legal liability including reasonable attorney's fees that are proven to be legally caused by the negligence of ICS in performing or failing to perform its obligations under this Agreement, but only for the amount of damages which are equal to ICS's proportion of the total fault which is proven to have directly caused the damages. ICS's indemnification obligation shall apply to its subconsultant(s), anyone employed or hired by ICS, or anyone for whose acts ICS may be legally liable. ICS's indemnification obligation under this paragraph will not apply to any damages proven to be legally caused by the City's negligence in performing or failing to perform its obligations under this Agreement. ICS's duty to indemnify the City pursuant to this paragraph shall survive the completion, expiration, or termination of this Agreement.

To the fullest extent permitted by law, the City agrees to indemnify ICS and its agents, representatives, employees, officers, board members, insurers, and attorneys from and against any and all monetary damages including reasonable costs, judgments, or other forms of monetary legal liability, including reasonable attorney's fees that are proven to be legally caused by the negligence of the City in performing or failing to perform its obligations under this Agreement, but only for the amount of damages which are equal to the City's proportion of the total fault which is proven to have directly caused the damages. The City's indemnification obligation shall apply to its agents, representatives, officers, board members, insurers, attorneys and anyone employed or hired by the City, or anyone for whose acts the City may be legally liable. The City's obligations under this paragraph will not apply to any damages proven to be legally caused by the negligence of ICS in performing or failing to perform its obligations under this Agreement. The City's duty to indemnify ICS pursuant to this paragraph shall survive the completion, expiration, or termination of this Agreement.

7. **Termination.**

Either party may terminate this Agreement upon not less than thirty (30) days written notice should the other party fail substantially to perform in accordance with the terms of this Agreement through no fault of the party initiating the termination.

Termination for Cause. If the City fails to make payments to ICS in accordance with this Agreement, such failure shall be considered substantial nonperformance and cause for termination or, at ICS's option, cause for suspension of its Services under this Agreement. If ICS elects to suspend Services, ICS shall give fourteen (14) days' written notice to the City before suspending Services. In the event of a suspension of Services, ICS shall have no liability to the City for delay or damage caused the City because of such suspension of Services. ICS's fees for the remaining Services, and the time schedules, shall be equitably adjusted.

If ICS defaults by failing to substantially perform, in accordance with the terms of this Agreement, the City may give written notice to ICS (i) terminating this Agreement effective fourteen (14) days from the date of written notice, or (ii) setting forth the nature of the default and requesting that ICS cure the default within fourteen (14) days from the date of written notice. If ICS fails to cure the default within 14 days of written notice, the City may give notice to ICS of immediate termination. In such event, ICS shall be entitled to receive payment for Services properly performed prior to termination, together with Reimbursable Expenses (Attachment C), if applicable, then due through the date of termination.

Termination or Suspension for Convenience. The City may at any time give written notice to ICS terminating this Agreement within thirty (30) days or suspending the Agreement, in whole or in part, for the City's convenience and without cause. If the City terminates this Agreement or suspends the Project, ICS shall promptly reduce staff, services and outstanding commitments to minimize the cost of termination or suspension. In case of termination for the City's convenience, ICS shall be entitled to receive payment for Services executed prior to termination, together with Reimbursable Expenses (Attachment C), if applicable, then due through the date of termination, and a fixed fee of $25,000.

8. **Hazardous Materials**.

Asbestos-Containing Materials: Neither party desires to or is licensed to undertake direct obligations relating to the identification, abatement, cleanup, control, removal, or disposal of asbestos-containing materials ("ACM"). Consistent with applicable laws, the City shall supply ICS with any information in its possession relating to the presence of ACM in areas

where ICS undertakes any Services that may result in the disturbance of ACM. If either the City or ICS becomes aware of or suspects the presence of ACM that may be disturbed by ICS's Services, it shall immediately stop the Services in the affected area and notify the other party. The City shall be responsible at its sole expense for addressing the potential for or the presence of ACM in conformance with all applicable laws and addressing the impact of its disturbance before ICS continues with its Services, unless ICS had actual knowledge that ACM was present and acted in disregard of that knowledge, in which case (i) ICS shall be responsible for remediating areas impacted by the disturbance of the ACM, and (ii) City shall resume its responsibilities for the ACM after ICS's remediation has been completed.

Other Hazardous Materials: ICS shall have no responsibility for the discovery, presence, handling, removal or disposal of, or exposure of persons to Other Hazardous Materials ("OHM") in any form except ICS shall be responsible for the removal and disposal of any OHM that ICS uses in providing its Services under this Agreement.

The City shall supply ICS with any information in its possession relating to the presence of OHM if their presence may affect ICS's performance of the Services. If either the City or ICS becomes aware of or suspects the presence of OHM may interfere with ICS's Services, it shall immediately stop the Services in the affected area and notify the other party. The City shall be responsible at its sole expense for removing and disposing of OHM from its facilities and the remediation of any areas impacted by the release of OHM, unless ICS had actual knowledge that OHM were present and acted in disregard of that knowledge, in which case (i) ICS shall be responsible for the remediation of any areas impacted by its release of such OHM, and (ii) the City shall remain responsible at its sole expense for the removal of any hazardous materials that have not been released and for releases not resulting from ICS's performance of the Services.

9. **Disputes**. ICS and the City will attempt to settle any "Dispute" (including any claim, controversy, difference of opinion or matter in question between the Parties concerning the performance, enforcement, or interpretation of this Agreement), through direct informal discussions in good faith.

a. If informal discussions are unsuccessful, the Parties shall submit the Dispute to non-binding mediation with a mediator agreed upon by the Parties, or if one cannot be agreed upon within 15 days after the party seeking mediation provides written notice to the other party demanding mediation, a mediator shall be appointed by the Judge of Steele County, Minnesota, District Court. Demand for mediation shall be provided in writing to the other party within a reasonable time after the Dispute has arisen.

b. Any controversy or claim arising out of or relating to this contract, or the breach thereof, upon mutual agreement of the parties and subject to subparagraph 9.c., may be submitted to arbitration by an arbitrator agreed upon by the parties orby the American Arbitration Association, under its Construction Industry Arbitration Rules, and judgment on the awarded rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

c. Notwithstanding anything in this Agreement to the contrary, either party may pursue any legal remedy it deems appropriate in Minnesota State District Court, Steele County, Minnesota without first resorting to informal discussion or mediation or voluntary arbitration to the extent necessary to prevent a claim from being barred by the applicable statute of limitations or repose.

10. **Independent Consultant Relationship.** It is expressly understood that ICS is an independent contractor and not an employee of the City. ICS shall have control over the manner in which its Services are performed under this Agreement. ICS shall supply, at its own expense, all materials, supplies, equipment, and tools required to accomplish the Services contemplated by this Agreement. ICS is not entitled to any benefits from the City, including, without limitation, insurance benefits, sick and vacation leave, workers' compensation benefits, unemployment compensation, disability, severance pay, or retirement benefits. Nothing in this Agreement shall be deemed to constitute an employment, partnership, joint venture, or agency relationship between the parties. This paragraph shall not alter or limit the City's obligations to pay ICS for its Services as set forth in this Agreement.

11. **Other Provisions**.

a. This Agreement shall be governed by the laws of the State of Minnesota. This Agreement specifically includes Attachments A, B and C. Any litigation proceedings between the City and ICS related to this Agreement shall be venued in Minnesota's State District Court, Steele County, Minnesota, pursuant to applicable law.

b. The City shall provide ICS access to all applicable locations and facilities to assist ICS's performance of the Services under the Agreement.

c. If any provision of this Agreement is determined by a court of competent jurisdiction to be invalid that provision shall be deemed stricken from this Agreement, and all other provisions of the Agreement shall remain in full force and effect.

d. This Agreement represents the entire and integrated agreement between the Parties, and supersedes all prior negotiations, representations or agreements, either written or oral. The Parties bind themselves, their agents, successors, assigns and legal representatives to this Agreement. This Agreement cannot be assigned by either party without the prior written consent of the other party. This Agreement may be amended only by written instrument signed by the Parties. The captions and titles in this Agreement are for convenience only and shall not affect the interpretation or meaning of this Agreement. This Agreement may be signed in counterparts, each of which shall be deemed an original, and which taken together shall be deemed to be one and the same document.

e. Nothing contained in this Agreement shall create a contractual relationship with or cause of action in favor of a third party against ICS. The Services under this Agreement are being performed solely for the benefit of the City, and no other entity or individual shall have any claim against ICS because of this Agreement or the performance or non-performance of the Services in the Agreement.

f. The City shall make decisions and carry out its other responsibilities in a timely manner so as not to delay ICS's performance of its Services. The City shall be responsible for and ICS may rely upon the accuracy and completeness of all requirements, programs, instructions, reports, data, and other information furnished by the City to ICS pursuant to this Agreement. ICS may use such requirements, programs, instructions, reports, data, and information in performing or furnishing Services under this Agreement.

g. The Parties shall act in good faith in carrying out their respective duties and obligations under this Agreement. Any failure of either party to require strict performance by the other party, or any waiver by one party of any requirement under this Agreement shall not be deemed to be a consent to or a waiver of any continuing or subsequent failure or breach.

h. All notices and other correspondence with respect to this Agreement shall be directed to the addresses listed at the beginning of this Agreement, or to such addresses as the parties may, from time to time, designate in writing.

i. Governmental Notice Pursuant to Minnesota Statute 13.05, subd. 11:

(a) If a government entity enters into a contract with a private person to perform any of its functions, all of the data created, collected, received, stored, used,

maintained, or disseminated by the private person in performing those functions is subject to the requirements of this chapter and the private person must comply with those requirements as if it were a government entity. All contracts entered into by a government entity must include a notice that the requirements of this subdivision apply to the contract. Failure to include the notice in the contract does not invalidate the application of this subdivision. The remedies in section 13.08 apply to the private person under this subdivision.

(b) This subdivision does not create a duty on the part of the private person to provide access to public data to the public if the public data are available from the government entity, except as required by the terms of the contract.

(c) Notwithstanding anything in the Agreement to the contrary, ICS shall comply with all the requirements of the MGDPA. If ICS seeks to use information collected during its performance of this Agreement that is specific to the City and that is classified as public, private, or confidential information under the MGPDA, the consent of the City and, as to private or confidential data, the consent of the subject of the data shall be required to use such information, and the City or the subject of the data may elect not to provide consent to ICS.

Acceptance

The Parties hereby accept this Agreement in its entirety, including Attachments A, B and C.

ACCEPTED FOR City of Owatonna	ACCEPTED FOR ICS
BY: _____ Thomas Kuntz, Mayor	BY: _____ Andy Faulkner
TITLE: City of Owatonna Mayor	TITLE: Executive Vice President

DATE: _____ DATE: _____

ACCEPTED FOR
City of Owatonna

BY: _____
Kris Busse

TITLE: City of Owatonna Administrator

DATE: _____

PHASE I – Assessment and Project Development

1.0 Consultations

ICS shall facilitate professional consultations with key stakeholder groups to gather their input. If applicable, the stakeholder groups may include City Staff, Administration, Board Members, and Community Members. During the consultations, ICS will collect data applicable to the vision of the City regarding its facilities and potential Plans or Projects to be implemented in PII.

Listening Sessions

ICS shall facilitate professional Listening Sessions with key stakeholder groups on perception of City owned facilities and future plans in the City, including:

- ○ City Administration and Council ○ City Department Heads ○ City Staff
- ○ Key Community Stakeholders (such as Chamber of Commerce, business leaders, etc.)
- ○ Other

ICS will compile resulting data from the Listening Sessions for Administration and Council review.

2.0 Data Gathering and Analysis

Data gathering and analysis during the Assessment Phase will focus on the following areas as needed and agreed to by ICS and the City:

- Walk-thru and high-level evaluation of existing City-owned facilities
- Annualized energy costs for existing City-owned facilities
- Evaluation of potential new facility sites, budgets, and construction considerations
- Potential funding solutions, including review of existing debt and consultation with the City's financial advisor

To help control costs during the Assessment Phase, the City agrees to provide access to City personnel any internal information to the extent permitted by the law. In an effort to keep costs down, it is both ICS and the City's intent to utilize past assessment information, if available, as part of the Facility Assessment Summary.

3.0 Deliverable

A report including scopes of work, associated costs, and financial metrics sufficient to meet the requirements of the City and any applicable law from which projects may be procured. This information may include, but is not limited to, the following:

- Scope of work narrative
- Identification of all total project budgets including associated soft and hard costs
- Preliminary project schedule
- Estimated annual energy, operational, and long-term operational savings as applicable
- Commissioning and functional testing plan as applicable

PHASE II – Implementation/Construction

Construction and renovations and/or facility updates included in the Plan may begin immediately following City approval. As the owner's partner for the Plan, ICS may utilize the services of sub consultants and sub contractors, which the City will have the right to reject the selection of. It is the City's intent to utilize ICS for professional services as described below once a project has been developed as identified in PH I:

2.0 Professional Services

2.1 Upon Development of the final project scope and schedule, ICS proposes to provide construction phase representation services with compensation to be structured as a lump sum fixed fee. ICS will provide program management services including design, construction management, and commissioning, and other associated project "soft" costs. Upon determination of the actual scope(s) of work, we will work collaboratively with City administration to determine the most advantageous delivery methodology and procurement strategy to utilize for the specific projects. This lump sum fixed fee will be finalized with the City following determination of the project scope and timeline.

2.2 Professional services do not include competitively bid construction contracts. Construction contracts will be entered by the City directly with contractors utilizing Minnesota procurement statutes for competitive bidding requirements, unless alternative procurement options are to be utilized, the ConstructionManager-at-Risk procurement method, competitive bids from contractors will be received and entered into by ICS directly with contractors.

2.3 Professional services do not include competitively bid construction contracts. Construction contracts will be entered by the City directly with contractors utilizing Minnesota procurement statutes for competitive bidding requirements, unless alternative procurement options are to be utilized, such as MN Statute 471.375 subd. 13, "Energy Efficiency Projects," in which case construction contracts will be entered into between ICS and subcontractors.

3.0 Compensation

It is the intent of both parties that fees for Phase II services for plan implementation, if the City proceeds with a project as a result of the process, will be negotiated by both parties. ICS and the City will utilize standard AIA contract documentation as the basis of the Phase II contracts, unless a mutually agreeable alternative form of contract is preferred, and both parties agree to negotiate in good faith for final fee percentages and terms and conditions based on the final scope of work established under Phase I.

Typical industry standard fees are in the following range of total project budget:

	Typical Design Fee	Typical CM Fee	General Conditions/Reimbursable
Heavy renovation/remodeling	7.5% - 9.5%	2.5% - 3.8 %	See Attachment C
Light renovation/remodeling	6.5% - 8.5%	2.5% - 3.5%	See Attachment C
Additions	6.5% - 8.5%	2.5% - 3.5%	See Attachment C
New Construction	5.5% - 7.5%	1.5% - 3%	See Attachment C

Typical Reimbursable Compensation for Construction

Site services (full-time supervision and project management) costs are based on duration and scope of the project. These services will be estimated once the final scope and schedule is determined and billed as reimbursable costs according to the following rate schedule:

Managing Principal	$150/hr
Sr. Project Manager	$120/hr
Project Manager	$100/hr
Field Engineer/Asst. Proj. Mgr.	$80/hr
General Superintendents	$105/hr
Field Superintendents	$95/hr
Safety Support	$100/hr
MEP Specialist	$110/hr
Clerical/Accounting	$55/hr
Travel/Lodging	At Cost

ICS will develop a lump-sum amount for these services for each specific project in conjunction with the City as each project scope is finalized. ICS will account for all necessary costs associated with construction, including permitting, bonding, warranty, etc.

Parks, Trails, Recreation & Facilities Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jenna Tuma, Parks, Trails, Recreation & Facilities Director
Mary Jo Knudson
SUBJECT: Proposed Park Master Plans

Purpose:
Adopt individual Park Master Plans for the new regional park and the Cashman Property.

Background:
The City Council adopted a Parks and Trails System Master Plan in February, 2020. This overarching guidance document is a comprehensive plan of all the City's park and trail assets. It also served as a first step toward developing specific park plans. The plan identified the need to create Park Master Plans for two specific areas as a priority – a new regional park and the Cashman Property. It recommends combining 276 acres into a regional park to create many unique recreational opportunities for the community and the region, some of which already exist and others are planned. The plan recommends applying for a regional park designation through the Greater Minnesota Parks and Trails Commission. With this designation, the City will be eligible for Minnesota's Clean Water, Land and Legacy Amendment funding. To apply for the designation and funding, Park Master Plans are required to demonstrate a clear and transparent community engagement process was utilized.

The year-long process for developing Park Master Plans for a new regional park and the Cashman Property began last summer and included a robust public input process on how to utilize these areas to address the community's current and future needs. Over the course of a year, City staff and the consultant conducted six focus group meetings with 27 participants, held two open houses that resulted in a steady flow of participants, exhibited information at the County fair generating 123 completed comment sheets, provided an online interactive map that had 1,949 unique visitors and an online survey that garnered 212 responses.

The Park Master Plan for the new regional park recommends combining Morehouse Park, Kaplan's Woods Parkway, Kaplan's Woods, Lake Kohlmier Area and adjacent property along the Straight River into one regional park.

The other top priority was to create a Park Master Plan for the undeveloped parkland known as the Cashman property. In 2022, additional acres were acquired, increasing the area of this

parkland. Being located adjacent to an existing paved trail makes this area ideal for a parking lot to be created for trail users, along with a restroom area to serve as a trail head. The plan also calls for a 27-hole championship disc golf course, a play area and helps connect neighborhood trails.

Budget Impact:

None immediately. Once Regional Designation is achieved, funding opportunities are available for application for maintenance and improvements in all areas of the new park.

Staff Recommendation:

Staff recommends adopting the park master plans.

Attachments:

1. Owatonna Parks Master Plans - 2023

NSRPT / BUXTON TRAIL CONNECTION

CASHMAN PARK

KAPLAN'S PARKWAY

MOREHOUSE PARK

LAKE KOHLMIER

KAPLAN'S WOODS

Owatonna Parks Master Plans - Overview

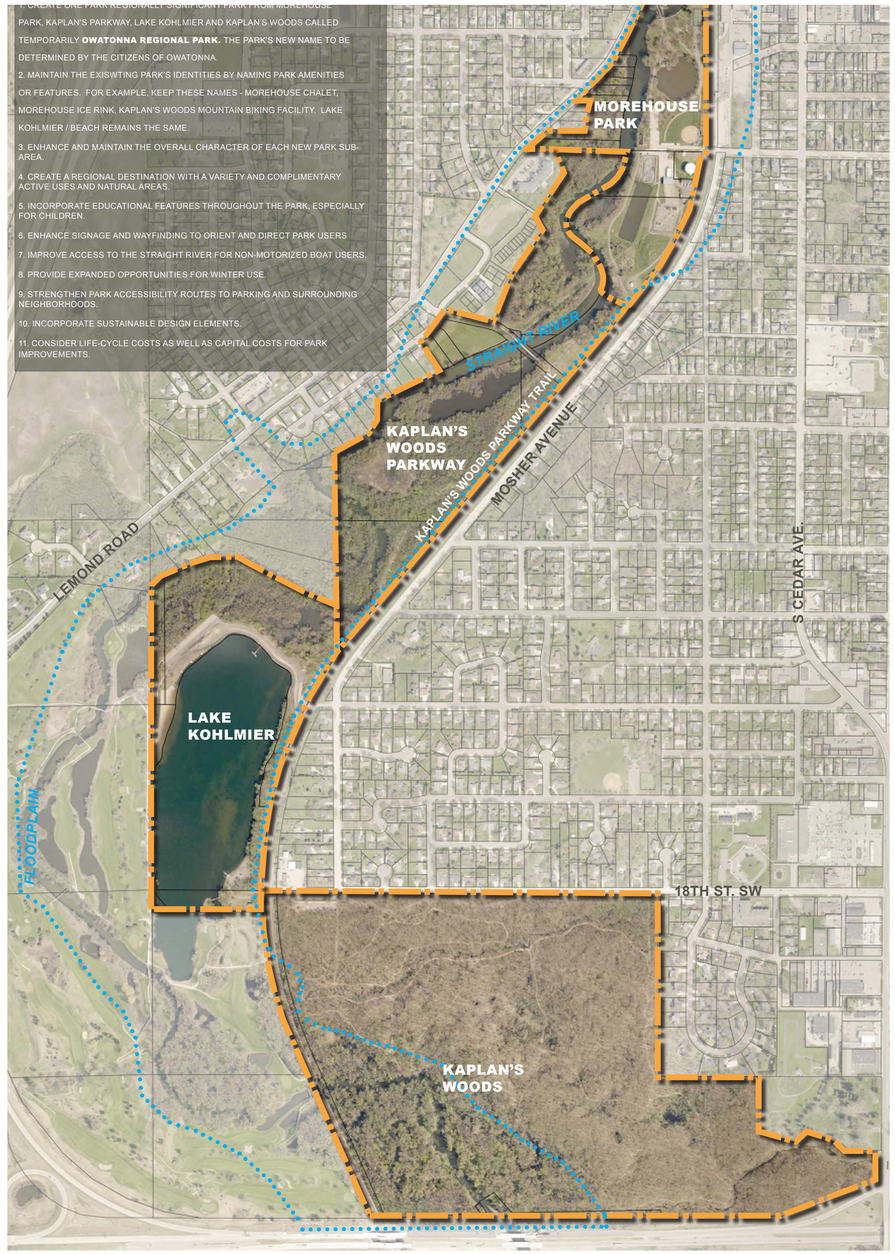
Owatonna, Minnesota

March 9, 2023 | WSB Project number: 020458-000

REGIONAL PARK DESIGNATION

- MOREHOUSE, LAKE KOHLMIER, KAPLAN'S WOODS PARKWAY AND KAPLAN'S WOODS ARE ALL CONNECTED TO EACH OTHER BY THE STRAIGHT RIVER.
- THESE PARKS ARE ALSO CONNECTED BY A TRAIL SYSTEM, WHICH IS A PART OF A CITY WIDE SYSTEM OF TRAILS.
- THE CITY OF OWATONNA TRAIL SYSTEM IS LINKED OR PLANNED TO LINK TO REGIONAL TRAIL SYSTEMS TO THE EAST, WEST, NORTH AND SOUTH.
- THIS PARK WILL PROVIDE NATURAL SETTINGS AND OPEN SPACE AMENITIES THAT HAVE BEEN SHOWN TO SUPPORT PHYSICAL, SOCIAL AND EMOTIONAL HEALTH ACROSS INDIVIDUALS' LIFESPAN.
- THIS PARK HAS A WIDE VARIETY OF ACTIVE AND PASSIVE USES AND FACILITIES THAT SERVE A BROAD REGIONAL AREA THAT INCLUDES SEVERAL LOCAL GOVERNMENT JURISDICTIONS.
- THIS PARK PROVIDES A DIVERSE SET OF RECREATIONAL OPPORTUNITIES AND ASSETS. THE ACTIVITIES INCLUDE:

  - HIKING
  - SWIMMING
  - CANOEING/KAYAKING
  - FISHING
  - PICKLEBALL
  - HOCKEY
  - MOUNTAIN BIKING
  - FAT TIRE BIKING
  - SKATEBOARDING
  - ICE SKATING
  - PICNICKING
  - BIRD WATCHING



COMMUNITY ENGAGEMENT SUMMARY

PHASE 1 : SITE ANALYSIS / VISIONING

COMMUNITY ENGAGEMENT EVENTS:

- FOCUS GROUP MEETINGS #1: MOREHOUSE,CASHMAN, KAPLAN'S WOODS
- PUBLIC OPEN HOUSE #1
- ONLINE ENGAGEMENT : ONLINE SURVEY AND INTERACTIVE MAPPING

MOREHOUSE PARK:
- DESTINATION FEATURE (SKATING / ROLLER SKATING)
- MORE PARKING
- MORE INVITING ENTRANCE
- ADD MORE PICKLEBALL COURTS

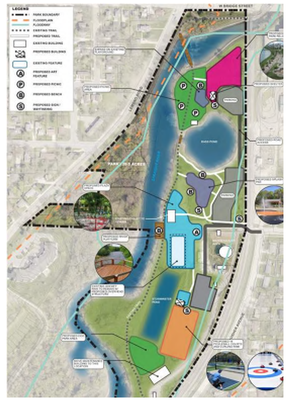
LAKE KOHLMIER:
- IMPROVE BATHROOMS
- MAKE BEACH MORE ACCESSIBLE

KAPLAN'S WOODS:
- IMPROVE TRAILS - MAKE ACCESSIBLE LOOP
- PRESERVE NATURAL BEAUTY
- ADD RESTROOM FACILITIES / TRAILHEADS
- NATURE EDUCATION

CASHMAN PARK:
- TRAILHEAD / TRAIL CONNECTION
- WANT FOR DISC GOLF COURSE
- CURRENTLY NOT USED ENOUGH
- ADD PLAY EQUIPMENT SOMEWHERE
- ADD PAVED TRAILS

GENERAL COMMENTS:
- WANT SPLASH PAD SOMEWHERE
- WANT AMPHITHEATER SOMEWHERE

PHASE 2 : CONCEPT DEVELOPMENT


W BRIDGE STREET
S BRIDGE AVENUE
DOG PARK
SKATE PARK
PICNIC AREA
PARKING
PARKING
PARKING

Owatonna Regional Park | Morehouse Park Master Plan

Owatonna, Minnesota

March 9, 2023 | WSB Project number: 020458-000

0’ 80’ 160’

Scale in Feet

EXISTING PARKING LOT

EXISTING TRAIL

USE EXISTING PARKING LOT TO CREATE DROP OFF LOOP

FLOODWAY

ACCESSIBLE WALK

TURF AMPHITHEATER

STAGE W/ ROOF

PLAZA

LIMESTONE BOULDER SEATING

CONCRETE WALK

EXISTING PLAYGROUND

SCREEN ALONG GOLF COURSE MAINTENANCE SHEDS

BEACH

LAKE KOHLMIER

NEW 10' WIDE SIDEWALK

STAIRS

LARGE SEASONAL SHADE UMBRELLAS

LOUNGE CHAIRS

EXISTING PICNIC TABLE, TYP.

STAIRS

ACCESSIBLE RAMP

TERRACED PLAZA W/ LIMESTONE SEAT WALLS

COUNTRY CLUB GOLF COURSE

STAIRS

OVERLOOK DECK

RESTORE BATH HOUSE WITH CONCESSIONS, EQUIPMENT RENTAL AND STORAGE

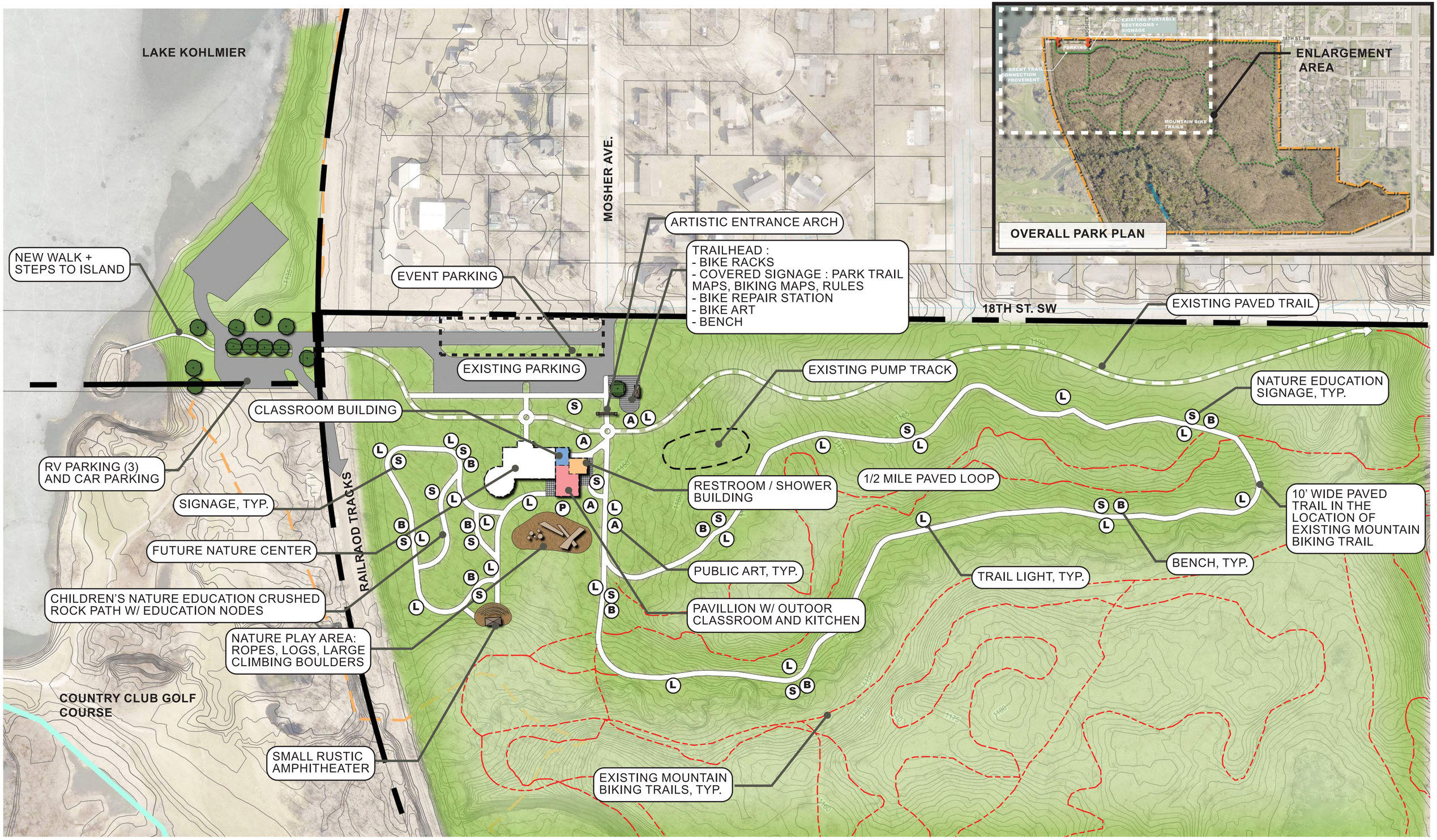
Owatonna Regional Park | Lake Kohlmier Master Plan

Owatonna, Minnesota

March 9, 2023 | WSB Project number: 020458-000

0′ 30′ 60′

Scale in Feet



Owatonna Regional Park | Kaplan's Woods Master Plan

Owatonna, Minnesota

March 9, 2023 | WSB Project number: 020458-000

0' 80' 160'

Scale in Feet

OWATONNA REGIONAL PARK TOTALS:

PHASE 1 :

PHASE 1 TOTAL: $3,238,660

CONTINGENCY (10%) -$323,866

ENGINEERING, DESIGN, ADMIN, TESTING + STAKING (15%) – $485,799

OWATONNA REGIONAL PARK PHASE 1 TOTAL: $4,048,325

PHASE 2 :

PHASE 2 TOTAL: $2,045,400

CONTINGENCY (10%) – $204,540

ENGINEERING, DESIGN, ADMIN, TESTING + STAKING (15%) – $306,810

OWATONNA REGIONAL PARK PHASE 2 TOTAL: $2,556,750

PHASE 3 :

PHASE 3 TOTAL: $1,326,900

CONTINGENCY (10%) - $132,690

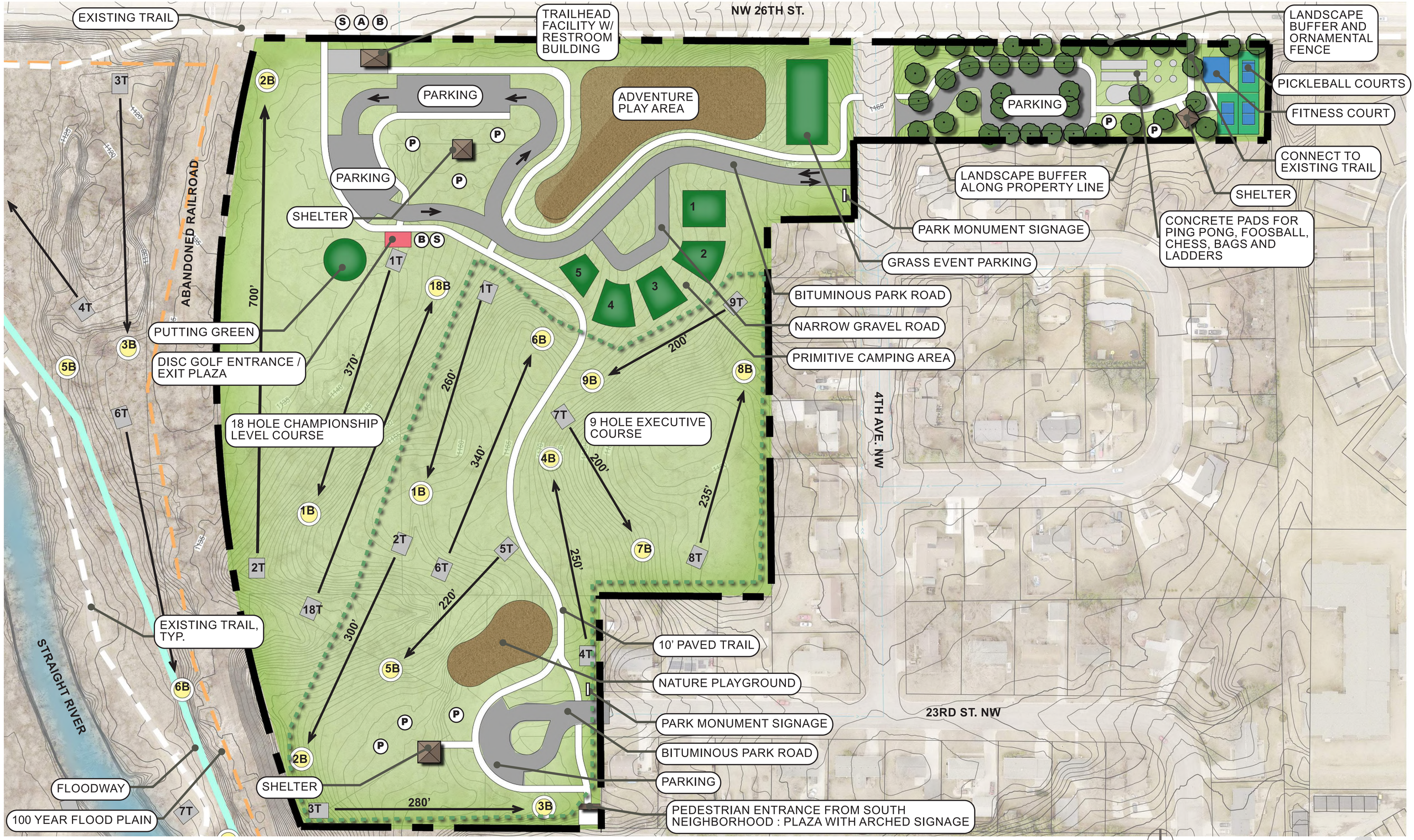
ENGINEERING, DESIGN, ADMIN, TESTING + STAKING (15%) - $199,035

OWATONNA REGIONAL PARK PHASE 3 TOTAL: $1,658,625

OWATONNA REGIONAL PARK TOTAL: $8,263,700

LONG TERM:

REGIONAL NATURE CENTER: $6-8 MILLION



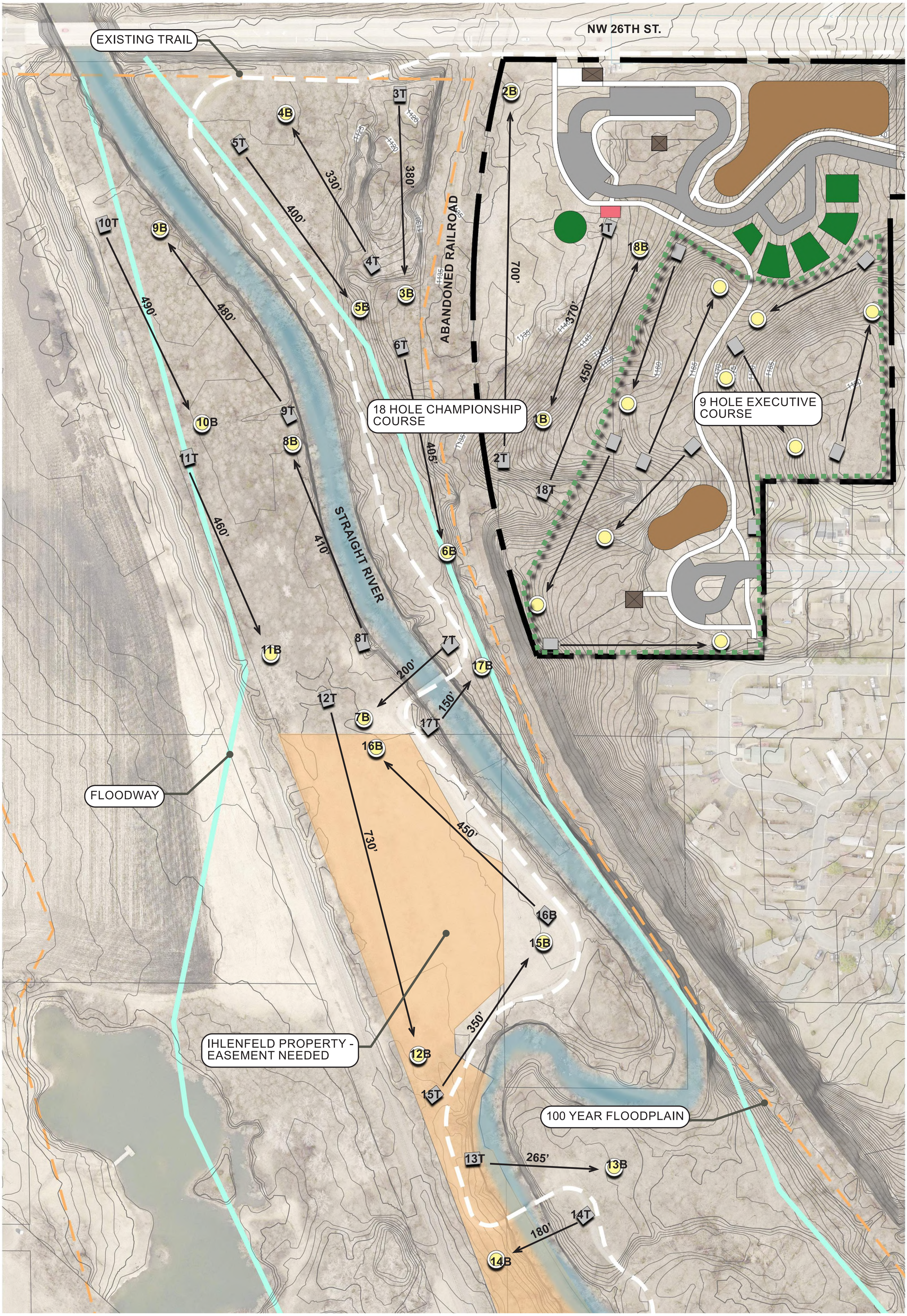
Cashman Property Master Plan

Owatonna, Minnesota

March 9, 2023 | WSB Project number: 020458-000

0’ 60’ 120’

Scale in Feet



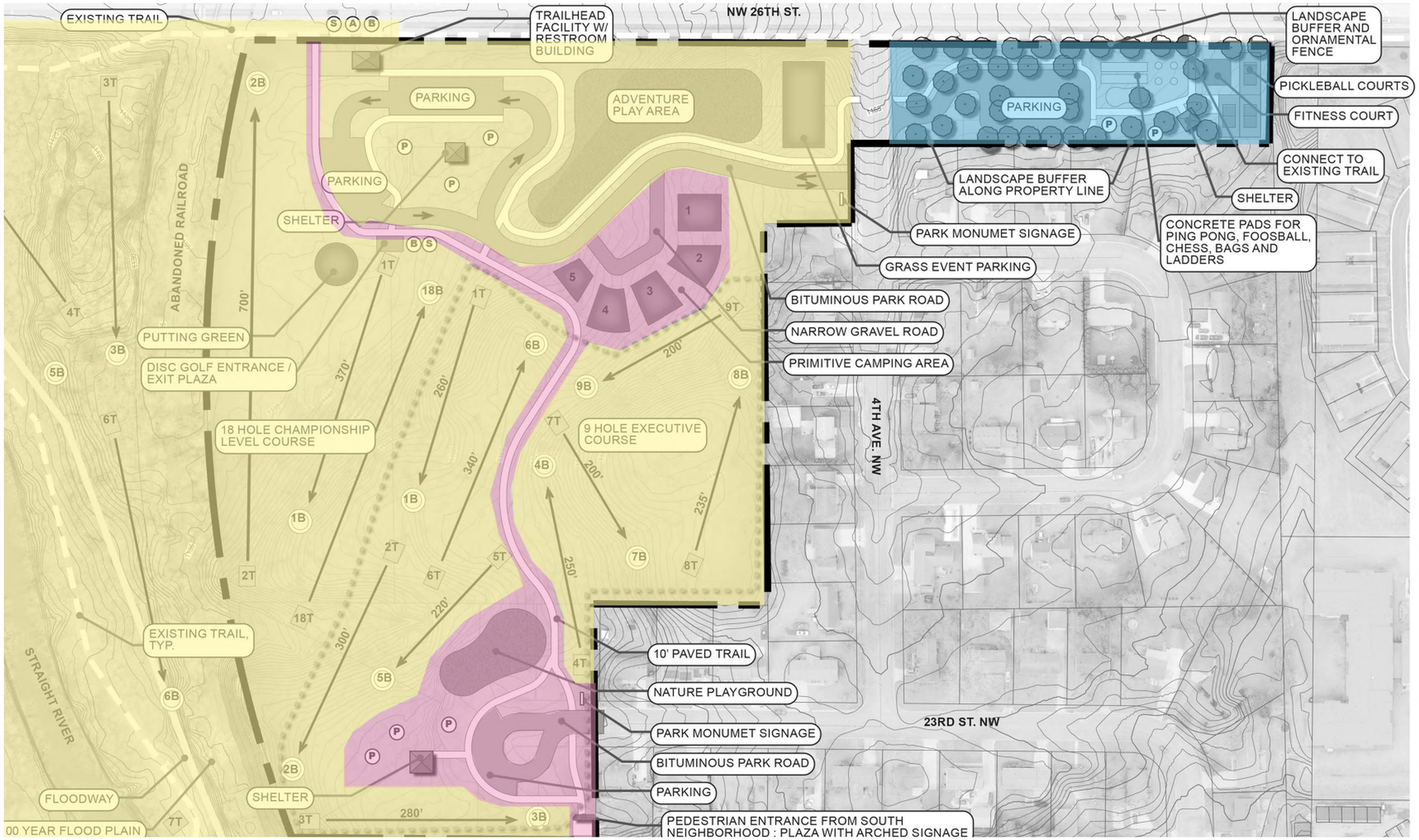
Cashman Property Master Plan - 18 Hole Disc Golf Course

Owatonna, Minnesota

March 9, 2023 | WSB Project number: 020458-000

0’ 80’ 160’

Scale in Feet



Cashman Property Master Plan

Phasing Plan / Cost Estimate

Owatonna, Minnesota

March 9, 2023 | WSB Project number: 020458-000

CASHMAN PROPERTY PHASING / COST ESTIMATE

PHASE 1 :

- BITUMINOUS ENTRANCE ROAD, PARKING LOTS AND SIDEWALKS – $365,800
- TRAILHEAD BUILDING AND PLAZA -$303,400
- DISC GOLF COURSE (27 HOLES) - $100,000
- NORTH PICNIC SHELTER/TABLES - $90,500

SUB-TOTAL: $859,700

CONTINGENCY (10%) - $85,970

ENGINEERING, DESIGN, ADMIN, TESTING + STAKING (15%) - $128,955

CASHMAN PARK PHASE 1 TOTAL: $1,074,625

PHASE 2 :

- NORTH/SOUTH TRAIL - $177,500
- SOUTH PARK ENTRANCE ROAD/PARKING AND SIDEWALKS - $67,540
- SOUTH PARK SHELTER, ENTRANCE MONUMENTS AND NATURAL PLAY AREA - $231,100
- PRIMITIVE CAMPING SITES - $34,260

SUB-TOTAL: $476,140

CONTINGENCY (10%) - $47,614

ENGINEERING, DESIGN, ADMIN, TESTING + STAKING (15%) - $71,421

CASHMAN PARK PHASE 2 TOTAL: $595,175

PHASE 3:

- PANHANDLE ENTRANCE ROAD/PARKING LOT AND SIDEWALKS - $95,100
- PICKLEBALL AND FITNESS COURTS, SHELTER, GAMES AND SCREENING- $382,310

SUB-TOTAL: $477,410

CONTINGENCY (10%) - $47,741

ENGINEERING, DESIGN, ADMIN, TESTING + STAKING (15%) - $71,612

CASHMAN PARK PHASE 3 TOTAL: $596,763

CASHMAN PARK TOTAL: $2,266,563

wsb

OWATONNA PARKS, RECREATION AND FACILITIES

TRAIL BRIDGE "B"

PROPOSED 50' ACCESS EASEMENT

CONNECT TO NSRP TRAIL

S1

S2

S3

ENLARGEMENT 1

100 YEAR FLOODPLAIN

ABANDONED RAILROAD / EASEMENT

STRAIGHT RIVER

WASTE WATER TREATMENT PLANT

LAKESIDE FOODS

TRAIL TUNNEL "B" UTILITIES INCLUDE: SANITARY SEWER & STORMWATER

TRAILHEAD :
- PARKING LOT
- RESTROOM BUILDING
- SIGNAGE
- BIKE REPAIR STATION
- BIKE RACKS
- BENCHES

N CEDAR AVE.

N ELM AVE

11TH ST. NE

ENLARGEMENT 2

ALTERNATE: PEDESTRIAN STREET CROSSING / BUMPOUTS @ GRADE

MAPLE CREEK PARK

TRAIL TUNNEL "A" UTILITIES INCLUDE: STORMWATER

FLOODWAY

TRAIL BRIDGE "A"

ALTERNATE ROUTE : NORTH STREET
IF ACCESS EASEMENT NOT AVAILABLE THROUGH LAKESIDE FOODS PROPERTY

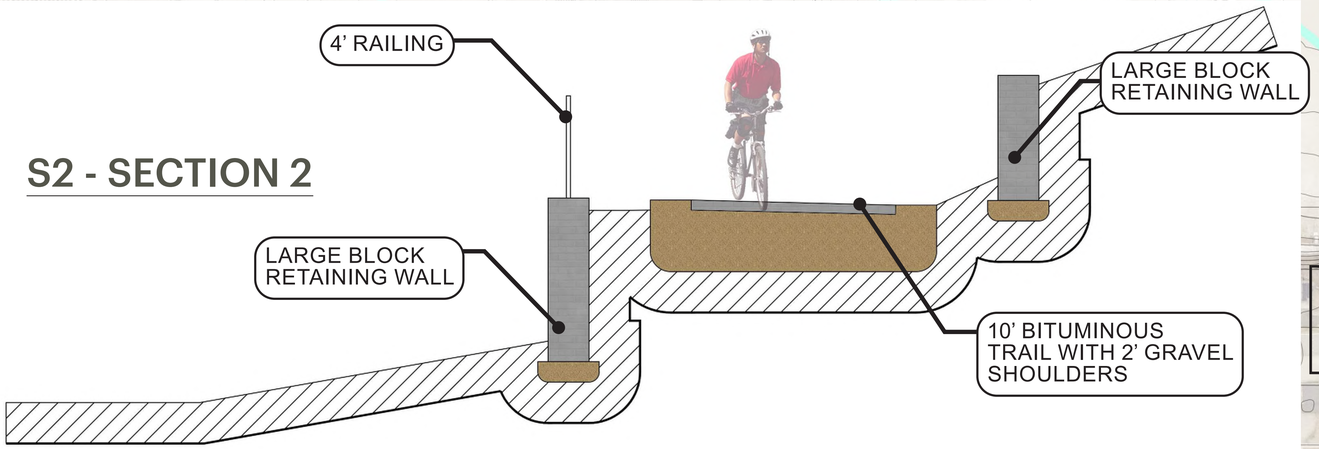
ENLARGEMENT 3

CONNECT TO BUXTON TRAIL

10' TRAIL IN EXISTING SIDEWALK LOCATION

NORTH ST.

S2 - SECTION 2



NSRT to Buxton Trail Connection - Overall Concept Plan

Owatonna, MN

March 9, 2022 | WSB Project number: 020458-000

wsb

OWATONNA PARKS, RECREATION AND FACILITIES

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BUXTON TRAIL TO NSRT CONNECTION CONCEPT PLAN

TRAIL CONSTRUCTION:

- PREFABRICATED TRAIL BRIDGE A – 10’ X 70’, APPROX 5’ HIGH - $331,000
- PREFABRICATED TRAIL BRIDGE B – 10’ X 120’, APPROX 12’ HIGH - $514,000
- 14’ WIDE X 10’ HIGH UNDERPASS A - $164,000
- 14’ WIDE X 10’ HIGH UNDERPASS B - $177,000
- REROUTE UTILITIES AT UNDERPASSES - $200,000
- CLEARING AND GRUBBING - $85,090
- 10’ BITUMINOUS TRAIL - $112,000
- AGGREGATE BASE/GRADING - $75,000
- CONCRETE CURB - $27,300
- STORM SEWER - $52,500
- RETAINING WALLS/FENCE - $594,000
- LIGHTING - $125,000
- LANDSCAPING - $35,000
- SEEDING - $26,130

SUB-TOTAL: $2,518,020

TRAILHEAD FACILITY :

- ENTRANCE ROAD, PARKING LOT AND SIDEWALKS- $38,010
- RESTROOM BUILDING - $250,000
- SITE AMENITIES - $34,500
- LANDSCAPING - $5000

SUB-TOTAL: $336,060

TOTAL: $3,190,140

CONTINGENCY (10%) - $319,014

ENGINEERING/DESIGN/ADMIN/STAKING + TESTING (15%) - $478,521

ESTIMATED TRAIL CONCEPT TOTAL: $3,987,675

Parks, Trails, Recreation & Facilities Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jenna Tuma, Parks, Trails, Recreation & Facilities Director
Mary Knudson, Administrative Specialist
SUBJECT: Recommendation for new Regional Park Name

Purpose:

Approve recommendation of the name “River’s Edge River’s Regional Park” for Owatonna’s new regional park.

Background:

The City Council adopted a Parks and Trails System Master Plan in February, 2020. That plan recommended creating a regional park to be eligible for Minnesota’s Clean Water, Land and Legacy Amendment funding. To apply for this funding, a Park Master Plan is required demonstrating a clear and transparent community engagement process was utilized.

The year-long process for developing the Park Master Plan began last summer and included a robust public input process on how to utilize these areas to address the community’s current and future needs. Over the course of a year, City staff and the consultant conducted six focus group meetings with 27 participants, held two open houses that resulted in a steady flow of participants, exhibited information at the County fair generating 123 completed comment sheets, provided an online interactive map that had 1,949 unique visitors and an online survey that garnered 212 responses.

The 2,000-plus data points generated through this public outreach effort were used to create the Park Master Plan which recommends creating the regional park by combining Morehouse Park, Kaplan’s Woods Parkway, Kaplan’s Woods, Lake Kohlmier Area and adjacent property along the Straight River. It also recommended the name for the new park represent all four areas. The Engage Owatonna community online platform was used in April to request public input regarding naming the new regional park. Two names that emerged through the previous public outreach were posted along with an invitation to submit a naming suggestion or post a reaction to the posted suggestions. This Engage Owatonna project resulted in 655 unique visitors, 166 reactions and 74 names being contributed, some of which were repeated. In addition, Facebook and printed naming submission forms were utilized to invite suggestions, resulting in one additional suggestion.

The 75 name suggestions were presented to the Park Board prior to its May 8 meeting along

with a suggested name provided in person. The following eight names were recommended by City staff for Park Board consideration:
Straight River Regional Park (34 online votes)
Wakpa' Owothanja Park (12 online votes)
Rivers Edge Regional Park (5 online votes)
Wakpa Regional Park (5 online votes)
Owatonna Regional Park (2 online votes)
Straight River Greenway (1 online vote)
Kaplan Regional Park (2 online votes)
Morehouse Regional Park

The Park Board had a lengthy discussion at its May 8 meeting about these names. They expressed support for selecting a Dakota name as was suggested through community input; however, they would need additional information regarding relevance and appropriateness. Concerns were expressed about the confusion that may be caused by names such as Straight River Park, since there are Straight River Parks in Medford and Faribault. They also expressed concerns about using or combining any of the existing names such as "KapMore" as any single name combination would not adequately honor all four areas being combined. The Board approved a recommendation to adopt Rivers Edge Regional Park because it is descriptive, simple and easy to remember and sounds adventurous. The Board agreed with the plan's suggestion to honor existing names by applying them to specific, prominent features within these areas. Current park names will continue to be used as names of prominent features in the new park. For example, Morehouse Dam, Kaplan's Woods Mountain Biking Facility and Lake Kohlmier Beach.

Naming recommendations must comply with the City of Owatonna's policy for naming facilities.

Budget Impact:
No immediate impact. New signage and promotional materials will be needed to promote the new park.

Staff Recommendation:
Staff recommends the combined properties be named River's Edge Regional Park.

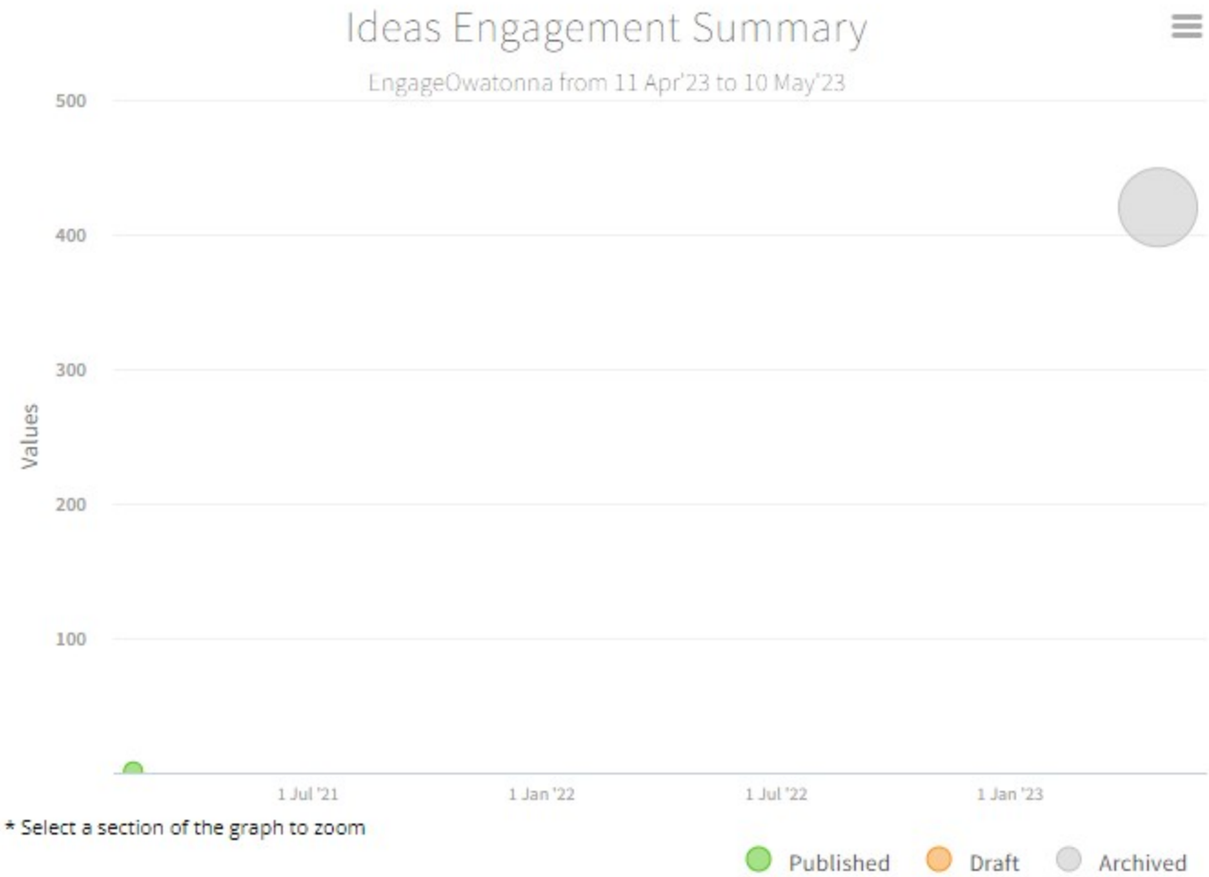
Attachments:
1. Engage Owatonna Summary Report-Highlights
2. City Policy - Naming of Public Property

Projects 7 | 11 Apr '23 - 11 May '23 | Update | Download Report

SELECTED PROJECTS: "Engage in Our Owatonna Community!" and 6 more...

OVERVIEW

IDEAS	PUBLISHED	DRAFT	ARCHIVED
4	2	1	1



Select a Idea to view its details

All Ideas

VISITORS		
421		
CONTRIBUTORS	CONTRIBUTIONS	
74	166	
0 Admin	74 Registered	0 Unverified
0 Anonymous		

POLICY FOR NAMING PUBLIC PROPERTIES

WHEREAS, the City Council wishes to carefully deliberate the naming of streets, parks and other public places; and,

WHEREAS, the City Council desires that during such deliberations, particular consideration will be given to honor people or events associated with Upper Arlington in addition to other standards established by these guidelines; and,

WHEREAS, the City Council desires that any individual, group or organization may propose a name to City Council using an application available from the City Manager's office; and,

WHEREAS, while these guidelines are expressed in the document with their intended purposes and goals, they are intended to be guidelines only and interpreted as such, meaning, under circumstances deemed appropriate by Council and the City Manager, any of the guidelines/standards set forth herein may be waived or amended with the recommendation of the City Manager and by a majority vote of Council;

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Upper Arlington hereby adopts the following guidelines for the City of Upper Arlington to be used when considering the naming of public properties.

BE IT FURTHER RESOLVED that the policy should be administered as follows:

Section 1. General Guidelines

1.1 Under these Guidelines, the City will consider the naming of publicly owned streets in their entirety of at least one block in length, traffic islands, parks and buildings or components within parks or buildings.

1.2 No name will be given to any public property which may limit its use.

1.3 The naming of any property shall not provide a property right to the recipient of the naming.

1.4 There is no assumption of right for a private donor to name a property because the property was a gift to the public unless such right was required contractually with an agreement.

1.5 The naming of residential subdivision plats and streets will be allowed by the developer if the names are in compliance with Section 1.4 of these Guidelines, as well as other regional standards as applied by the City's Community Development Director or designee.

1.6 The legend of any sign or plaque as required in Section 3.1 must be written or approved by the committee as appointed under Section 4.1.

1.7 The City reserves the right to deviate from the policy if it is deemed to serve the best interest of the City.

Section 2. Community Standards for Naming

2.1 Naming of public places for people, other places, events or for any other purpose will be considered for approval by City Council if the naming qualifies under the standards of community recognition that include but are not limited to the following

a) A person (living or deceased), group or recognition of great significance (historically or culturally) to Upper Arlington, the State, the Nation or the World.
b) Person may have been associated with Upper Arlington as a resident, an elected official, a volunteer or known for a particular community action.
c) Recognition is consistent with Upper Arlington public policy.
d) The name is deemed to be in the best interest of the City.

2.2 Naming may be considered based on the provision of significant funding that underwrites the cost of renovation or construction of public places. Financial underwriting may be broadly defined as substantial monetary contributions that completely or significantly enable renovation or construction to occur. This may include monetary gifts, sponsorship agreements or donation of land. Naming of public places in conjunction with a gift, donation, or sponsorship agreement may be reviewed as part of any City or project specific gift or sponsorship policy and may be exempt from the process outlined in Section 4.1. The project Department or Committee will make a recommendation to City Council for naming of public places that result from a gift, donation, or sponsor agreement.

2.2.1 Philanthropic naming rights: Property may be named after individuals or groups who have made philanthropic donations of property or who have made a contribution toward the development of public property. The threshold for considering the naming of public places will include one or more of the following:
a) Land for the majority of the development was deeded to the City.
b) Contribution to the capital construction cost associated with developing the project or an amount as established in the specific project funding policy.
c) The donation is not required by the City or by reason of other ordinance, law or regulation.

d) The donation is consistent with other policy.

2.2.2 The City may establish philanthropic naming rights plans for components of facilities (e.g. rooms within a building, athletic fields, gardens, playgrounds, etc.) subject to the following.

a) Assets for which naming opportunities may be offered may be valued as a function of capital costs, annual operating and maintenance costs, and desirability or marketability of the opportunity.
b) Naming rights may be approved for a specific term, which may not be longer than the useful life of the property, facility, or component.
c) The agreement is consistent with other policy.

2.2.3 Corporate naming rights: Naming rights may be granted where a mutually beneficial business arrangement between the City and an external entity (for-profit, not-for-profit, or other organization) whereby the external entity provides financial or other support in return for access to a commercial and/or marketing potential associated with the external entity's name on City property.

a) Proposals for naming should be evaluated against the City's mission, vision and values. The naming entity products, services and business practices should not contradict, to the extent reasonably ascertainable, the mandate, policies or objectives of the City.
b) Corporate logos, wordmarks and similar graphic identifiers will not be permitted on any signage related to naming rights without the approval of Council.
c) Assets for which naming opportunities will be offered may be valued as a function of capital costs, annual operating and maintenance costs, and desirability or marketability of the opportunity.
d) Naming rights may be approved for a specific term, which may not be longer than the useful life of the property or facility.
e) The agreement is consistent with other policy.

2.4 Naming of public places pursuant to deed restrictions shall be based on the conditions of property donations and transfers unless otherwise determined by law or by City Council.

2.5 Exclusions: In order to assure the quality of the name, the following exclusions should be made:

a) Names that are discriminatory or derogatory will not be considered.

2.6 If it is found that an individual or group's character is or was such that the continued use of their name would not be in the best interest of the community,

City Council reserves the right to initiate a naming process to rename the street or public place.

Section 3. Financial Considerations and Limitations on Naming Rights

3.1 A permanent sign, or a plaque which explains the significance of the name, may be placed at the site. Costs of the sign or plaque will be borne as follows:

a) Costs for signs for city-named streets will be borne entirely by the City unless otherwise agreed to by the parties.
b) Costs for signs for streets in privately developed residential subdivisions will be borne by the City unless otherwise agreed to by the parties.
c) Costs for signs or plaques for other properties requested and named by the City will be borne entirely by the City unless otherwise agreed to by the parties.
d) Costs for signs of plaques for other properties requested for naming by a private entity will be shared by the City and the requesting party as follows:
    i. Costs for a plaque or sign of uniform, reasonable size which would normally be placed upon the property will be borne by the City.
    ii. Unusual costs for a plaque or sign will be borne by the private entity requesting the unusual sign or plaque.

3.2 The granting of naming rights will not entitle the naming entity to preferential treatment outside any specific naming rights agreement.

Section 4. Process

4.1 In naming public properties, as initiated either by the City or by an individual or group, the following process should be followed:

a) The requesting entity should complete an application and submit it to the City Manager's office who should review the application forward it to Council with a recommendation for consideration at the next most convenient work session.
b) Upon notice of the application, the City Council will then, by majority vote, decide whether to forward the application to an ad hoc committee as described herein or whether to take no further action on the request or to act on the recommendation immediately. If the decision is to forward the application to an ad hoc committee, the committee may be an existing Board or the President may appoint a new ad hoc committee consisting of

a Member of Council, designated employees of the City, and four other residents who are representative of the community.

c) The ad hoc committee will consider the application in light of these Guidelines and standards of community recognition.
d) The ad hoc committee may obtain the agreement of the individual or next of kin in the case of deceased individuals or the elected board or other legal authority in the case of groups, on naming a street or public place on their behalf.
e) The ad hoc committee must reach a decision for naming within 90 days.
f) The recommendations from the ad hoc committee should include notice of any guidelines that would need to be waived if approved and a recommendation of whether or not to waive any of the guidelines/standards set forth herein and the legend for any sign or plaque.
g) City Council will consider the recommendation of the ad hoc committee and determine, by majority vote, whether or not to approve the application.
h) Approved applications must be kept on file with the City Clerk's office to provide a permanent record of the significance of names.

4.2 Applicants for naming of residential subdivision streets are exempt from Section 4.1 but must submit an application to the City's Community Development Director or designee for approval under Sections 1.4 and 1.6 of these Guidelines.

4.3 Size of signs and plaques and placement may be regulated by the City Code and if applicable may be approved by the appropriate City Official.

4.4 Renaming: Tradition and continuity of name and community identification are important community values, and therefore, the intent of naming is for permanent recognition. Renaming of public places is strongly discouraged and carries with it a much greater burden of process compared to initial naming. It is recommended that efforts to change a name be subject to the most critical examination so as not to diminish the original justification for the name or discount the value of the prior contributors. The following recommendations should be considered:

a) Renaming a facility for a person, when that facility is already named for a person, should only be undertaken with the utmost consideration. Public places named after individuals should not be changed unless the person for whom it is named turns out to be disreputable or subsequently acts in a disreputable way.
b) Renaming of public places may arise in financial underwriting philanthropic naming rights programs, corporate naming rights and sponsorships as specified in such agreements.
c) Honorary dedications may include adding a secondary name that complements existing official names rather than replacing existing names.

4.5 City reserves the right to amend these guidelines through the legislative process.

Parks, Trails, Recreation & Facilities Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Jenna Tuma, Parks, Trails, Recreation & Facilities Director
Aaron Fitzloff
SUBJECT: Change Orders - Council Chamber Renovation Project - Ebert Construction

Purpose:

Requesting City Council approval for change orders related to the Council Chambers project.

Background:

During the site staking for the underground utility work on the Council Chambers project, an unidentified manhole utility component was discovered. This component will provide a better utility connection and a shorter route for the planned utilities, a saving of trees, reduction in construction costs, and an opportunity to replace an aged structure (see photo). This change resulted in the need for additional design work by CRW Civil Engineering consultants. Attached are the documents for the Ebert Construction and CRW architecture + design group change orders. Also included in this change order are other project adjustments as noted in the documents.

Budget Impact:

Ebert Construction Change Order: contract change to $1,617,244.46, a change of $8,127.15
CRW architecture+ design group: contract change to $116,450, a change of $3,800

Description of Work	12/2022 Budget	2/2023 Budget	2/2023 Budget	May 2023
Ebert Construction	$1,626,400	$1,609,117	$1,609,117	$1,617,244
Advanced Audio & Lighting (AAL) AV Commissioning and Equipment	$158,000	$152,800	$152,800	$152,800
AAL Temp Library setup		$4,500	$4,500	$4,500
Temp. PEG Channel		$~5,000	$1,685	$1,685
Soft Costs: permits, furniture & smallware's	$~60,000	$~60,000	$~60,000	$~60,000
Door Card Access	$~35,000	$~35,000	$~35,000	$~35,000
CRW Professional Services	$108,850	$112,650	$112,650	$116,450
Contingency 10% construction	$162,640	$162,640	$162,640	$73,088
Project Total:	**$2,150,890**	**$2,141,707**	**$2,138,392**	$2,060,767

Staff Recommendation:

Staff recommends approval.

Attachments:

1. Ebert Construction #2 Change Order documents
2. Ebert #2 Change Order Signed
3. CRW Council Chamber Project Utility Design

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal

To: City of Owatonna
540 West Hill Circle
Owatonna, MN 55060
Ph: (507)444-4370 Fax: (507)444-4351

Number: ASI001
Date: 3/30/23
Job: 6595 Owatonna City Hall Remodel
Phone:

Description: ASI 001 Pricing Changes

Proposed are the following changes:

Cost related to project document changes outlined in ASI 001. Backup pricing from subcontractors is included.

There is no cost increase to switch to an undermount sink at the meeting room countertop. The faucet remains the same as previously submitted on.

The plumbing and electrical changes included in this pricing are based on the architectural elevation notes only. A revision to the approriate plan pages is requested to fully capture these changes.

The total amount to provide this work is $3,844.81

(Please refer to attached sheet for details.)

If you have any questions, please contact me at 763-498-7844.

Pricing subject to review/change if not approved within 14 days of receipt.

Submitted by: Josh Busse
Ebert

Approved by: _____
Date: _____

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal ASI001 Price Breakdown
Continuation Sheet

Description: ASI 001 Pricing Changes

Description	Labor	Material	Equipment	Subcontract	Other	Price
Fabricate and Install Addition Handrail Sections		$920.00		$218.00		$1,138.00
Remove Portion of Base Cabinets in Meeting Room				$-174.00		$-174.00
Remove Portion of Upper Cabinets in Meeting Room				$-171.00		$-171.00
Add Finished Ends to Cabinets in Meeting Room				$60.00		$60.00
PLAM-1 Changed to Wilsonart Traceless Slate Velvet Per Owner's Request				$1,301.00		$1,301.00
Additional Painting of Railings				$306.40		$306.40
Add Water Line For Owner's Future Coffee Equipment and Insulate				$562.57		$562.57
Add Outlet for Owner's Future Coffee Equipment and Outlet for Owner Fridge				$525.00		$525.00

Subtotal:			**$3,547.97**
Self-Performed OH&P			$0.00
Sub-Performed OH&P	$3,892.97	5.00%	$194.65
Bond, Insurance	$4,087.62	2.50%	$102.19
Total:			**$3,844.81**

Linco Fab. Inc.

12786 60th Street N.E.
St. Michael, MN 55376

Phone: (763) 497-2660
Fax: (763) 497-3986
E-mail: Brian@lincosteel.com

DATE: 03/06/23

TO: Ebert
ATTN: Josh Busse
RE: Owatonna Council Chambers

CITY: Owatonna
PLANS DATED: 2/23/23
PLANS: ASI #1

In accordance with plans and specifications of the referenced project, we propose to furnish and install the materials listed below based on the terms and conditions below.

Total Quotation (Tax Included):	**$**	**920**
Structural Steel (Approx):	-	Lbs.
Steel Joist (Approx):	-	Ton
Metal Deck Primed Gray (Approx):	**0**	Sqs.

Misc Metals Included (see attachment for details)

NOTE 1: This quote relates to ASI #1. It added handrail.

Pricing is valid for 15 days unless noted otherwise on this proposal.

Please sign and fax back to 763-497-3986, if Linco is to proceed.

Accepted:_____ DATE:_____

EXCLUSIONS: Bid bond, liquidation damages, testing, performance & payment bonds, field measurements, grout, shims, touch-up painting, cutting holes in deck, barricading of openings, installation of loose lintels (including lintels on bearing plates), embedded items, welding brick angle to metal studs, demolition, painting roof welds, shoring, installation of acoustical insulation, chipping slag off of welds, protection of existing glass, carpet, equipment, and other existing items near the work area, and cleaning of steel after delivery due to muddy job site conditions. Linco must have access to the job site in order to complete work, opening needs to be at least 12 feet wide by 14 feet tall for equipment and trucks when applicable.

Yours very truly
Linco Company

Brian Schmitz _____

Josh Busse

From: scott ameconstructioncorp.com <scott@ameconstructioncorp.com>
Sent: Monday, March 6, 2023 6:49 AM
To: Josh Busse
Subject: Fw: ASI 001 (Plan Review Revisions)

Follow Up Flag: Follow up
Flag Status: Flagged

Josh

A.M.E. Construction has an add of $218.00 for ASI #001.

2 man hours @ $92 per hour	$184
1 hour truck & welder @ $34 per hour	$34
Total	$218

Labor related to handrail changes.

R.Scott Vickerman

A.M.E. Construction Corp.
Estimator / Owner
scott@ameconstructioncorp.com
Office: (952)449-8866 / Mobile (612) 919 2281

CHANGE REQUEST

DATE: 03/20/23
CR #: 2-REV1

SUB CONTRACTOR
DISTINCTIVE CABINET DESIGN 30 2ND AVENUE WEST FOLEY, MN 56329 PHONE: (320) 968-4351 FAX: (320) 968-4352 EMAIL: stevew@distinctivecabinet.com

CONTRACTOR/PROJECT NAME & ADDRESS
Ebert Construction 2942 - Owatonna City Council Renov 540 West Hills Circle Owatonna, MN 55060 Attn: Josh Busse

DESCRIPTION AND PRICING OF PROPOSED WORK ADD OR (DEDUCT)
NO MATERIAL, PRODUCT OR HARDWARE WILL BE ORDERED UNTIL A SIGNED CHANGE ORDER IS RECEIVED

ITEM #	REFERENCE:	TOTAL
	Changes to Meeting (2/A5.3) Elevation per ASI 001	
1	Removal of Portion of base cabinets	($174.00)
2	Addition of finished end	$60.00
3	Removal of Portion of upper cabinets	($171.00)
4	PLAM-1 Changed to Wilsonart Traceless Slate Velvet 15507-31	$1,301.00
	THIS CONTRACT AMOUNT WILL BE ADJUSTED BY THIS AMOUNT	$1,016.00

Itemized breakdown reflected on Ebert's change proposal.

RETURN THIS REQUEST TO DISTINCTIVE CABINET DESIGN IMMEDIATELY. NONE OF THE ABOVE WORK WILL BE MANUFACTURED UNTIL THIS APPROVED CHANGE REQUEST OR AN OFFICIAL CHANGE ORDER HAS BEEN RETURNED TO DISTINCTIVE CABINET DESIGN

SUBMITTED:
BY: Steven Wallen
DISTINCTIVE CABINET DESIGN

APPROVAL DATE:

APPROVED BY:

PRINTED NAME:

High Performance Coatings, Inc.
568 50th Street NE
Buffalo, MN 55313
+1 3208152141
highperformancecoatingsmn@hotmail.com
http://highperformancecoatingsinc.com

Estimate

ADDRESS
Owatonna City Hall

ESTIMATE # 5587
DATE 03/06/2023

ACTIVITY	QTY	RATE	AMOUNT
~~ASI~~ ASI 001 - Labor & Materials to paint additional Railing	1	306.40	306.40

Thank you for giving us the opportunity to look at your upcoming project. We look forward to working with you. Please do not hesitate to reach out with any questions.

Mike Wheeler - 320-815-2141
Sam Adams - 763-204-5889

TOTAL **$306.40**

Accepted By

Accepted Date

NEW LINE MECHANICAL

1527 Voll Drive NW
Byron, MN 55920
Phone: (507) 315-1995 Fax: (507) 315-1997

Change Order Request

Date	Request #
03/08/23	ASI 001

Project
Owatonna City Council

Project #

Name / Address
Ebert Construction

Description			Qty	Total
Pricing for ASI 001				
Material:				
Material Cost				$ 105.71
Sales Tax	8%			$ 8.59
Total Material:				**$ 114.30**
Labor:				
Labor Cost	Rate:	$ 92.00	3	$ 276.00
Total Labor Cost:				**$ 276.00**
Insulation				
Material:				
Material Cost				$ 19.54
Sales Tax	8%			$ 1.59
Total Material:				**$ 21.13**
Labor:				
Labor Cost	Rate:	$ 100.00	1	$ 100.00
Total Labor Cost:				**$ 100.00**
Mark-up			**10%**	**$ 51.14**
Subcontractor				
Name				
Mark-up	5%			$ -
Total :				**$ -**
All quotes are subject to change after 30 days!				
Thank you for your business!			TOTAL	$ 562.57

Cost to add water line for owner's future coffee equipment and insulate line.

Four Seasons Electric
3127 S County Rd 45
Owatonna, MN 55060

Change Order

Date	Estimate #
3/6/2023	5043

Name / Address
EBERT Construction 23350 Cty RD 10 Corcoran, MN 55357

Project
CO #1 Meeting Room Counter Coffee Power

Description	Qty	Cost	Total
Owatonna City Chambers:			
Add Meeting room counter power / circuit for coffee maker & Fridge outlet:	1	525.00	525.00
THANK YOU!!		**Total**	$525.00

Customer Signature _____

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal

To: City of Owatonna
540 West Hill Circle
Owatonna, MN 55060
Ph: (507)444-4370 Fax: (507)444-4351

Number: CP006
Date: 4/20/23
Job: 6595 Owatonna City Hall Remodel
Phone:

Description: Additional Data Conduits

Proposed are the following changes:

Cost to run new conduit to additional locations per marked up plans dated 4/4/23. Floor sleeves / Surface or in wall sleeves / To above ceiling. Basement conduits runs are not included - Cabling to be "Free Air" installed.

Conduit only, all new wiring to be provided and installed by owner's A/V contractor.

The total amount to provide this work is $5,527.24

(Please refer to attached sheet for details.)

If you have any questions, please contact me at 763-498-7844.

Pricing subject to review/change if not approved within 14 days of receipt.

Submitted by: Josh Busse
Ebert

Approved by: _____
Date: _____

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal CP006 Price Breakdown
Continuation Sheet

Description: Additional Data Conduits

Description	Labor	Material	Equipment	Subcontract	Other	Price
Provide and install new conduit as outlined in subcontractor's quote sheet.				$5,135.65		$5,135.65
					Subtotal:	**$5,135.65**
			Self-Performed OH&P			$0.00
			Sub-Performed OH&P	$5,135.65	5.00%	$256.78
			Bond, Insurance	$5,392.43	2.50%	$134.81
					Total:	**$5,527.24**

Four Seasons Electric
3127 S County Rd 45
Owatonna, MN 55060

Proposal

Proposal Date: 4/20/2023
Proposal #: 5101
Project: CO #2 Data Conduits

Bill To:

EBERT Construction
23350 Cty RD 10
Corcoran, MN 55357

Description	Est. Hours/Qty.	Rate	Total
Additional data conduits:	1	5,135.65	5,135.65
* Per additional locations on marked up plans dated 4/4/23			
* Floor sleeves / Surface or in wall sleeves / To above ceiling			
* Basement conduits runs are not included - Cabling to be "Free Air" installed			

THANK YOU!!

Total $5,135.65

Phone: 507-456-1613

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal

To: City of Owatonna
540 West Hill Circle
Owatonna, MN 55060
Ph: (507)444-4370 Fax: (507)444-4351

Number: CP007
Date: 4/21/23
Job: 6595 Owatonna City Hall Remodel
Phone:

Description: Permit Related Credits

Proposed are the following changes:

Permit credits for the building, HVAC, and plumbing permit fees that were waived by the city. Fire suppression permit and electrical fees were paid directly by the contractors. Backup included that shows how fee credit amounts were determined.

The total amount to provide this work is ..... $-7,438.06

(Please refer to attached sheet for details.)

If you have any questions, please contact me at 763-498-7844.

Pricing subject to review/change if not approved within 14 days of receipt.

Submitted by: Josh Busse
Ebert

Approved by: _____
Date: _____

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal CP007 Price Breakdown
Continuation Sheet

Description: Permit Related Credits

Description	Labor	Material	Equipment	Subcontract	Other	Price
Building Permit Fee Credit					$-6,277.08	$-6,277.08
Plumbing Permit Fee Credit				$-431.34		$-431.34
HVAC Permit Fee Credit				$-729.64		$-729.64

Subtotal:	**$-7,438.06**
Self-Performed OH&P	$0.00
Sub-Performed OH&P	$0.00
Bond, Insurance	$0.00
Total:	**$-7,438.06**

Josh Busse

From: Aaron J. Fitzloff <Aaron.Fitzloff@ci.owatonna.mn.us>
Sent: Tuesday, April 4, 2023 7:18 AM
To: Josh Busse; Teresa McCormack
Subject: RE: Council Chambers Permit Fee Mock Up

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

That sounds fair to me and hopefully may see credits from the other contractors. Cause I'm guessing we would wave those. Might want to make them aware of that. But can also figure it as we go.

Aaron Fitzloff
City of Owatonna
540 West Hills Circle Drive
Owatonna, MN 55060
Facility Manager- Government Buildings and Grounds
C-507-456-5588
O-507-774-7097

From: Josh Busse <jbusse@ebertcompanies.com>
Sent: Tuesday, April 4, 2023 7:10 AM
To: Aaron J. Fitzloff <Aaron.Fitzloff@ci.owatonna.mn.us>; Teresa McCormack <tmccormack@crwarchitecture.com>
Subject: RE: Council Chambers Permit Fee Mock Up

Aaron,

These values look like they are based of the total value of the project which would include plumbing, mechanical, electrical, and sprinkler. Because those contractors apply for their permits separately based on the values of their work, I don't include it in the value of the building permit application as those contractors also pay for their permits separately. Based on the city's permit value chart online I carried a total of $6,782.56 which includes permit fee and the 65% plan check fee based on a valuation of $1,150,000 after MEP values are backed off. My costs to this point for DoLi plan review fees and grading permit fee have totaled $505.48 so I'd like to back that off the credit amount leaving **$6,277.08**. I didn't see a mention of a state surcharge anywhere online so I'm not sure how that amount is calculated.

Thanks,

Building permit credit amount from Ebert.

EBERT
Josh Busse I Project Manager
23350 County Road 10, Corcoran, MN 55357 | ☎Cell: 612-263-3632 | ☎Phone: 763-498-7844 | Web www.ebertcompanies.com

---

From: Aaron J. Fitzloff <Aaron.Fitzloff@ci.owatonna.mn.us>
Sent: Tuesday, April 4, 2023 5:31 AM
To: Josh Busse <jbusse@ebertcompanies.com>; Teresa McCormack <tmccormack@crwarchitecture.com>
Subject: FW: Council Chambers Permit Fee Mock Up

Josh Busse

From: Jeremy Bantley <jeremy@newlinemech.com>
Sent: Wednesday, April 12, 2023 7:32 AM
To: Josh Busse
Subject: RE: Owatonna Council Chambers Permit Fee

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Josh,

I just received an email to pay for my permit… $431.34. Should I pay it or do you want to talk to the city?

Thanks,

Jeremy Bantley
NEW LINE MECHANICAL
Office: (507) 315-1995
Mobile: (507) 993-1525

Plumbing permit fee amount from the city.

From: Josh Busse <jbusse@ebertcompanies.com>
Sent: Tuesday, April 11, 2023 11:35 AM
To: Jeremy Bantley <jeremy@newlinemech.com>
Subject: RE: Owatonna Council Chambers Permit Fee

Ok, so maybe the city will be covering that cost as well. I have been asked to work up a credit for permit costs based on what the city is covering. Can you send me a credit amount for your permit once you know for sure you won't be paying for anything directly? Whatever you think is fair.

Thanks,

EBERT
Josh Busse I Project Manager
23350 County Road 10, Corcoran, MN 55357 | ☎Cell: 612-263-3632 | ☎Phone: 763-498-7844 | Web www.ebertcompanies.com

From: Jeremy Bantley <jeremy@newlinemech.com>
Sent: Tuesday, April 11, 2023 9:31 AM
To: Josh Busse <jbusse@ebertcompanies.com>
Subject: RE: Owatonna Council Chambers Permit Fee

Josh Busse

From: Building Inspections <inspect@ci.owatonna.mn.us>
Sent: Tuesday, April 18, 2023 8:45 AM
To: Josh Busse; Building Inspections
Cc: Aaron J. Fitzloff
Subject: RE: Payment Received

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

The permit fee was $729.64

Thanks!

HVAC permit fee amount from the city.

Nikki Callahan
Administrative Technician
City of Owatonna
Building Inspections
540 West Hills Circle
507-444-7370

From: Josh Busse <jbusse@ebertcompanies.com>
Sent: Monday, April 17, 2023 4:15 PM
To: Building Inspections <inspect@ci.owatonna.mn.us>
Cc: Aaron J. Fitzloff <Aaron.Fitzloff@ci.owatonna.mn.us>
Subject: FW: Payment Received

Hi Nikki,

Are you able to tell me what the total permit fee for this HVAC permit would have been?

Thanks,

EBERT
Josh Busse I Project Manager
23350 County Road 10, Corcoran, MN 55357 | ☎Cell: 612-263-3632 | ☎Phone: 763-498-7844 | Web www.ebertcompanies.com

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From: OHCmain <OHCmain@owatonna-heating.com>
Sent: Monday, April 17, 2023 10:54 AM
To: Josh Busse <jbusse@ebertcompanies.com>; Wes Kain <wes.kain@owatonna-heating.com>
Subject: Fwd: Payment Received

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal

To: City of Owatonna
540 West Hill Circle
Owatonna, MN 55060
Ph: (507)444-4370 Fax: (507)444-4351

Number: CP008
Date: 4/26/23
Job: 6595 Owatonna City Hall Remodel
Phone:

Description: Civil Plan and Utility Changes

Proposed are the following changes:

Cost associated with civil plan changes resulting from city and state plan review comments as well as changes to the utilty plan layouts following discussions with the city to re-route sanitary piping to a different manhole location. Backup from subcontractors is included with this change proposal. Ebert is formally requesting a full three week extension to the contractual substanital completion date as a result of these changes.

The total amount to provide this work is $15,318.16

(Please refer to attached sheet for details.)

Please note that Ebert Companies will require an extra 21 Days.

If you have any questions, please contact me at 763-498-7844.

Pricing subject to review/change if not approved within 14 days of receipt.

Submitted by: Josh Busse
Ebert

Approved by: _____
Date: _____

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal CP008 Price Breakdown
Continuation Sheet

Description: Civil Plan and Utility Changes

Description	Labor	Material	Equipment	Subcontract	Other	Price
Additional trip to verify benchmark elevations and measure additional spot elevations per city's request.				$618.75		$618.75
Recalculate new sewer line location and re-stake said sewer line.				$412.50		$412.50
Credit back for reduced area requiring new seeding and erosion control blanket.				$-348.15		$-348.15
Construction entrance added via city plan review comments.				$1,500.00		$1,500.00
Additional bio logs added via city plan review comments.				$400.00		$400.00
Removal of existing MH to replace with MH-03.				$2,000.00		$2,000.00
Materials and install of new structure MH-04.				$7,500.00		$7,500.00
Materials and install of new casting to MH-04.				$800.00		$800.00
Flowable fill for 12 storm and 8 sanitary under addition foundation.				$6,800.00		$6,800.00
Deduct removal of 8 sanitary pipe under foundation.				$-2,000.00		$-2,000.00
Deduct removal of 12 sanitary pipe under foundation.				$-2,500.00		$-2,500.00
Credit back material and install of 106 of 8 sanitary piping to original tie-in structure.				$-4,500.00		$-4,500.00
Project Management Time (10 Hours/Week x 3 Weeks x $45/Hour)	$1,350.00					$1,350.00
Project Supervision Time (5 Hours/Week x 3 Weeks x $93.75/Hour)	$1,406.25					$1,406.25

		Subtotal:	**$13,439.35**
Self-Performed OH&P	$2,756.25	10.00%	$275.63
Sub-Performed OH&P	$20,031.25	5.00%	$1,001.56
Bond, Insurance	$24,064.69	2.50%	$601.62
		Total:	**$15,318.16**

Josh Busse

From: Greg Prasch <gregprasch@demarcinc.com>
Sent: Monday, April 17, 2023 11:15 AM
To: Josh Busse; Jeffrey Prasch
Cc: Spencer Libby
Subject: Re: Owatonna Project - MH connection Issue

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Josh,

We are scheduled to be on site to re-stake the sewer tomorrow AM.
The additional cost for trip 1 to verify benchmark elevations and measure additional spot elevations is $618.75
The additional cost to recalculate new sewer line location and re-stake the sewer line is $412.5
Total additional charge $1031.25.
Let me know if you need anything else.

Total additional surveying cost as a result of utility changes.

Thank you,

Gregory R. Prasch | President
P | 763.560.3093 (ext. 101)
A | 7601 73rd Avenue North Minneapolis MN 55428
W | www.DemarcInc.com

DEMARC
LAND SURVEYING & ENGINEERING

Formerly Lot Surveys Company

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From: Josh Busse <jbusse@ebertcompanies.com>
Sent: Friday, April 14, 2023 2:39 PM
To: Jeffrey Prasch <jeffprasch@demarcinc.com>
Cc: Greg Prasch <gregprasch@demarcinc.com>; Spencer Libby <slibby@ebertcompanies.com>
Subject: RE: Owatonna Project - MH connection Issue

No deadline. Just as soon as you have a chance. Tuesday should work fine for the staking. Thank you.

Proposal

Minnesota Sodding Company

Client Name:	Ebert Construction		
Project Name:	Owatonna City Hall		
Jobsite Address:	540 West Hills Circle Owatonna, Minnesota 55060	Billing Address:	23350 County Road 10 Corcoran, MN 55357
Estimate ID:	EST3805399	Drawing #:	2023
Date:	Apr 17, 2023		

Deduct CO - Seed - Revision 2 - Sanitary Sewer - MNDOT 25-131 Seed Area Credit	-$40.08

Deduct CO - Blanket - Revision 2 - Sanitary Sewer - Blanket Area Credit	-$308.07

Subtotal	-$348.15
Taxes	$0.00
Estimate Total	-$348.15

Total seeding credit for reducing surface area needing repair.

**Grades ready to receive seed assumed to be new construction +- 1/10', free of weeds, debris, and temporary erosion control devices

***All dirt work done by others besides Final Grade

***All soil testing and amendments done by others

***See above for material and quantities

***All seed will be covered with erosion control blanket instead of straw

***Price includes 1 Mobilization add $900.00 for each additional mobilization

***Price does not include any watering of seeded areas

14 Old Deerfield Rd
Welch, MN 55089
p. 651-438-3867
f. 651-438-3867
email: sschwarz@mnsodco.com

D & M Construction

3835 Park Drive NW
Owatonna, MN 55060
Office: 507-451-3080 Fax: 507-451-9381

Change Order 1

To: Ebert Construction	**Date:** 4/26/2023
Attn: Josh Busse	**Job Name & Location:** Owatonna City Council Remodel
From: Nick James	**Subject:** Plan Changes

Plan Changes Additions:
Construction Entrance - $1,500
Bio Logs 135’ additional - $400

these items are from city's grading permit review letter. See next page.

Removal of existing MH to replace with MH-03 - $2,000
Materials and install of new structure MH-04 - $7,500
Materials and install of new casting to MH-04 - $800

Added work from sanitary changes.

Flowable fill for 12” storm and 8” sanitary under addition foundation - $6,800
Additions Lump Sum: $19,000

Subtractions:
Removal of 8” sanitary pipe under foundation - $2,000
Removal of 12” sanitary pipe under foundation - $2,500

Add/deduct associated with abandon and fill of lines under new addition per engineer's request. New change $2,300.

Material and install of 106’ of 8” sanitary piping - $4,500
Subtractions Lump Sum: $9,000

Credit for overall decrease in new required sanitary piping.

Change Order Lump Sum Total: $10,000

Nick James
Steve James Excavating
D&M Construction
507-380-6337
Nick@stevejamesexcavating.com

Engineering Department

Date: 02/14/2023
Project: Council Chambers Addition and Remodel
Grading Permit #: G-23-1

Staff Review Comments:

Stormwater

1. Discharge point is within 1 aerial mile of portion of the Straight River that is impaired for turbidity. Please update the note regarding the project's discharge location/stormwater outlet on sheet C300.
2. Due to proximity to an impaired water the required completion of stabilization timeframe is 7 days.
3. Permanent and temporary stabilization of exposed soils, including stockpiles, is to be initiated immediately and complete within 7 days when construction activity has permanently or temporarily ceased on any portion of the site. Please revise erosion control notes/narrative on sheet C100 to reflect this requirement.
4. Review and revise all erosion control notes regarding stabilization to be consistent throughout the entire plan set.
5. Update Stormwater Pollution Prevention Plan (SWPPP) to include estimated quantities of erosion and sediment control best management practices (BMPs).
6. Revise SWPPP to include additional perimeter control to the east of the project near the utility improvements.
7. Update SWPPP to include perimeter control for all stockpiled materials.
8. Update SWPPP to include securing of portable toilets.
9. Revise SWPPP to include a stabilized construction exit/entrance, including location, specifications, and detail.
10. Revise erosion control maintenance notes on sheet C100 to reflect current Minnesota Pollution Control Agency NPDES/SDS Construction Stormwater General Permit maintenance timeframes.

Added approx. 135' of additional bio log not originally shown on plan.

Not originally shown on civil plans.

Please resubmit any revised or updated documentation along with a response to all comments above. Should you have any questions, please call 507.444.4350.

Thank You

Sean Murphy
Interim Director of Public Works and City Engineer

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal

To: City of Owatonna
540 West Hill Circle
Owatonna, MN 55060
Ph: (507)444-4370 Fax: (507)444-4351

Number: PR004L
Date: 4/26/23
Job: 6595 Owatonna City Hall Remodel
Phone:

Description: PR004 Lighting Credits

Proposed are the following changes:

Credits related to fixtures eliminated from the contract as a result of PR004. Backup from the electrician is included for reference.

The total amount to provide this work is ..... $-9,125.00

(Please refer to attached sheet for details.)

If you have any questions, please contact me at 763-498-7844.

Pricing subject to review/change if not approved within 14 days of receipt.

Submitted by: Josh Busse
Ebert

Approved by: _____
Date: _____

23350 County Road 10
Corcoran, MN 55357
Ph : 763-498-7844

Change Proposal PR004L Price Breakdown
Continuation Sheet

Description: PR004 Lighting Credits

Description	Labor	Material	Equipment	Subcontract	Other	Price
Credit back (6) Type W light fixtures at $1,500/each.				$-9,000.00		$-9,000.00
Credit back (1) exit light at stairwell.				$-125.00		$-125.00

Subtotal: **$-9,125.00**

Total: **$-9,125.00**

Four Seasons Electric

3127 S County Rd 45
Owatonna, MN 55060

Credit Memo

Date	Credit No.
4/25/2023	12542

Customer
EBERT Construction 23350 Cty RD 10 Corcoran, MN 55357

P.O. No.	Project
	Owt City Chambers

Description	Qty	Rate	Amount
City Chambers			
Interior Type W light fixture deduct.	-1	9,000.00	-9,000.00
Interior Exit Light at stairwell removal.	-1	125.00	-125.00

Total	-$9,125.00
Invoices	$0.00
Balance Credit	-$9,125.00

Proposal Request

Date:	April 24, 2023	PR No:	004
Project:	Owatonna City Council Chamber	CRW Project No:	21-081
Owner:	City of Owatonna	Architect:	CRW
Contractor:	Ebert Construction	Contract For:	General Construction

Please submit an itemized cost for changes in the Contract Sum and Contract Time for proposed modifications to Contract Documents. Submit your cost within five days or notify Architect of the date you anticipate submitting your proposal.

This is not a change order or a direction to proceed with the work described in the proposed modifications.

Reason: ☐ **Owner Request** ☐ **Unforeseen Condition** ☐ **Code** ☒ **Other**

Description:

General: This PR makes modifications to the contract documents dated 10-06-2022.

1. SHEET A5.2: 2/A5.2 DIAS ELEVATION; In lieu of stage registers at Dias façade, finish recess with flat wood panels to match balance of Dias cabinetry (WD-4).

2. SHEET A5.3, 8/A5.3. Wood panel shown to be deleted. This wall face will be finished with reclaimed stage front, to include original registers. Structural wall will remain in project, and built to align with radius of stage apron.

3. SHEET E2.1A, E3.2 :
    a. 1/E2.1A
        i. Fixture W to be deleted from project (6 locations noted).
        ii. Exit light at Stairwell to be deleted (1 location – not an exit).

    b. E3.2 LED Luminaire Schedule
        i. W- Interior wall sconce deleted. Contractor allowance of $1500 each -credit requested $9,000.

Attachments: none

Issued By:
Teresa McCormack, CRW architecture + design

AIA® Document G701® – 2017

Change Order

PROJECT: *(Name and address)*
Owatonna City Hall
Owatonna, Minnesota

CONTRACT INFORMATION:
Contract For: General Construction
Date: December 14, 2022

CHANGE ORDER INFORMATION:
Change Order Number: 002
Date: May 16, 2023

OWNER: *(Name and address)*
City of Owatonna
540 West Hills Circle
Owatonna, Minnesota 55060
Kris, Busse, City Administrator

ARCHITECT: *(Name and address)*
CRW architecture + design group
211 11th Ave NW
Rochester, MN 55901
Teresa Thoreson McCormack, AIA

CONTRACTOR: *(Name and address)*
Ebert, Inc (DBA Ebert Construction)
23350 County Road 10
Corcoran, MN 55375
Josh Busse, Project Manager

THE CONTRACT IS CHANGED AS FOLLOWS:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

ASI # 1	+ $3,844.81
Change in Conference room for Waterlines/ Cabinets/ Laminate/ Additional handrails at ramp and IT stair	
CP#4	- $9,125.00
Lighting Credits	
CP # 6	+$5,527.24
Additional Conduit for IT at Meeting Space	
CP # 7	-$7,438.06
Permit Fees "self-performed" by City of Owatonna	
CP # 8	+$15,318.16
Change of Utility Location, Change of Construction Entrance (city request) Additional work at MH #3 and MH #4. New Structure at MH #4- Includes credits to vacate Utilities under addition.	

The original Contract Sum was	$	1,626,400.00
The net change by previously authorized Change Orders	$	-17,282.69
The Contract Sum prior to this Change Order was	$	1,609,117.31
The Contract Sum will be increased by this Change Order in the amount of	$	8,127.15
The new Contract Sum including this Change Order will be	$	1,617,244.46

The Contract Time will be increased by Fifteen (15) days.
The new date of Substantial Completion will be September 22, 2023

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.

ARCHITECT	CONTRACTOR	OWNER
CRW architecture and design	Ebert, Inc (DBA Ebert Construction)	City of Owatonna
(Firm name)	*(Firm name)*	*(Firm name)*
SIGNATURE	Josh Busse SIGNATURE	SIGNATURE
Teresa Thoreson McCormack, AIA, Partner	Josh Busse, Project Manager	Kris Busse, City Administrator
PRINTED NAME AND TITLE	PRINTED NAME AND TITLE	PRINTED NAME AND TITLE
5/4/2023	5/4/2023	
DATE	DATE	DATE

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User Notes: (3B9ADA38)

April 24, 2023

Kris M. Busse,

RE: Proposal for Additional Professional Design Services
Owatonna City Hall Council Chambers
Owatonna, Minnesota

Dear Kris:

On behalf of CRW architecture + design group, I would like to thank you for the continued opportunity to provide professional design services for the Owatonna City Council Chamber. The additional services are covers Civil Engineering Costs requested in a change of Utility Connections. I am providing this proposal for the additional design, construction document services which is summarized as follows:

PROJECT POSITION

As we understand it, the city of Owatonna site information and earlier surveys did not identify an existing manhole and associated utility connections. In the process of staking the site for construction this utility component was discovered. The discovered utility connection point provides a better and shorter route for planned utilities, a saving of trees, and probable construction cost reduction. This did require additional design work by our Civil Engineering Consultant as noted below.

SCOPE OF SERVICES – CIVIL ENGINEERING

CRW architecture + design group is working with Kimley Horn to complete the project. Within this proposal for Additional Professional Fees:

Kimley Horn fees and scope for additional services as discussed are follows:

Out of Scope Design Work (already completed): $3,000

- Relocation of 4" water service
- Relocation of 8" Sanitary Main
- Relocation of 12" Storm Main
- City of Owatonna SWPPP Permit
- Coordination of DLI permit

Out of Scope Design Work (anticipated Sanitary redesign work): $800

- Redesign of Sanitary main due to unforeseen existing site conditions.

PROPOSED ADDITIONAL FEES

CRW architecture + design group proposes to perform the work described under the project description on a lump sum basis as follows:

SCOPE	**Fee**
FEES TO DATE:	$112,650
PROPOSED CIVIL ENGINEERING COMPENSATION	$ 3,800
TOTAL	$116,450

PROPOSAL CONDITIONS

- Additional services above and beyond the scope of work described in this proposal will be billed on an hourly basis at $130/hr.
- Services will be billed monthly as the work progresses.
- Hazardous materials testing and identification is not a part of this proposal, and the owner will handle any required testing through a separate consultant.

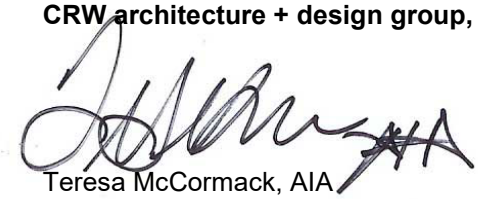
ACCEPTANCE

The attached Terms and Conditions shall be considered a part of this proposal. This proposal is being submitted electronically. If you accept this proposal and would like us to proceed with the work, please sign the Authorization block of the proposal, retain a copy for your records and return an authorized proposal to CRW architecture + design group. Your signed authorization will initiate the described services and we can schedule our kick-off meeting and building/site walk-through.

Please do not hesitate to contact me at 507.206.6201 if you have any questions.

Sincerely,

CRW architecture + design group, Inc.



Teresa McCormack, AIA
Partner

Attachments: CRW Terms and Conditions

AUTHORIZATION

I have reviewed the proposal and agree with its terms. I hereby authorize CRW architecture + design group to proceed with the work described.

Authorized Signature _____ Date _____

Fire Department

DATE: May 16, 2023
TO: Mayor and City Council
FROM: Ed Hoffman, Fire Chief
SUBJECT: JPA to conduct Hotel Inspections

Purpose:

Approval to enter into a Joint Powers Agreement (JPA) with the State of MN to conduct hotel inspections for the State Fire Marshalls Office

Background:

Under Minnesota Statutes § 299F.46, subdivision 1, It shall be the duty of the commissioner of public safety to inspect, or cause to be inspected, at least every three years, every hotel in the state.

The State and the City of Owatonna have previously entered into a JPA for the Owatonna Fire Department to perform these inspections within our jurisdiction.

In addition to entering into this JPA, we propose the same inspection fee structure as defined in Minnesota Statutes § 299F.46, subdivision 3 be used. (This is what the State Fire Marshals office uses if they were to perform these inspections)

(a) For each hotel required to have a fire inspection according to subdivision 1, the commissioner of public safety may charge each hotel a triennial inspection fee of $435 and a per-room charge of $5 for one to 18 units, $6 for 19 to 35 units, $7 for 36 to 100 units, and $8 for 100 or more units.

(b) Hotels and motels with fewer than 35 rooms and resorts classified as 1c under section 273.13 are exempt from the fee requirements of this subdivision.

The Fire Department has inspectors that currently meet the requirements necessary to perform these inspections in accordance with the JPA.

Budget Impact:

Over the course of the three-year cycle, this will generate approximately $7,500 in fees to cover the costs of performing the inspections.

Staff Recommendation:

Staff recommends the continuation of this program and execution of this Joint Powers Agreement and the proposed associated fees.

Attachments:

1. Hotel Inspection JPA Template 2023 Owatonna

State of Minnesota
Joint Powers Agreement
Hotel Inspection

SWIFT Contract Number: 227786

This Agreement is between the State of Minnesota, acting through its Commissioner of Public Safety on behalf of the State Fire Marshal division ("State"), and the City of Owatonna, acting on behalf of the City of Owatonna Fire Department 107 West Main Street Owatonna, MN 55060 ("Governmental Unit"). The State and Governmental Unit may be referred to jointly as "Parties."

Recitals

WHEREAS, the State, under Minnesota Statutes §§ 471.59, subdivision 10, and 299F.46, subdivision 2, is empowered to enter into an agreement with any county, two or more contiguous counties, or city or other municipality to perform fire code inspections for hotels; and

WHEREAS, the Fire Chief of the Governmental Unit hereby agrees a representative of the city's fire department will conduct all hotel inspections within the Governmental Unit's jurisdiction in accordance with Minnesota Statutes § 299F.46 and to assure uniform enforcement throughout the State of Minnesota; and

WHEREAS, the Governmental Unit represents it is duly qualified and willing to perform the services set forth herein;

NOW, THEREFORE, it is agreed:

Agreement

1 Term of Agreement

1.1 Effective Date. January 16, 2023**,** or the date the State obtains all required signatures under Minnesota Statutes § 16C.05, subdivision 2, whichever is later.

1.2 Expiration Date. June 30, 2026**,** or until all obligations have been satisfactorily fulfilled, whichever occurs first.

2 Agreement Between the Parties

2.1 All hotels within the Governmental Unit's jurisdiction will be inspected by the Governmental Unit no less than once during this Agreement.

2.2 All hotels within the Governmental Unit's jurisdiction will be inspected and enforced in accordance with the requirements of the Minnesota State Fire Code ("MSFC") and MSFC interpretations of the State Fire Marshal. MSFC interpretations are available to the Governmental Unit on the State's web page, https://dps.mn.gov/divisions/sfm/fire-code/Pages/interpretations.aspx.

2.3 All Governmental Unit inspectors employed for the purpose of this Agreement are required to:

2.3.1 Obtain and maintain a "Fire Inspector 1" certification issued by the Minnesota Fire Service Certification Board or similar nationally-recognized certifying organization during the "Term of Agreement."

2.3.2 Attend the State Fire Marshal Hotel Inspection training program prior to conducting hotel inspections and not less than once for every agreement period thereafter.

2.3.3 Attend the State Fire Marshal Code update training program following adoption of each new code.

2.4 The State Fire Marshal will provide the required and necessary training for the Governmental Unit's fire department personnel to conduct the hotel inspections with the exception of training for inspectors to pass the Fire Inspector Certification test.

2.5 Copies of the hotel inspection reports completed by the Governmental Unit, including required follow-up inspection reports, must be submitted to the State Fire Marshal within thirty (30) calendar days following any inspection. Submission of the reports by the Governmental Unit will be made in PDF format to the following State Fire Marshal electronic mailbox: fm.city.inspections@state.mn.us

2.6 Any variances to the fire code orders must be approved in writing by the State Fire Marshal.

2.7 Provide in writing/email to the State the names and credentials of Governmental Unit inspectors conducting inspections pursuant to this Agreement prior to conducting inspections.

3 Authorized Representatives

The State's Authorized Representative is the person below, or his/her successor:

Name: Ryan Whiting, Supervisor
Address: Department of Public Safety; State Fire Marshal
445 Minnesota Street, Suite 145
Saint Paul, MN 55101-5145
Telephone: 612.219.7125
Email Address: ryan.whiting@state.mn.us

The State's Authorized Representative shall have final authority for acceptance of the Governmental Unit's services and if such services are satisfactory.

The Governmental Unit's Authorized Representative is the person below or his/her successor:

Name: Ed Hoffman, Fire Chief, City of Owatonna
Address: 107 West Main Street
Owatonna, MN 55060
Telephone: 507-444-2454
Email Address: ed.hoffman@ci.owatonna.mn.us

4 Assignment, Amendments, Waiver, and Agreement Complete

4.1 **Assignment.** The Governmental Unit may neither assign nor transfer any rights or obligations under this Agreement without the prior written consent of the State and a fully executed Assignment Agreement, executed and approved by the same parties who executed and approved this Agreement, or their successors in office.

4.2 **Amendments.** Any amendment to this Agreement must be in writing and will not be effective until it has been executed and approved by the same parties who executed and approved the original Agreement, or their successors in office.

4.3 **Waiver.** If the State fails to enforce any provision of this Agreement, that failure does not waive the provision or its right to enforce it.

4.4 **Agreement Complete.** This Agreement contains all negotiations and agreements between the State and the Governmental Unit. No other understanding regarding this Agreement, whether written or oral, may be used to bind either party.

5 Liability

The State and Governmental Unit agree each party will be responsible for its own acts and behavior and the results thereof to the extent authorized by law and shall not be responsible or liable for the acts of any others and the results thereof. The State's liability shall be governed by provisions of the Minnesota Tort Claims Act, Minnesota Statutes § 3.736, and other applicable law. The Governmental Unit's liability shall be governed by provisions of the Municipal Tort Claims Act, Minnesota Statutes Chapter 466, and other applicable law.

6 State Audits

Under Minnesota Statutes § 16C.05, subdivision 5, the Governmental Unit's books, records, documents, and accounting procedures and practices relevant to this Agreement are subject to examination by the State and/or the State Auditor or Legislative Auditor, as appropriate, for a minimum of six (6) years from the end of this Agreement.

7 Government Data Practices

The State and Governmental Unit must comply with the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13, as it applies to all data provided by the State under this Agreement, and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by the Governmental Unit under this Agreement. The civil remedies of Minnesota Statutes § 13.08 apply to the release of the data referred to in this clause by either the Governmental Unit or the State.

If the Governmental Unit receives a request to release the data referred to in this Clause, the Governmental Unit must immediately notify the State. The State will give the Governmental Unit instructions concerning the release of the data to the requesting party before the data is released.

8 Venue

Venue for all legal proceedings out of this Agreement, or its breach, must be in the appropriate state or federal court with competent jurisdiction in Ramsey County, Minnesota.

9 Termination

The State or the Governmental Unit may terminate this Agreement at any time, with or without cause, upon 30 days' written notice to the other party.

THE BALANCE OF THIS PAGE INTENTIONALLY LEFT BLANK

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed intending to be bound thereby.

APPROVED:
GOVERNMENTAL UNIT
Governmental Unit certifies that the appropriate persons have executed this Agreement on behalf of the Governmental Unit as required by applicable articles, bylaws, resolutions, or ordinances.

BY: _____

TITLE: _____

DATE: _____

BY: _____

TITLE: _____

DATE:_____

BY: _____

TITLE: _____

DATE: _____

DEPARTMENT OF PUBLIC SAFETY; STATE FIRE MARSHAL

BY: _____
(with delegated authority)

TITLE: _____

DATE: _____

COMMISSIONER OF ADMINISTRATION
As delegated to the Office of State Procurement

BY: _____

DATE: _____

ADMIN ID Number: _____