

**Environmental Assessment
Determinations and Compliance Findings
for HUD-assisted Projects
24 CFR Part 58**

Project Information

Project Name: 145-Lawson-Ave.-W.-North-End-Community-Center

HEROS Number: 900000010302948

Responsible Entity (RE): ST. PAUL, DEPARTMENT OF PED ST. PAUL MN,
55102

RE Preparer: Marilyn Rosendahl, Senior Planner, Environmental Officer

State / Local Identifier: Minnesota

Certifying Officer: Luis Pereira, Planning Director

Grant Recipient (if different than Responsible Entity):

Point of Contact: City of Saint Paul Planning and Economic Development

Consultant:

Point of Contact: Marilyn Rosendahl

Project Location: 145 Lawson Avenue West, Saint Paul , MN 55117

Additional Location Information:

N/A

Direct Comments to: City of Saint Paul PED

Description of the Proposed Project [24 CFR 50.12 & 58.32; 40 CFR 1508.25]:

The North End Community Center project includes construction of a new 25,000 square foot building and enhancements to the existing 5.9-acre park in the Saint Paul's North End neighborhood, across Lawson Avenue from the Rice Street Library. See figure 1 for the location of the park and vicinity of the project in the North End neighborhood, Planning District 6. See Figure 2 for the existing park area and uses which include 6 baseball diamonds and temporary striping for football across the outfield in the Fall. Although the park is well-used, the sports in place today do not represent current interests of the community. Figure 3 provides the proposed site plan with building footprint, sports fields and courts, playground, parking lot, sidewalks and related supporting facilities. The building project will provide improved access to new state-of-the-art amenities to encourage social and physical activity. The community spaces include multipurpose rooms, a teaching kitchen, youth and teen rooms, a gymnasium, dance room, fitness room, and an enclosed outdoor courtyard. Future outdoor sports and recreational enhancements will include a new 99,000 square foot artificial turf field to expand the athletic programming with permanent striping for soccer, football, baseball, lacrosse, and sepak takraw. Additionally, the park will have a brand-new basketball court and play areas for children. To support these activities on site there will be a new off-street parking lot, grading adjustments for accessibility improvements, and new field lighting for safer playing conditions and extended playing time. To improve the connection to the Wellstone School at west side of the park, there will be a new paved walk through the park. Each of the enhancements will improve safety of users and offer a greater array of programming to meet the diverse interests of the North End Community. The North End Community needs investment and more opportunities for multigenerational programming. The park has a service-area of 36,000 households and a population of 95,360, where 23.6% live below the poverty level. This project will serve a young and diverse community where 67.6% of residents are non-white, including 24.4% Black and 28.8% Asian. This project will be a regional leader in environmentally responsible design for the well-being of the community and preservation of natural resources. In addition to using renewable construction materials, this project includes a storm water retention system to reduce the quantity and slow the rate of flow into the City's infrastructure. Additionally, this project includes energy saving measures such as the use of geothermal energy and it is solar-ready for on-site energy production. The total project budget is currently estimated at \$29,835,487 for soft costs and construction of the building and site improvements. To-date the North End Community center project has received funding from City of Saint Paul Capital Improvement Budget allocation in 2019, 2020, 2021, 2022, and 2023 budget years. In 2022 the project was awarded an Outdoor Recreation Legacy Partnership grant from US Department of the Interior for \$2,374,487. The Mayor has allocated funding from the 2023 Budget Source Sales Tax for the project as well, up to \$13.1 million. The Minnesota Legislature approved appropriations for the sale of state bonds for the project for \$6,000,000. This project included \$1,111,000 of CDBG funds allocated to eligible soft costs in categorically exempt environmental review, HEROS record 900000010303491. Additionally, HUD funds of \$4,000,000 from Community Development Funding was earmarked in 2022 and awarded for the City of Saint Paul in congressional appropriations for FY 2023.

Statement of Purpose and Need for the Proposal [40 CFR 1508.9(b)]:

The North End needs investment and more opportunities for multigenerational programming that provides access to recreation for all ages and levels of ability. The community center building project will provide improved access to new state-of-the-art amenities to encourage new social connections and increased physical activity. Increases in accessibility being planned for the site include new public facilities, services and programs that are easy to approach, enter, operate, participate in, and/or use safely and with dignity by a person with a disability, language barrier, or other challenge. The shared community spaces include multipurpose rooms, a teaching kitchen, youth and teen rooms, a gymnasium, dance room, fitness room, and a secure outdoor courtyard. The changes to the park will result in substantial programmatic improvements to outdoor fields, courts, green space and play areas. Using artificial turf for the field's surface will reduce maintenance needs, improve surface quality across the field of play, extend the playing season in fall and spring, and allow for the striping of multiple sports' boundaries. Each benefit allows the multipurpose field to serve more of the community's needs and recreational interests. In addition to football and baseball that can be played on site today, the multipurpose field will have permanent athletic field striping for lacrosse and multiple levels of youth soccer. New shared courts will also be constructed for badminton and Sepak Takraw (sports that are popular in the community), and basketball. Additionally, there will be new play areas designed for 2-5-year-old and 5-12-year-old children. In this community many of the residents are renters of their homes without private green space of their own. Improving the quality, access, and usefulness of shared spaces is an investment in the health of North End Residents. This project will be a regional leader in environmentally responsible design for the well-being of the community and preservation of natural resources. In addition to using renewable construction materials, this project has an extensive stormwater retention system to reduce the quantity and slow the rate of flow into the City's infrastructure. Additionally, this project includes energy saving measures such as the use of geothermal energy and is designed for a roof-top solar array for on-site energy production.

Existing Conditions and Trends [24 CFR 58.40(a)]:

Due to growing use of new digital technologies and the recent global pandemic, there is an increased value and use of safe public spaces for social connections and high-quality recreation facilities. The existing park includes 6 baseball diamonds and is temporarily striped for football across the outfield in the Fall. Although baseball was popular in the area decades ago when the ballfields were constructed, the fields in place today do not provide space for the current interests of today's community. Without improvements to the park's playing conditions and program offerings, sports

that are rising in popularity in this community such as sepak takraw and badminton, may not be provided and the park may not meet its potential as a recreational amenity for the area. This project will include new storm water systems for on-site retention and rate control and will meet the requirements of the Capitol Region Watershed District and Saint Paul Public Works Sewer Utility. The storm water systems will improve the quality of the water and reduce the burden on the City's existing infrastructure. The adjacent public institutions surrounding the park provide an opportunity for synergy in programming, leveraging existing community resources. Across the park from the future community center is Wellstone Elementary School. Through site redesign and reconstruction, there will be improved accessible paths from the school to the new outdoor and indoor amenities. This includes grading improvements, new pathways and new lighting in the park allowing for greater public access whereby individuals of all levels of mobility given age or ability, can utilize the new park amenities. In the absence of this project, barriers to accessibility will limit the use of the park for those with disabilities. Across the street from the future Community Center is the Rice Street Library. Utilizing the building adjacency, new possibilities for shared programming and community spaces can happen. Increased collaboration between Parks and Recreation and Library staff is anticipated and may include providing break-out spaces for neighborhood groups and/or tutoring sessions. In the absence of this project, these positive trends could not continue to further assist the programming potential to serve the residents of the North End and those within the greater service area for recreation, education, and community development. Existing trends in the supply and demand in local retail and commercial markets would continue. There would not be a positive impact to economic development without an increased demand for certain goods and services supporting future park patrons in program delivery, job creation, and long-term facilities management.

Maps, photographs, and other documentation of project location and description:

[Figures 1-7 North End Community Center Existing and Proposed.pdf](#)

Determination:

✓	Finding of No Significant Impact [24 CFR 58.40(g)(1); 40 CFR 1508.13] The project will not result in a significant impact on the quality of human environment
	Finding of Significant Impact

Approval Documents:

**7015.15 certified by Certifying Officer
on:**

**7015.16 certified by Authorizing Officer
on:**

Funding Information

Grant / Project Identification Number	HUD Program	Program Name
B-23-CP-MN-0867	Community Planning and Development (CPD)	Community Project Funding (CPF) Grants

**Estimated Total HUD Funded, \$5,111,000.00
Assisted or Insured Amount:**

This project anticipates the use of funds or assistance from another federal agency in addition to HUD in the form of:
Department of the Interior, Land and Water Conservation Fund Outdoor Recreation Legacy Partnership grant of \$2,374,487

**Estimated Total Project Cost [24 CFR 58.2 (a) \$29,835,487
(5)]:**

Compliance with 24 CFR §50.4, §58.5 and §58.6 Laws and Authorities

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §50.4, §58.5, and §58.6	Are formal compliance steps or mitigation required?	Compliance determination (See Appendix A for source determinations)
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR §50.4 & § 58.6		
Airport Hazards Clear Zones and Accident Potential Zones; 24 CFR Part 51 Subpart D	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	The project site is not within 15,000 feet of a military airport or 2,500 feet of a civilian airport. The project is in compliance with Airport Hazards requirements. See Figure 1 NECC project location in relation to airports. The park is approximately 11,750 feet (as the

		crow flies) to the closest point on the perimeter of Holman Field at the 2,500 buffer perimeter. The project location is approximately 33,909 feet from the closest point along the MSP airport's 2,500 foot buffer perimeter.
Coastal Barrier Resources Act Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	This project is not located in a CBRS Unit. See Figure 2, Coastal Barriers Resource Systems (CBRS) Map for Minnesota from the U.S. Fish and Wildlife Service's "Coastal Barrier Resources System Mapper". According to the USFWS, the only CBRS found in Minnesota is the "John H. Chafee CBRS" in Duluth, Minnesota. Since the proposed HUD project is in the city of Saint Paul, Minnesota, approximately 160 miles south of this CBRS, it can be determined that there will be no potential to impact a CBRS Unit and is in compliance with the Coastal Barrier Resources Act.
Flood Insurance Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Based on the project description the project includes no activities that would require further evaluation under this section. The project does not require flood insurance or is excepted from flood insurance. While flood insurance may not be mandatory in this instance, HUD recommends that all insurable structures maintain flood insurance under the National Flood Insurance Program (NFIP). The project is in compliance with Flood Insurance requirements. See Figure 3 Firmette for NECC showing area of minimal flood hazard.
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR §50.4 & § 58.5		
Air Quality Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	The project's county or air quality management district is in attainment status for all criteria pollutants. See figure 4 uploaded which documents the current status of counties in MN with

		nonattainment status for criteria pollutants for Ramsey County. The project is in compliance with the Clean Air Act.
Coastal Zone Management Act Coastal Zone Management Act, sections 307(c) & (d)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	This project is not located in or does not affect a Coastal Zone as defined in the state Coastal Management Plan. See Figure 5 Coastal Zone Management for MN which shows the only coastal zone is up north along Lake Superior. The project is in compliance with the Coastal Zone Management Act.
Contamination and Toxic Substances 24 CFR 50.3(i) & 58.5(i)(2)]	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Site contamination was evaluated in the methods outlined in the attachment with HUD policy, rules, methods, findings and conclusions for RCRA and CERCLA compliance. Data sources include Historical City Building Permits, 1927 Sanborn Insurance Map, EPA NEPA Assist inventory and report, and MN Pollution Control Agency (MPCA) business record, program, and spatial data for context and interpretation. Interactive GIS tools allow for retrieval and of records by location to document the nature of land use hazardous waste business or organizational operations in relation to the project site. Map figures and a table report on the data by a 0.5-mile buffer geography to map and record a summary of findings. Highlights and interpretation of patterns in the records are provided. On-site or nearby toxic, hazardous, or radioactive substances that could affect the health and safety of project occupants or conflict with the intended use of the property were not found and are not anticipated to be a threat to health and safety. The project is in compliance with contamination and toxic substances requirements.
Endangered Species Act Endangered Species Act of 1973,	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	This project will have No Effect on listed species because there are no listed

particularly section 7; 50 CFR Part 402		species or designated critical habitats in the action area. See the letter attached by the USFWS IPAC consultation initiated on the 'North End Community Center' project, making key determinations of no effect for 5 specified threatened and endangered species that may occur in the proposed project location, consistent with the Minnesota-Wisconsin Endangered Species Determination Key, dated April 21, 2023. This project is in compliance with the Endangered Species Act.
Explosive and Flammable Hazards Above-Ground Tanks)[24 CFR Part 51 Subpart C	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See our memo with methods, Figures 8 (a-g) and findings for determination of 24 CFR Part 51 Subpart C, included herein. The nature of the project is passive and active outdoor and indoor recreational use of public facilities. Based on the project description the project includes no activities that would require further evaluation under this section. The MNPCA WIMN dataset was reviewed for above ground storage tanks within one mile for context and a brief assessment of risk looking at the relationship and distances with current land uses. The use of federal funds will not be used for construction of any residential dwelling units which does not require an output and compliance with Acceptable Distance Calculations. Research and map evaluation methods found two separate business with above ground tanks within about a half mile of the NECC with interpretation and findings supporting our documentation of compliance. The project is in compliance with explosive and flammable hazard requirements.
Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	This project does not include any activities that could potentially convert agricultural land to a non-agricultural use. See Figure 9 which shows the

		entire urbanized area using census data. The project is in compliance with the Farmland Protection Policy Act.
Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	This project does not occur in a floodplain. See Figure 3. FEMA Firmette map output showing the project is within an area of minimal flood hazard. The project is in compliance with Executive Order 11988.
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Based on Section 106 consultation there are No Historic Properties Affected because there are no historic properties present in the defined APE. PED invited 19 tribes to consult on the project and received one response from Tribal Official members of the Iowa Tribe of Nebraska and Kansas. See "Tribal Consultation for the NECC" attachment which provides the dates and context of emails. This EA lead the conclusion of a two-part SHPO review series initiated by different Responsible Entities accomplishing more than environmental review. Two separate federal grants from different federal agencies were awarded to the project including Outdoor Recreation Legacy Partnership (ORLP) grant from the Land and Water Conservation Fund with the Dept. of Interior. This first grant award was administered by the MN Department of Resources Division of Parks and Trails, with this state agency being a Responsible Entity for environmental review in early 2022, completing an exempt-level of environmental review. A year later, a HUD Community Project Funding (CPF) grant award triggered PED to review the project which requires an Environmental Assessment given the scope, scale, and activities proposed for the federal undertaking. With the City of Saint Paul as the Responsible Entity required

		<p>to review the entire scope of work, the HUD funding needed to pay for materials and construction of the \$25M community center. The attachments within provide background on the community engagement process undertaken, design approaches to site layout with alternative building sites, multi-modal transportation planning considerations, historical contexts, sensitivities or inspiration to architectural perspective, defined Area of Potential Effects (APE), and a thorough analysis of properties within. The PED form with project background that is requesting 106 consultation is attached. References to attachments A-F are found, also uploaded herein. See both the enclosed initial and final SHPO findings (1) as provided to the MN DNR in September 2022 letter, and (2) SHPO letter dated 4-14-23 to PED. Review of the entire project with construction scope of work considered resulted in a final letter documenting no concern for impacts. The NECC project is in compliance with local, state and national historic preservation protections having found that the historical George Washington High School (now known as Wellstone Elementary School), was determined ineligible for listing in the National Register of Historic Places (NRHP). There are no identified historic homes or commercial properties within the APE. The project is also in compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990. A review of the potential for protected archaeological and human remains was undertaken during consultation with SHPO and the Office of the State Archaeologist (OSA). See the letter response from the state archaeologist</p>
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		who found no concern for the potential existence of protected archaeological remains or resources for the project site.
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Based on the project description, this project includes no activities that would require further evaluation under HUD's noise regulation. The use of the land is non-residential in nature. The project does not require DNL levels to be calculated from noise sources to meet minimum standards. The project proposal is for construction of public facilities to facilitate outdoor and indoor recreation, which is not a noise-sensitive land use. See figures 1-7 in ERR the attachment for the project description for additional information. The project is in compliance with HUD's Noise regulation.
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	The project is not located on a sole source aquifer area. See Figure 13 attached. The project is in compliance with Sole Source Aquifer requirements.
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	The project will not impact on or off-site wetlands. Within the 5.9 +/- acre park, there are no surface waters or documented wetlands as per the attached Figure 14 map output by the National Wetlands Inventory maintained by the US Fish and Wildlife Service. The project is in compliance with Executive Order 11990.
Wild and Scenic Rivers Act Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	This project is not within proximity of a NWSRS river. See figure 15 which shows the location of the City of Saint Paul in relation to the Saint Croix River, which is a designated Wild and Scenic River. The project is in compliance with the Wild and Scenic Rivers Act.
HUD HOUSING ENVIRONMENTAL STANDARDS		
ENVIRONMENTAL JUSTICE		

Environmental Justice Executive Order 12898	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>The project is in alignment with the City's adopted 2040 Comprehensive Plans, Parks and Recreation Plans, Capital Improvement Budget, state laws and regulations, federal environmental law, and locally adopted neighborhood plans (North End Neighborhood Organization, Planning District 6). The NECC project will serve a diverse low-income population. The federal undertaking is within an Area of Concentrated Poverty (ACP)50. No adverse environmental impacts were identified in the project's total environmental review disproportionately impacting this ACP50 population (from review of environmental laws and authorities and a multidimensional factor analysis). See the attached Environmental Justice Statement. The City has found no concern regarding vulnerability of park visitors to explosive, flammable, toxic or other hazardous materials. There are no known negative environmental externalities outward caused by the development of the outdoor recreational fields or the community center building - nor are there known environmental harms given the existing environmental context of the vicinity that poses risks to future program participants at the NECC. There are no known nearby above or below ground tanks of concern, contaminated soil or water tables not being addressed with site investigation and required clean-up activities, or active hazardous waste sites from business operations in need of remediation and regulation beyond what industry standards may already manage or control. Given this, we do not find any anticipated negative externalities or effects, primary or secondary, directly or indirectly, which</p>
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		disproportionately impact the ACP50 population in the North End. Rather, positive impacts were identified with the NECC as a causal agent, primarily the potential for cumulative public health and community development benefits. The results of the EA show significantly higher weight of positive benefits to the community across health and other socio-economic dimensions. The Environmental Review Record (ERR) in its entirety, along with the Rice Campus Engagement Plan, provides evidence of equitable planning process and outcomes from the North End in the City of Saint Paul. See the Environmental Justice Statement for our research on the community context, identified needs in healthy community development, inclusive engagement processes undertaken and ongoing, incorporation of multi-modal transportation systems, and sustainable development strategies to address the potential for the project's impact to climate change. The project is in compliance with Executive Order 12898.
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Environmental Assessment Factors [24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27]

Impact Codes: An impact code from the following list has been used to make the determination of impact for each factor.

- (1) Minor beneficial impact
- (2) No impact anticipated
- (3) Minor Adverse Impact – May require mitigation
- (4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement.

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
LAND DEVELOPMENT			

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	1	<p>The NECC project is located in an area identified as Urban Neighborhood on the Future Land Use Plan. Urban Neighborhoods are primarily residential with a variety of housing types, schools, neighborhood parks, religious institutions, and cemeteries with scattered neighborhood serving commercial. The proposed mix of land uses is ideal for urban neighborhood and is consistent with the City of Saint Paul Land Use and the Parks, Recreation and Open Space chapters of the 2040 Comprehensive Plan. The NECC project exemplifies execution of the following adopted Comprehensive Plan policies: Policy LU-3 to prioritize equitable public investment relative to Areas of Concentrated Poverty (ACP) as defined by the Metropolitan Council Policy PR-1 to Ensure equitable access to Parks and Recreation programs, resources and amenities and Policy LU-3 which prioritizes equitable public investments relative to areas of concentrated poverty, PR-5 to prioritize investment in physical assets of community centers, play areas, pools, and other amenities to ensure that common minimum standards are met; PR-10 to embrace and integrate emerging cultural and recreation trends, particularly those that meet the recreational needs of youth, underserved populations and emerging resident groups; PR-22 to model sustainable practices in park construction and operations when possible. PR-29 Collaborate with other public and private entities to maximize use and create operational efficiencies of existing facilities and programming when there is a net benefit to the public. The NECC project is in alignment with the North End District Plan (2012, as amended in 2016). PR 3.1 policy directs investment to create a playground in the Parks and Recreation systems plan which discussed needs for playgrounds, high quality multi-purpose turf</p>	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		<p>fields, and other related improvements. A community recreation center requires a Conditional Use Permit (CUP) in the RT1 zoning district. The Zoning Committee reviewed the proposal and held a public hearing on Thursday, March 11, 2021. Planning Staff recommended approval of the CUP with a variance and modification to special conditions allowing parking in the minimum front yard, principal access from Lawson Street, and a variance for parking front setback (25' minimum, 7' proposed). A special condition for noncommercial recreation centers (formerly listed in Zoning Code Section 65.235 was required at the time but has since been amended). See the attached staff report for this history for Zoning Case # 237-397. The project met the general conditions outlined in Zoning Code Section 61.501(a-e) where the extent, location and intensity of the use is in compliance with the Comprehensive Plan, adequate ingress and egress is provided to minimize traffic congestion in the street, no detriment to the existing character of the surrounding neighborhood is anticipated, no endangerment to public safety, and plan consistency with regulations in the RT1 zoning district. The full Planning Commission discussed the Zoning Committee's recommendation and voted 15 in favor and 0 apposed with three abstentions (Planning Commission Resolution 23-13). Site plan approval has been received with interdepartmental review across City departments. The land use, building form, massing, height, and materials selected are appropriate for the size of the park and location given the character of surrounding properties in the APE. Project design approaches and final site layout maximizes utility within spatial constraints. The final location of the building is ideal in comparison to alternatives evaluated,</p>	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		holding the hard NW corner of Lawson Ave. and Rice St. for program synergy with the public library. From a transportation planning perspective, the timing of the project is good as it will benefit from mobility and safety improvements planned for the Rice Street reconstruction.	
Soil Suitability / Slope/ Erosion / Drainage and Storm Water Runoff	1	Site evaluation and testing are critical pieces of early project design. Among initial tests to determine the possibilities of the site for the project are geotechnical soil borings. The soil borings are done in various locations around the site as selected by the structural and civil engineers and following analysis of the results, show the composition of the soil under the surface. The borings for this project showed that some areas did not have the bearing capacity due to saturation and a high-water table at some locations of the site. This led the design team to raise the building by 30 inches and decrease the amount of new soil imports to correct soils that are unsuitable for construction. For the building's geothermal system to be designed effectively soil conductivity testing was performed by a third party to determine how much heating or cooling can be transferred from the earth's natural temperature to underground piping serving the building's mechanical system. This testing showed the soil is suitable for this system and helped determine the extent of the piping in terms of depth below the surface and quantity of the pipes. The construction of the building and development of the site has impacts beyond the property limits. As grading is changed and impervious surfaces are added, the rate of stormwater flow and the quality of the stormwater leaving the site has impacts to the City's stormwater infrastructure and local bodies of water. To confirm the project's design will have benefits, coordination and	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		collaboration with City of Saint Paul Public Works and staff from the Capital Region Watershed District has been critical. The North End Community Center project has two separate underground stormwater retention systems on the property which use a series of pipes that are designed to collect stormwater and hold it temporarily and then releases it into existing stormwater sewer when the infrastructure has the capacity to handle it. This lowers the stress of the infrastructure.	
Hazards and Nuisances including Site	2	With new programming opportunities, new equipment, and more amenities, there will be increased public use and activity on site.	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
Safety and Site-Generated Noise		Occasionally throughout the day, this means there will be more traffic around the site as people drive, bike, and walk to the park to use the new facilities. However, because the use of the site was, and will remain, a public park with and an adjacent community center, this is not believed to be a significantly increased nuisance of site noise. The community is supportive of the project and the new facilities that will be available to them with an understanding that improvements in facilities will come with additional activity. During the community engagement process these new amenities were requested by neighborhood residents, and their inclusion in the project design was communicated at subsequent meetings, public open houses, and online via the project's website. Measures taken to reduce hazards and improve safety beyond the quality of new fields, athletic equipment, and play structures includes improved lighting for the site and athletic fields. This will improve visibility of park users and athletic safety. Grading improvements will be made to provide accessible paths on internal site pathways. Each of these measures will increase the usability of the park and increase the safety of the park features. Other potential nuisances, such as noise are regulated by ordinance and enforced by the Police.	
SOCIOECONOMIC			
Employment and Income Patterns	1	The population in the North End is estimated to have increased by 2,093 people for a (10%) change between 1990-2020. Table 1. provides the 2020 Census Bureau findings which illustrate existing socioeconomic conditions for the community. See the attached supporting documentation provided by the US Census Bureau American Community Survey (ACS) and Longitudinal Employer-Household Dynamics (LEHD) data analysis made possible by the Wilder Foundation's Minnesota Compass	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		<p>Project. The North End community is diverse with 69% of the total population of 23,752 being people of color. The community has more youth than other areas of the City with the highest percentage of this population those between the years of 0-18 (24.5%). This community is low-income with 42.4 % of households estimated to bring in less than \$35,000 per year. We estimate that 40.5% of these workers earn between \$15,001 and \$39,999 annually. The number of households in the North End is estimated at 7,769. Of these, 61% are cost-burdened rental households and 41.8% of these families have children age 18 and under. Many households do not own a vehicle (17.1%). Many of the families in the North End face assimilation challenges for those foreign born (32%) and report that they speak English as a second language (48.4%) and "not very well" (26.7%). Additionally, 12.8% of the current population is known to have a disability which limits employment and income opportunity. The park service area population within 1/2 mile of the project site has a slightly larger population in comparison to the North End Planning District, with approximately 36,000 households and a total population of 95,360. This service area is also young and diverse, with 67.6% of residents being non-white, including 24.4% Black and 28.8% Asian. Employment and income data is not aggregated for the park service-area geographic unit of analysis. However, employment by educational attainment and participation in industry sectors is available for the North End community summarized below as defined for Planning District 6, in Table 1, attached. The 2020 estimate of the unemployed population was 7.3%. Of the population of working age and ability in the North End, 27.9% have either a H.S. diploma or GED and 25.4% have less than a H.S.</p>	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		<p>diploma or GED. Of those employed, higher percentages are employed in healthcare and social service industries (24.7%), followed by manufacturing (11.4%), accommodations and food services (8.4%), retail trade industries (8.1%), and agriculture, forestry and fishing (8.1%). The project is estimated to have a minor positive impact to the existing employment and income trends in the community. The construction of the project itself may impact local employment opportunities for related labor and skilled trades in contracting for a period of time. At project opening, Parks and Recreation Department is currently forecasting 7.25 FTEs. There will be additional coaches and educational opportunities on site to expand job readiness or employment skills, but we are unable to quantify this impact to employment patterns in relation to the entirety of the sports programming at this early stage in the project.</p>	
Demographic Character Changes / Displacement	2	<p>The NECC proposed land uses and public facilities are supportive to existing residents and businesses without displacement. The project is not taking any land or structures that are currently housing residents or businesses. The project is not anticipated to influence the change in demographic makeup of the community. The City of Saint Paul has a built-in planning process with stakeholders through an institutionalized system of public participation with our local neighborhood District Councils. City departments and consultants were able to use this private-public sector organizational structure to review the project with volunteer leaders that have their "ear to the ground". The District Council provides assistance to local businesses and residents on a daily basis. The North End Neighborhood Organization (NENO) Land Use and Housing Committee reviewed the project proposal and is in support. NENO works</p>	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		with City departments on issues of land management, development / redevelopment, current plan review, long range planning, and evaluation of financial assistance programs. The City and NENO continually work toward resiliency and appropriate revitalization of the North End, without displacement. See NENOs letter to the Board of Zoning Appeals in support of the project in evaluation of the requested variance.	
Environmental Justice EA Factor	1	The environmental justice lens considers whether the project itself creates impacts to the environment from any increase in land use intensity or corresponding infrastructure and service capacity. Conversely, this environmental justice lens also considers whether the larger environmental context within which the project is situated, poses any environmental threats to the health and safety of future user populations. No adverse impacts have been identified in either direction from review of sixteen environmental laws and authorities addressed under the National Environmental Policy Act (NEPA) of 1969 and a multi-dimensional factor analysis. The NECC project does not disproportionately impact the diverse low-income residents or business owners in the North End and expanded service area. Rather, numerous positive impacts were identified for public health benefits during the review of the project. The cumulative positive impacts of the project are provided as evidence of equitable outcomes for the City of Saint Paul North End community with this federal undertaking. The number of positive impacts clearly outweigh the unlikely potential for negative impacts and negligible risk of environmental hazards. See the Environmental Justice Statement within the ERR for compliance with E.O.12898.	
COMMUNITY FACILITIES AND SERVICES			

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
Educational and Cultural Facilities (Access and Capacity)	1	<p>In early phases of project design and community engagement, the most requested programmatic feature of a future community center building was a community kitchen. The hopes of residents were to have a space where cooking classes could be held to teach cooking techniques and recipes serving and educational and cultural benefit. The future kitchen space will be of commercial quality and adjacent to the main multipurpose room to benefit large community events and gatherings. This is especially important in the North End community in which many of the residences are rentals without current access to large gathering spaces. Cultural impacts can be seen in athletic programming as well. Rising sports in the community include speak takraw and badminton, both are popular among the Hmong population. There will be new outdoor courts for these sports with permanent striping on artificial turf specific to these sports. Plans include athletic lighting for the sports as well to extend play time throughout the day and during the spring and fall seasons. The gymnasium on the building's interior will also include striping for these sports, so there will be potential to host leagues or tournaments on with three simultaneous games inside and two outside. All spaces on the building's interior are designed to be flexible to meet changing needs and expectations of the community. In addition to spaces designated for multipurpose use, there is a conference room and study room with audio/visual capabilities. The location of the library across Lawson Avenue offers the potential for shared programming, breakout sessions, study halls, and tutorials in a virtual or in-person setting. There are also facilities included in project design to meet needs of some users. Community outreach has shown that for some groups a barrier to facility use is</p>	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		the need to leave to pray at various times throughout the day. Often if they need to leave to pray, they do not return, and their time on site is limited. As a result, we have foot-washing locations in two single-user restrooms to help accommodate these needs without leaving the community center.	
Commercial Facilities (Access and Proximity)	1	Current land uses surrounding the site are single and multifamily residential with civic and institutional uses along the north, west, and southern boundaries of the site. Existing retail and other commercial entities on the east side of Rice Street between Cook and Lawson Avenues are zoned B2 and B3. Within the properties identified in attachment E of the Section 106 consultation package sent to SHPO, we find the following commercial properties: 155 Cook Ave W, Saint Paul, MN 55117 (Impact Printing) 1061 Rice St, Saint Paul, MN 55117 (mixed residential and medical office / clinical - Xiong Chiropractic) 1078 Rice St, Saint Paul, MN 55117 (Bradshaw Funeral Home, Celebration of Life and Cremation Services) 1048 Rice St, Saint Paul, MN 55117 (Dar's Double Scoop Ice Cream) 1020 Rice St, Saint Paul, MN 55117 (retail, former bank) 1011 Rice St, Saint Paul, MN 55117 (Rice Street Library) The NECC project is not anticipated to have any negative impact on existing commercial facilities within the APE or along Rice Street. The project is not taking or displacing any existing businesses, nor is it a change in land use that would influence the decline of existing commercial markets. The relationship potential and synergy between the Rice Street Library's program offerings and the NECC is positive and intentional. The federal investment is appropriate for this urban infill location which may increase the demand for certain goods and services thereby influencing future market potential, particularly along Rice Street. Tactical and logistical support from	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		existing business entities may supply goods and services for the building, support of patrons throughout the day, and park operations over time. We may see positive impacts on these businesses from the NECC with increased visibility from additional activity on the site as the community center and park will become a destination location with increasing pedestrian, vehicular and bike traffic. This increased traffic could have a positive impact on existing and future businesses as park patrons purchase or consume goods and services from businesses along Rice, potentially increasing demand and influencing market potential.	
Health Care / Social Services (Access and Capacity)	1	The project is not increasing the density of people per acre in permanent housing, so there is not a calculated increase in the projected need for healthcare service capacity in clinical settings. Patrons of the NECC will have sufficient access to existing healthcare and social services given the location and proximity to Regions, United, Children's, Gillette-Children's Specialty, M Health Fairview Bethesda, and Fairview Saint Joseph's Hospital Systems. See supporting documentation with a map figure providing these facilities within 1-mile of the project site, with these spatial relationships to public facilities that have EMS response capacity and our hospital systems in the City of Saint Paul. Like healthcare service organizations, social service organizations in the City of Saint Paul and larger region are sufficient to serve patrons, some of which are accessible by public	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		<p>transportation from the project site. The extent of all social services in the fully urbanized area are accessible and adequate to serve patrons of the project. The project creates an indirect benefit to healthcare systems and social services when interpreted more broadly as local healthcare and social service organizations may be offered a presence or program partnership opportunity over time at the NECC. Logic to set the impact code at a minor beneficial impact includes this potential as well as the fact that both interior and exterior space programming allows for related programs in the execution of physical fitness programs, distribution of materials, or communications on the availability of services. Causal relationships between an individuals or populations participation in active recreation programs and measurable increases in wellness could potentially reduce the need for certain healthcare or certain social services. The project itself is creating indoor and outdoor program spaces that has the potential to positively impact healthcare outcomes in the community directly through participation. The NECC can become a place for collaboration across the public, private and nonprofit sectors, with program offerings that have beneficial outcomes for the ACP50 population served. This logic sets the impact code to (1) as the intrinsic nature of the recreational programming has the potential to increase health and wellness outcomes in the community from physical fitness increases in participating individuals and groups.</p>	
Solid Waste Disposal and Recycling (Feasibility and Capacity)	2	<p>There will be an increase in public use and activity on site following construction of the North End Community Center and site improvements. Social and athletic programming will be expanded over what was previously available to the public. The increase in site</p>	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		<p>activity and growth in attendance will mean the generation of more waste and recycling material. Consistent with other City of Saint Paul public facilities receptacles for waste and recycling will be available throughout. A service drive for bringing in and out waste will be connected from the parking lot, the sizes of which were coordinated with the turning radii and surrounding clearances were reviewed with the current vehicle types used by the waste and recycling haulers to help ensure ease of access. Construction will generate debris typical for this phase of development and will be disposed of by a company with the capacity to handle the amount anticipated. The solid waste generated by the project will be managed by a local hauler and disposed of at their collection facility. The project site is in a fully developed urban area with the capacity to handle the types and amount of waste anticipated to be generated during construction, and operation of the new facility. The waste generated by the completed project will not exceed the capacity of the regional waste management systems.</p>	
Waste Water and Sanitary Sewers (Feasibility and Capacity)	2	<p>New Construction projects, such as this, are required to apply for and pay for a Sewer Availability Charge (SAC) through the Metropolitan Council whenever a property connects to the regional wastewater (sewer) system for the first time. A review is conducted by a SAC Technician of an application and project floor plans which outline the uses and types of the interior spaces of the submitted project. The spaces are quantified under different sanitary use expectations and through a predetermined formula, assigned a determination of SAC units required. A SAC unit is defined as 274 gallons of maximum potential daily wastewater flow, and as the Met Council describes on its website (https://metro council.org/Wastewater-</p>	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		Water/Funding-Finance/Rates-Charges/Sewer-Availability-Charge.aspx), "A freestanding, single-family residence is charged one SAC unit, a base unit." Larger projects are charged based on their potential maximum demand. Each SAC unit has a corresponding cost of \$2,485. There is one SAC unit for each 1,750 square feet of community center space, which for this project of 21,707 square feet, equals 12 SAC units due to the Metropolitan Council, to be paid prior to the receipt of the building permit. This charge of \$29,820 is used by the Met Council to pay for the extra capacity and building out of wastewater pipes and treatment plants serving the region.	
Water Supply (Feasibility and Capacity)	2	Saint Paul Regional Water Services, a municipal water provider, will provide water to the project. There is adequate capacity in the system to serve the project site with safe water (the project has been reviewed by Saint Paul Regional Water Services). The project will not result in a significant consumption of the community's available water supply nor result in a significant deterioration of water quality.	
Public Safety - Police, Fire and Emergency Medical	2	The project is just over a mile from a Police Station at 1541 Timberlake Road and just over 1,000 feet from a Fire Station 22, which is staffed with emergency response team and ambulance services. Fire department staff reviewed plans during site plan review for required design standards for consistency. Fire responders will have access to the new building from Rice Street and Lawson Avenue. There will be fire hydrants at appropriate locations, and the building will be constructed with fire resistant material and a sprinkler system. While the outdoor recreational land use is not changing, the new facilities in fields and playground equipment, as well as the new buildings hosting indoor recreational programming, will intensify the use	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		<p>of the land and be a destination location for the community. The increased land use intensity and program offerings are likely to result in a modest increase in need for Police and EMS response as new populations will become users of the land area. However, it is not anticipated that the NECC will create a significant burden on these providers in terms of manpower and/or equipment. The increased public nature of the park with increased activity and "eyes" on the park may even serve to deter illegal activities. Safety and security are critical to Parks and Recreation improvement projects. Without a positive perception of parks as a safe place for everyone, they will not be used to their potential or serve their purpose to the community. Saint Paul Parks and Recreation prioritizes visibility as a critical architectural design priority in its facilities, accomplished through glazing and programmatic space locations. This is focused on the Recreation staff's ability to have a visual connection throughout all interior and exterior spaces. The North End Community Center will have two staff desks on separate levels to help accomplish this. All visitors to the building must first pass by one of the staff desks to get to their destination. In addition to architecture and space planning are design reviews and collaboration with Parks Security, Operations, and Maintenance staff to develop a network of surveillance cameras will be placed near all building entrances and in all public spaces. The locations of the cameras, interior and exterior, and the scope of each camera view angle is reviewed with recommendations from a third-party low voltage contractor to help ensure the proper coverage. Images and video is reviewable by Parks staff in the building and Parks safety staff located off-site.</p>	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
Parks, Open Space and Recreation (Access and Capacity)	1	The project will significantly improve existing Parks and Recreation spaces that have been located on site for decades. Aerial photography shows that the site has been baseball fields since the 1950s or earlier. The new facilities will expand Parks and Recreation programming and reconstruct open space on site. The new fields and courts will better meet the needs and interests of today's community. The proposed project increases the City's capacity to serve residents with passive and active recreational programming. Many direct and indirect benefits of the project have been outlined in the description of the project and analysis of impacts, including through the lens of environmental justice.	
Transportation and Accessibility (Access and Capacity)	2	A transportation study conducted by Transportation Collaborative & Consultants, LLC findings (June 2022), found that the existing and proposed transportation networks can support the North End Community Center development. See the data, methods and conclusions provided in the study, attached. The development once completed will generate approximately 48 a.m. peak hour vehicular trips, 63 p.m. peak hour vehicular trips, and 720 daily vehicular trips. In terms of traffic patterns and capacity for Rice to accommodate this impact, Ramsey County is undertaking the design and reconstruction of Rice Street including the portion of Rice Street adjacent to the North End Community Center. Ramsey County is currently in the design phase of this project and is determining appropriate pedestrian safety features that will be incorporated. There was some consideration of including a signal at Rice and Lawson in the transportation study for the project. The City Traffic Engineering team indicated that there is no information that shows the intersection meets the thresholds to warrant a traffic signal, either now or in the future. It is unlikely Ramsey	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		<p>County would select this treatment for the intersection. For parking capacity, at the time of site design, the zoning code required 1 parking stall for every 1,000 square feet of building area. There is a reduction in parking stalls allowed for providing bicycle parking which was utilized as an alternative to reduce the number of parking stalls. With parking available on the street, a reduced number of parking stalls is considered reasonable to accommodate the goal of maximizing land area available for other space programming. The proposed on-street and off-street parking capacity is estimated to be sufficient to serve future users, while also functioning to reduce impervious surfaces which impacts stormwater mitigation requirements. About 25 percent of users are estimated to arrive/depart via other modes of transportation, such as walking, biking, and/or transit. The resultant impact to the adjacent transportation system is expected to be relatively minimal, considering the facility currently operates within the traffic patterns managed by the adjacent Wellstone Elementary School. The site will be well served by multimodal facilities and transit service with very intentional design considerations incorporated to serve park patrons arriving by bicycle, walking, or transit. The new location of the Community Center on Rice Street will position the building 3 blocks closer to an existing bus stop. The closer proximity to the bus stop is expected to expand access. Following reconstruction of Rice Street, led by Ramsey County, there will also be a new off-street bike lane in front of the new facility, improving safe bicycle access to the facility than exists prior to construction.</p>	
NATURAL FEATURES			

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
Unique Natural Features /Water Resources	2	Aerial photographs also show that the park has been open park space since the 1920s. There are no protected tree stands or natural areas with significant biodiversity on site, since natural elements are disruptive to playing, practicing, and watching the athletics that are programmed on the site.	
Vegetation / Wildlife (Introduction, Modification, Removal, Disruption, etc.)	2	The 5.9 acre park does not contain significant communities of native species given the land management practice of utilizing turf grass and sand materials for baseball and softball diamonds. The project will require removal of existing trees to allow for construction and reprogramming of the site, however the design plans include a net positive by almost 2 to 1 for total trees. Tree species selection by the landscape architect has been coordinated with the City Forrester to help ensure species diversity and promote success on site and in consideration of the tree canopy in the City of Saint Paul.	
Other Factors 1			
Other Factors 2			
CLIMATE AND ENERGY			
Climate Change	2	The North End Community Center project is complying with the State of Minnesota's B3 Guidelines version 3.1. B3, which stands for Buildings, Benchmarks, and Beyond - a series of trackable compliance guidelines used throughout phases of project design, construction, and post-occupancy. The guidelines create sustainability goals for site, water, energy, indoor environment, materials, and waste that are specific for local climate and conditions in Minnesota but could be applied to any project. Compliance requires a collaborative multidisciplinary effort with shared responsibilities to meet the objectives of the program.	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
Energy Efficiency	1	The North End Community Center is following the B3 Sustainable Building 2030 Energy Standards. This is "a progressive energy conservation program designed to significantly reduce the energy and carbon in Minnesota commercial, institutional, and industrial buildings." Projects such as this, which began schematic design prior to 2020, must be 70 percent better energy efficiency than the average "baseline" building. The percentage increases 10 percent every 5 years until 2030, when they should be 100% more efficient, in other words carbon neutral. This project includes many strategies to meeting this goal, including a geothermal energy system, which uses the earth's natural underground temperature to help heat and cool the building through a series of underground piping and heat pumps. It also is designed for a roof-top solar array above the gymnasium which will provide on-site energy production. These strategies are pieces of a larger effort to use efficient equipment, windows, and monitoring to lower the Energy Use Intensity (EUI). The EUI measures the energy used in a building per square foot annually. This is found by dividing the total energy projection by the building each year by the total square footage. This analysis shows that the building meets the 70 percent reduction over the baseline or average building.	

Supporting documentation

[Rice Campus Community Engagement Plan.pdf](#)

[NECCIN~1.PDF](#)

[socioeconomics.pdf](#)

[1953 Aerial Photo of NECC project site.pdf](#)

[NECC Transportation Study.pdf](#)

[2022 06 30 FINAL NorthEndCommunityCenterTransportationStudy.pdf](#)

[145LAW~1.PDF](#)

[NECC 100 PERCENT CD DRAWINGS G020 Sustainability.pdf](#)

[C4 00.pdf](#)

[2022 05 23 SAC Determination.pdf](#)
[2020 11 20 North End Conductivity Test Results.pdf](#)
[NECC geotechnical report.pdf](#)
[5 Proposed HydroCAD Report.pdf](#)
[4 Proposed Drainage Map.pdf](#)
[21-237-397 North End Community Center staff packet combined.pdf](#)
[1025 Rice zoning case map.pdf](#)
[1025 rice csse aerial map.pdf](#)
[1025 rice existing land use map.pdf](#)
[PLANNI~1.PDF](#)
[NORTHE~1.PDF](#)

Additional Studies Performed:

Field Inspection [Optional]: Date and completed
by:

List of Sources, Agencies and Persons Consulted [40 CFR 1508.9(b)]:

Betty McCollum, United States Congresswoman, Representing Minnesota's 4th District Tom Parent, Executive Director of Operations & Administration, Saint Paul Public Schools Angelica Van Iperen, Principal, Wellston Elementary School Phasoua Vang, Manager, Rice Street Library Amanda Xiong, Library Associate-Teen Specialist, Rice Street Library Mark Doneux, Administrator, Capitol Region Watershed District Matt Woodruff, PE, Civil Department Engineer, Larson Engineering, Inc. North End Community Foundation (Presentation 5/3/2023) Kerry Antrim, Executive Director, Board, and Land Use and Housing Committee, North End Neighborhood Organization, Planning District Council 6 Wellstone Elementary School, Parent Teacher Association (Presentation 6/7/2022) David Nuccio, Field Environmental Officer in MN & WI, U.S. Dept Housing & Urban Development (HUD) Tribal Officials, HUD Tribal Directory Assessment Tool (TDAT) contacts as per attachment Nick Fischer, PE, Ramsey County, Project Manager, Rice Street redevelopment project Scott McBride, PE, Strategic Transportation Planning Manager, Bolton and Menk, Consultants, Rice Street Redevelopment Project Sarah Beimers, Environmental Review Program Manager, Minnesota State Historic Preservation Office (SHPO) Amanda Gronhovd, State Archaeologist, Office of the State Archeologist Julie Snow, FAIA NOMA, Founding Principal, Snow Kreilich Architects Julien Lineham, PE, Structural Engineer, Studio NYL Thomas Weber, PE, Mechanical Engineer, Salas O'Brien Darren Dickenson, PE, Electrical Engineer, Salas O'Brien Richard Fritz, PE, Engineer, Geotechnical, Braun

Intertec Chikamso Chijioke, Youth Commissioner, Saint Paul Youth Commission
Capital Investment Committee via public hearing with the Minnesota House of
Representatives Mayor Melvin Carter, Mayors Office, City of Saint Paul Council
President Amy Brendmoen, Ward 5 Office, City of Saint Paul Luis Pereira, Planning
Director, Planning and Economic Development, City of Saint Paul Tia Anderson, Senior
City Planner, Department of Safety and Inspections, Site Plan Review Manager, City of
Saint Paul MN Pollution Control Agency, What's in My Neighborhood online data
portal MN Department of Natural Resources, Coastal Boundary Program Federal
Emergency Management Agency (FEMA), National Flood Hazard Layer, Flood
Insurance Rate Maps US Environmental Protection Agency (EPA), NEPA Assist online
tool for Superfund / CERCLA compliance US EPA Greenbook listing for Clean Air Act
compliance with MN Nonattainment / Maintenance Status by County by Year for
Criteria Pollutants US EPA Sole Source Aquifer US Fish and Wildlife Service (US FWS)
Information for Planning and Consultation US FWS National Wetlands Inventory US
FWS Coastal Barrier Resources Systems Data US Census Bureau, Census Tract
Urbanized Areas Data for Farmland Protection US Census Bureau, Area of
Concentrated Poverty (ACP)50 census tract data Staff and Advisors, Minnesota
Compass Project, Longitudinal Employer - Household Dynamics (LEHD) for
Socioeconomic Analysis US Department of the Interior, Bureau of Land Management,
Wild and Scenic Rivers Spatial Data

List of Permits Obtained:

Site Plan Review - a Conditional Site Plan Approval letter issued on 3/9/2021. Final
site plan approval was received on 5-19-23. Conditional Use Permit, Modification of
Special Conditions, and Variance Approved by Planning Commission on 3-19-21
Building permit for footings and foundations Fire Engineering - Alarm Permit
Electrical Permit Saint Paul Regional Water Service Plumbing Permit Capitol Region
Watershed District permit with a variance for storm water flow National Pollutant
Discharge Elimination System permit - general storm water permit for construction
activity from the Minnesota Pollution Control Agency Sewer Availability Charge
(SAC) determination Building permits - additional permits will be required

Public Outreach [24 CFR 58.43]:

Public Hearings Convened: 1. The Zoning Committee of the Planning Commission
held a public hearing on the Conditional Use Permit with request for modification to
special condition and a required variance on Thursday March 11, 2021. 2. A public
hearing was held by the MN House of Representatives Capital Investment Committee
with testimony provided by City youth Commissioner in support of the project on

March 25, 2021. 3. The Saint Paul City Council acted on Resolution Public Hearing 23-15 on January 18, 2023, authorizing the Department of Parks and Recreation to amend the financing and spending plan in the amount of \$500,000, for the North End Community Center (NECC) project. 4. The Saint Paul City Council acted on Resolution Public Hearing 23-52 on April 5, 2023, authorizing the Department of Parks and Recreation to amend the financing and spending plan in the amount of \$611,000, for the North End Community Center (NECC) project. Meetings that did not include a public hearing: 1. North End Neighborhood Organization (NENO) Planning District 6 Board Update, April 4, 2022 2. The Planning Commission considered the recommendation for approval of the Conditional Use Permit (CUP) by the Zoning Committee with a modification of a special condition and variance requested, which was voted on March 19, 2021 via Resolution 21-13 3. Parks and Recreation Commission meetings 4. Saint Paul Public Schools PTA, Wellstone Elementary School June 7, 2022 5. Saint Paul Public Library with Rice Street Library staff 6. Rice Street Festival - July 27, 2019 - informal outdoor annual public gathering 7. Marydale Festival on September 28, 2019 - informal outdoor annual public gathering 8. North End Community Center design Public Open House #1 at Rice Street Library - November 7, 2019 9. North End Community Center design Public Open House #2 at Rice Street Library - December 12, 2019 10. Saint Paul Youth Commission, Presentation - January 6, 2020 11. NENO Annual Meeting - April 18, 2023 12. North End Community Foundation - May 3, 2023

Cumulative Impact Analysis [24 CFR 58.32]:

No negative impacts were identified across the review of required environmental laws within this record. Of the additional required 19 EA Factors analyzed across ecological, economic and social dimensions, 9 are considered to be a minor beneficial impact, while the remaining 10 factors evaluated were found to be free from any anticipated negative impacts from the project. This result shows that we can expect cumulative positive impacts without any significant cumulative negative impacts. The project results in the creation of a community in a campus that will connect the Wellstone School and Rice Street Library programs with NECC. As noted in the EA factor analysis and supporting documentation, multiple positive impacts were identified related to health impacts as well as community and economic development outcomes. Delivery of indoor and outdoor recreational programs has the potential for positive cumulative impacts over time, increasing the physical health of community members in the North End and park service-areas. There is a minor positive cumulative impact potential on market demand for certain goods and services supporting the NECC and associated spin off effects with more activity in the area. The amenities built into this site along Rice between Cook and Lawson Avenues was determined to have no negative impact on historic properties within the Area of Potential Effect (APE) and

may influence or help catalyze redevelopment along Rice with increased private investment along the corridor. Cumulative negative impacts related to increased vehicular trip generation from park patrons and maintenance and service vehicles increasing emissions from vehicles impacting greenhouse climate conditions may be observed. To address this, the project team included pedestrian, bicycle and transit modes systematically and intentionally throughout design. The location of the project itself provides a benefit given the future planned Metro Transit G line along Rice Street. The site plan and design of facilities adequately incorporates pedestrian and bike facilities to serve a low-income population that may not have access to a vehicle. We can also expect to see some minor cumulative impacts to traffic counts and flow patterns. These impacts were projected with a study by transportation consultants and reviewed by the City of Saint Paul Public Works department. Traffic Engineering Management considers these impacts acceptable given the capacity of surrounding streets and current traffic conditions managed to control peak school drop off and pick up times. The energy required for outdoor field and building lighting, as well as climate control operations for the new community center facility, can have cumulative impact on climate change with energy use depending on source(s) supplying the grid. Given that the NECC building will have a 70 percent better energy efficiency than the average "baseline" building, the field and facilities contribution to climate change from any cumulative energy use perspective is reduced, as it is addressed with B3 Sustainable Building 2030 Energy Standards. The proposed improvements to storm water management will have a positive cumulative impact over time as storm water flow is captured, slowed, and stabilized with incorporated technologies as opposed to current conditions that result in temporary ponding with slow percolation into soils, reducing the utility of the land.

Alternatives [24 CFR 58.40(e); 40 CFR 1508.9]

The primary concept for the North End Community Center site plan has, since the start of design, focused on the creation of a "community campus" for the North End neighborhood of Saint Paul. The new community center is to be the unifying element between the existing Wellstone Elementary School, Rice Street Library, and the existing park open space. Because of this, and to establish a welcoming presence on a busy road, the new community center will be positioned prominently on Rice Street. This location puts it adjacent to the library building and directly facing the elementary school across the public park between them. An early project concept looked at placing the new community center away from Rice Street and more central in the park, closer to the school. But, as was quickly understood, that this would reduce the amount and quality of shared programming with the library and separate the athletic fields from the school even more. Additionally, moving the new community center

away from Rice Street would make it farther from the bus stop, making it more difficult to reach for those that do not have a personal vehicle and rely on public transportation. With the community center located on Rice Street, the bus line and a future off-street bike path (currently in design phases) will be directly in front of the new building which can improve accessibility of the entire project. Therefore, to improve accessibility, programming, and presence in the community, the current building location was selected over alternative options.

No Action Alternative [24 CFR 58.40(e)]

Existing trends would continue with stormwater management challenges on site and limited sports program offerings which do not represent the interests fully in the North End community. The anthropogenic utility of the land would be limited where both cultural and recreation needs of the community would not be met. Sports programming for basketball, Sepak Takraw, and a variety of other outdoor recreational programs would not be possible without field and other site improvements. Without a community building facility, indoor programming would not be possible for this park location which serves a diverse low-income community throughout all four seasons. Families with young children may not have playground facilities to manage the physical energies of this age cohort that need to climb, swing, run, and play in critical stages of large motor movement development. There would not be indoor space for programs developed to serve youth and elders in Minnesota's climate conditions of cold weather many months of the year which results in less opportunity for safe physical activity out of doors. Without development of a campus environment and the new building, institutional partnerships for program development between the NECC, Wellstone Elementary, and public library systems would be limited. The community would not benefit from the increased programming which will come from public partnerships to influence the health and wellbeing of the community. As a result, we would find less social connection for individuals and groups in a post-covid phase, while we attempt to recover from a global viral pandemic. With the no-build alternative, populations in the North End service-area would likely be more isolated for extended periods of time during winter months. The community and economic development potential as described for this development proposal would not be realized. The potential to mentor youth to improve a variety of health, education, and other social outcomes for the ACP50 population in this area would not be realized. There would also be a lack of creation of primary and secondary positive economic development impacts on retail and commercial markets for related goods and service delivery along Rice Street, supporting City businesses, and impacting regional markets. There would not be the identified increase in jobs, both for temporary short-term construction as well as longer-term coaching and teaching roles in program execution and parks facility management.

Summary of Findings and Conclusions:

The development plan as proposed is following environmental law as provided within this Environmental Review Record (ERR). A Finding of No Significant Impact (FONSI) is based on our legal compliance and a multi-dimensional factor analysis which provides the weight of impacts on the positive side. No anticipated negative impacts from the project as a causal agent across environmental, social, or economic dimensions have been identified. The land use proposal has minimal negative environmental externalities itself, and does not pose risk to park patrons from known environmental hazards. The City is continuing a long-term parks and recreation tradition in a built-out urban core - not within a prime agricultural region. The project does not negatively impact critical natural resources - there are no communities of native vegetation or significant biodiversity. There is no defined critical habitat within the project site which results in direct or indirect takings of listed species. The project does not have any surface waters or wetlands subject to protections or mitigation requirements. The project site is not above a sole source aquifer, situated along the boundary of a Wild and Scenic River, or within a coastal zone or on a coastline. The project is not in a flood hazard zone placing the public or the federal investment at risk to water damage or dangerous flood conditions. Storm water management will be improved with technologies incorporated. The project is not near an airport runway clearance zone with associated land use and height restrictions. The project does not impact adjacent properties, residents, or businesses by displacement. The project is compatible with surrounding land uses and unlikely to have negative impact on nearby commercial facilities, but itself is situated to benefit from businesses with expected positive impacts in community and economic development. The project does not impact historic buildings or archaeological resources within an Area of Potential Effect (APE) as determined in concurrence with the State Historic Preservation Office and the Office of the State Archaeologist. Future patrons of the NECC are not being put at risk to environmental harms or hazards from toxic, flammable, explosive, or radioactive elements. The project is not near businesses that have above ground tanks that store fuels, nor those that use toxic chemicals or radioactive substances with risk of human health hazards. The nature of the project itself does not propose activities that will be utilizing toxic chemicals with the capacity to spill or impact soil or water resources from use, storage, or transport. There are no known hazards or other nuisances anticipated on-site. Being non-residential in nature, the project is not considered sensitive to potential impacts from sources of noise. Regional environmental service capacities are sufficient for management long-term. The land use itself is not a water-intensive operation nor is it in a region where water is a limiting factor. Solid waste management systems can absorb construction debris and waste generated over time. Wastewater and sanitary sewer systems capacity is sufficient. Park patrons can be adequately served with existing public safety response systems capacity in Police, Fire and Emergency Management institutions.

Transportation consultants and traffic engineering management evaluated the potential for traffic impacts from increased trip generation and found the existing and future planned transportation infrastructure to be sufficient. The project is incorporating bicycle and pedestrian facilities and is situated along the future Metro Transit G line. All of these findings suggest that the proposed project does not disproportionately impact the ACP50 population in negative ways. Rather the federal investment will provide significant cumulative positive benefits to the North End community and populations estimated within the service area.

Mitigation Measures and Conditions [CFR 1505.2(c)]:

Summarized below are all mitigation measures adopted by the Responsible Entity to reduce, avoid or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

Law, Authority, or Factor	Mitigation Measure or Condition	Comments on Completed Measures	Mitigation Plan	Complete
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Project Mitigation Plan

Supporting documentation on completed measures

APPENDIX A: Related Federal Laws and Authorities

Airport Hazards

General policy	Legislation	Regulation
It is HUD's policy to apply standards to prevent incompatible development around civil airports and military airfields.		24 CFR Part 51 Subpart D

1. To ensure compatible land use development, you must determine your site's proximity to civil and military airports. Is your project within 15,000 feet of a military airport or 2,500 feet of a civilian airport?

✓ No

Based on the response, the review is in compliance with this section. Document and upload the map showing that the site is not within the applicable distances to a military or civilian airport below

Yes

Screen Summary

Compliance Determination

The project site is not within 15,000 feet of a military airport or 2,500 feet of a civilian airport. The project is in compliance with Airport Hazards requirements. See Figure 1 NECC project location in relation to airports. The park is approximately 11,750 feet (as the crow flies) to the closest point on the perimeter of Holman Field at the 2,500 buffer perimeter. The project location is approximately 33,909 feet from the closest point along the MSP airport's 2,500 foot buffer perimeter.

Supporting documentation

[Figure 1 NECC project location in relation to airports.pdf](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

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Coastal Barrier Resources

General requirements	Legislation	Regulation
HUD financial assistance may not be used for most activities in units of the Coastal Barrier Resources System (CBRS). See 16 USC 3504 for limitations on federal expenditures affecting the CBRS.	Coastal Barrier Resources Act (CBRA) of 1982, as amended by the Coastal Barrier Improvement Act of 1990 (16 USC 3501)	

1. Is the project located in a CBRS Unit?

✓ No

Document and upload map and documentation below.

Yes

Compliance Determination

This project is not located in a CBRS Unit. See Figure 2, Coastal Barriers Resource Systems (CBRS) Map for Minnesota from the U.S. Fish and Wildlife Service's "Coastal Barrier Resources System Mapper". According to the USFWS, the only CBRS found in Minnesota is the "John H. Chafee CBRS" in Duluth, Minnesota. Since the proposed HUD project is in the city of Saint Paul, Minnesota, approximately 160 miles south of the "John H. Chafee CBRS", it can be determined that there will be no effect. Therefore, this project has no potential to impact a CBRS Unit and is in compliance with the Coastal Barrier Resources Act.

Supporting documentation

[Figure 2 CBRS Map for Minnesota.pdf](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

Flood Insurance

General requirements	Legislation	Regulation
Certain types of federal financial assistance may not be used in floodplains unless the community participates in National Flood Insurance Program and flood insurance is both obtained and maintained.	Flood Disaster Protection Act of 1973 as amended (42 USC 4001-4128)	24 CFR 50.4(b)(1) and 24 CFR 58.6(a) and (b); 24 CFR 55.1(b).

1. Does this project involve financial assistance for construction, rehabilitation, or acquisition of a mobile home, building, or insurable personal property?

- ✓ No. This project does not require flood insurance or is excepted from flood insurance.

Based on the response, the review is in compliance with this section.

Yes

4. While flood insurance is not mandatory for this project, HUD strongly recommends that all insurable structures maintain flood insurance under the National Flood Insurance Program (NFIP). Will flood insurance be required as a mitigation measure or condition?

Yes

- ✓ No

Screen Summary

Compliance Determination

Based on the project description the project includes no activities that would require further evaluation under this section. The project does not require flood insurance or is excepted from flood insurance. While flood insurance may not be mandatory in this instance, HUD recommends that all insurable structures maintain flood insurance under the National Flood Insurance Program (NFIP). The project is in compliance with Flood Insurance requirements. See Figure 3 Firmette for NECC showing area of minimal flood hazard.

Supporting documentation

[Figure 3 Firmette for NECC showing area of minimal flood hazard.pdf](#)

Are formal compliance steps or mitigation required?

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Yes

✓ No

Air Quality

General requirements	Legislation	Regulation
The Clean Air Act is administered by the U.S. Environmental Protection Agency (EPA), which sets national standards on ambient pollutants. In addition, the Clean Air Act is administered by States, which must develop State Implementation Plans (SIPs) to regulate their state air quality. Projects funded by HUD must demonstrate that they conform to the appropriate SIP.	Clean Air Act (42 USC 7401 et seq.) as amended particularly Section 176(c) and (d) (42 USC 7506(c) and (d))	40 CFR Parts 6, 51 and 93

1. Does your project include new construction or conversion of land use facilitating the development of public, commercial, or industrial facilities OR five or more dwelling units?

✓ Yes

No

Air Quality Attainment Status of Project's County or Air Quality Management District

2. Is your project's air quality management district or county in non-attainment or maintenance status for any criteria pollutants?

✓ No, project's county or air quality management district is in attainment status for all criteria pollutants.

Yes, project's management district or county is in non-attainment or maintenance status for the following criteria pollutants (check all that apply):

Screen Summary

Compliance Determination

The project's county or air quality management district is in attainment status for all criteria pollutants. See figure 4 uploaded which documents the current status of counties in MN with nonattainment status for criteria pollutants for Ramsey County. The project is in compliance with the Clean Air Act.

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Supporting documentation

[Figure 4 MN Nonattainment status by county US EPA Green Book.pdf](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

Coastal Zone Management Act

General requirements	Legislation	Regulation
Federal assistance to applicant agencies for activities affecting any coastal use or resource is granted only when such activities are consistent with federally approved State Coastal Zone Management Act Plans.	Coastal Zone Management Act (16 USC 1451-1464), particularly section 307(c) and (d) (16 USC 1456(c) and (d))	15 CFR Part 930

1. Is the project located in, or does it affect, a Coastal Zone as defined in your state Coastal Management Plan?

Yes

✓ No

Based on the response, the review is in compliance with this section. Document and upload all documents used to make your determination below.

Screen Summary

Compliance Determination

This project is not located in or does not affect a Coastal Zone as defined in the state Coastal Management Plan. See Figure 5 Coastal Zone Management for MN which shows the only coastal zone is up north along Lake Superior. The project is in compliance with the Coastal Zone Management Act.

Supporting documentation

[Figure 5 Coastal Zone Management map MN.pdf](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

Contamination and Toxic Substances

General requirements	Legislation	Regulations
It is HUD policy that all properties that are being proposed for use in HUD programs be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of the occupants or conflict with the intended utilization of the property.		24 CFR 58.5(i)(2) 24 CFR 50.3(i)

1. How was site contamination evaluated? Select all that apply. Document and upload documentation and reports and evaluation explanation of site contamination below.

American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment (ESA)

ASTM Phase II ESA

Remediation or clean-up plan

ASTM Vapor Encroachment Screening

☒ None of the Above

2. Were any on-site or nearby toxic, hazardous, or radioactive substances found that could affect the health and safety of project occupants or conflict with the intended use of the property? (Were any recognized environmental conditions or RECs identified in a Phase I ESA and confirmed in a Phase II ESA?)

☒ No

Explain:

Findings and conclusions 1-5 in the attached report by PED show our analysis of EPA data from the NEPA Assist tool for an area within 0.5-mile radius of the 5.0 +/- acre park. There are no Superfund sites within the buffer. The project itself is not a generator of hazardous waste. MPCA data was also identified within 0.5 miles with each record reviewed. None of the identified brownfield or hazardous waste sites as provided by the EPA and MPCA inventories presents any concern. Historical petroleum spills have been cleaned up years ago. Most of the records have an older status dates and all are closed-out or completed. Certain current businesses along Rice Street and the school have multiple programs with MPCA to manage hazardous materials that may be in active use today, but each of these entities and operations are

registered and licensed limited generators of hazardous waste, which is considered acceptable. The 1927 Sanborn Insurance Maps provides the historic uses of the 5.9 acre area as parks and recreation open space to the west adjoining with the school, and limited residential and park structures along the eastern portion of the site adjoining Rice Street. Building permit review was undertaken to verify structures and uses. With the intrinsic nature of residential and park land use, the potential for historical contamination is low. The City of Saint Paul did not deem it necessary to complete a Phase I ESA given the history of land uses for this site and our logic and conclusions as outlined in the attachment.

Based on the response, the review is in compliance with this section.

Yes

Screen Summary

Compliance Determination

Site contamination was evaluated in the methods outlined in the attachment with HUD policy, rules, methods, findings and conclusions for RCRA and CERCLA compliance. Data sources include Historical City Building Permits, 1927 Sanborn Insurance Map, EPA NEPA Assist inventory and report, and MN Pollution Control Agency (MPCA) business record, program, and spatial data for context and interpretation. Interactive GIS tools allow for retrieval and of records by location to document the nature of land use hazardous waste business or organizational operations in relation to the project site. Map figures and a table report on the data by a 0.5-mile buffer geography to map and record a summary of findings. Highlights and interpretation of patterns in the records are provided. On-site or nearby toxic, hazardous, or radioactive substances that could affect the health and safety of project occupants or conflict with the intended use of the property were not found and are not anticipated to be a threat to health and safety. The project is in compliance with contamination and toxic substances requirements.

Supporting documentation

[FIF5A7~1.PDF](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

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Endangered Species

General requirements	ESA Legislation	Regulations
Section 7 of the Endangered Species Act (ESA) mandates that federal agencies ensure that actions that they authorize, fund, or carry out shall not jeopardize the continued existence of federally listed plants and animals or result in the adverse modification or destruction of designated critical habitat. Where their actions may affect resources protected by the ESA, agencies must consult with the Fish and Wildlife Service and/or the National Marine Fisheries Service ("FWS" and "NMFS" or "the Services").	The Endangered Species Act of 1973 (16 U.S.C. 1531 <i>et seq.</i>); particularly section 7 (16 USC 1536).	50 CFR Part 402

1. Does the project involve any activities that have the potential to affect species or habitats?

No, the project will have No Effect due to the nature of the activities involved in the project.

No, the project will have No Effect based on a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office

- ✓ Yes, the activities involved in the project have the potential to affect species and/or habitats.

2. Are federally listed species or designated critical habitats present in the action area?

- ✓ No, the project will have No Effect due to the absence of federally listed species and designated critical habitat

Based on the response, the review is in compliance with this section. Document and upload all documents used to make your determination below.

Documentation may include letters from the Services, species lists from the Services' websites, surveys or other documents and analysis showing that there are no species in the action area.

Yes, there are federally listed species or designated critical habitats present in the action area.

Screen Summary

Compliance Determination

This project will have No Effect on listed species because there are no listed species or designated critical habitats in the action area. See the letter attached by the USFWS IPAC consultation initiated on the 'North End Community Center' project, making key determinations of no effect for 5 specified threatened and endangered species that may occur in the proposed project location, consistent with the Minnesota-Wisconsin Endangered Species Determination Key, dated April 21, 2023. This project is in compliance with the Endangered Species Act.

Supporting documentation

[7MEMOO~2.PDF](#)
[NECONS~1.PDF](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

Explosive and Flammable Hazards

General requirements	Legislation	Regulation
HUD-assisted projects must meet Acceptable Separation Distance (ASD) requirements to protect them from explosive and flammable hazards.	N/A	24 CFR Part 51 Subpart C

1. Is the proposed HUD-assisted project itself the development of a hazardous facility (a facility that mainly stores, handles or processes flammable or combustible chemicals such as bulk fuel storage facilities and refineries)?

✓ No

Yes

2. Does this project include any of the following activities: development, construction, rehabilitation that will increase residential densities, or conversion?

✓ No

Based on the response, the review is in compliance with this section.

Yes

Screen Summary

Compliance Determination

See our memo with methods, Figures 8 (a-g) and findings for determination of 24 CFR Part 51 Subpart C. The nature of the project is passive and active outdoor and indoor recreational use of public facilities. Based on the project description the project includes no activities that would require further evaluation under this section. The MNPCA WIMN dataset was reviewed for above ground storage tanks within one mile for context, distance, and a brief assessment of risk looking at distances and current land uses. The use of federal funds will not be used for construction of any residential dwelling units which does not require an output and compliance with Acceptable Distance Calculations. Research and map evaluation methods found two separate business with above ground tanks within about a half mile of the NECC and the interpretation and findings supporting documentation of

compliance. The project is in compliance with explosive and flammable hazard requirements.

Supporting documentation

[8NECCC~1.PDF](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

Farmlands Protection

General requirements	Legislation	Regulation
The Farmland Protection Policy Act (FPPA) discourages federal activities that would convert farmland to nonagricultural purposes.	Farmland Protection Policy Act of 1981 (7 U.S.C. 4201 et seq.)	7 CFR Part 658

1. Does your project include any activities, including new construction, acquisition of undeveloped land or conversion, that could convert agricultural land to a non-agricultural use?

Yes

✓ No

If your project includes new construction, acquisition of undeveloped land or conversion, explain how you determined that agricultural land would not be converted:

agricultural lands need many hundreds or thousands of contiguous acres of suitable soil, outside of built out urban cores. The proposed project on the subject property is within slightly less than 6 acres in the urban core away from any viable agricultural areas within the state.

Based on the response, the review is in compliance with this section. Document and upload all documents used to make your determination below.

Screen Summary

Compliance Determination

This project does not include any activities that could potentially convert agricultural land to a non-agricultural use. See Figure 9 which shows the entire urbanized area using census data. The project is in compliance with the Farmland Protection Policy Act.

Supporting documentation

[Figure 9 US Census Bureau Urbanized Area Map.pdf](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

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Floodplain Management

General Requirements	Legislation	Regulation
Executive Order 11988, Floodplain Management, requires federal activities to avoid impacts to floodplains and to avoid direct and indirect support of floodplain development to the extent practicable.	Executive Order 11988	24 CFR 55

1. Do any of the following exemptions apply? Select the applicable citation? [only one selection possible]

- 55.12(c)(3)
- 55.12(c)(4)
- 55.12(c)(5)
- 55.12(c)(6)
- 55.12(c)(7)
- 55.12(c)(8)
- 55.12(c)(9)
- 55.12(c)(10)
- 55.12(c)(11)

☒ None of the above

2. Upload a FEMA/FIRM map showing the site here:

[Figure 3 Firmette for NECC showing area of minimal flood hazard\(1\).pdf](#)

The Federal Emergency Management Agency (FEMA) designates floodplains. The FEMA Map Service Center provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs). For projects in areas not mapped by FEMA, use **the best available information** to determine floodplain information. Include documentation, including a discussion of why this is the best available information for the site.

Does your project occur in a floodplain?

☒ No

Based on the response, the review is in compliance with this section.

Yes

Screen Summary

Compliance Determination

This project does not occur in a floodplain. See Figure 3. FEMA Firmette map output showing the project is within an area of minimal flood hazard. The project is in compliance with Executive Order 11988.

Supporting documentation

Are formal compliance steps or mitigation required?

Yes

✓ No

Historic Preservation

General requirements	Legislation	Regulation
Regulations under Section 106 of the National Historic Preservation Act (NHPA) require a consultative process to identify historic properties, assess project impacts on them, and avoid, minimize, or mitigate adverse effects	Section 106 of the National Historic Preservation Act (16 U.S.C. 470f)	36 CFR 800 "Protection of Historic Properties" https://www.govinfo.gov/content/pkg/CFR-2012-title36-vol3/pdf/CFR-2012-title36-vol3-part800.pdf

Threshold

Is Section 106 review required for your project?

No, because the project consists solely of activities listed as exempt in a Programmatic Agreement (PA). (See the PA Database to find applicable PAs.)

No, because the project consists solely of activities included in a No Potential to Cause Effects memo or other determination [36 CFR 800.3(a)(1)].

- ✓ Yes, because the project includes activities with potential to cause effects (direct or indirect).

Step 1 – Initiate Consultation

Select all consulting parties below (check all that apply):

- ✓ State Historic Preservation Offer (SHPO) Completed
- ✓ Advisory Council on Historic Preservation Not Required
- ✓ Indian Tribes, including Tribal Historic Preservation Officers (THPOs) or Native Hawaiian Organizations (NHOs)

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✓ Iowa Tribe of Nebraska and Kansas In progress

Other Consulting Parties

Describe the process of selecting consulting parties and initiating consultation here:

Please see the attachment for detailed description of the process with documentation of the content, dates and attachments within email communications.

Document and upload all correspondence, notices and notes (including comments and objections received below).

Was the Section 106 Lender Delegation Memo used for Section 106 consultation?

Yes
No

Step 2 – Identify and Evaluate Historic Properties

- 1. Define the Area of Potential Effect (APE), either by entering the address(es) or uploading a map depicting the APE below:**

The defined APE is provided in attachment B, which was part of PEDs complete package submittal to SHPO which is attached herein.

In the chart below, list historic properties identified and evaluated in the APE. Every historic property that may be affected by the project should be included in the chart.

Upload the documentation (survey forms, Register nominations, concurrence(s) and/or objection(s), notes, and photos) that justify your National Register Status determination below.

Address / Location / District	National Register Status	SHPO Concurrence	Sensitive Information
----------------------------------	-----------------------------	------------------	--------------------------

Additional Notes:

Please see attachment E which is the listing and inventory with address, photos and properties. Qualified City of Saint Paul Heritage Preservation Staff have reviewed this inventory of properties and does not have any concern for negative impacts from the proposed project.

2. Was a survey of historic buildings and/or archeological sites done as part of the project?

✓ Yes

Document and upload surveys and report(s) below.

For Archeological surveys, refer to HP Fact Sheet #6, Guidance on Archeological Investigations in HUD Projects.

Additional Notes:

The MN SHPO referred PED to work with the Office of the State Archaeologist. The review request application form and the corresponding letter response are provided as attachment, showing the state archaeologist has no concern.

No

Step 3 –Assess Effects of the Project on Historic Properties

Only properties that are listed on or eligible for the National Register of Historic Places receive further consideration under Section 106. Assess the effect(s) of the project by applying the Criteria of Adverse Effect. (36 CFR 800.5)] Consider direct and indirect effects as applicable as per guidance on direct and indirect effects.

Choose one of the findings below - No Historic Properties Affected, No Adverse Effect, or Adverse Effect; and seek concurrence from consulting parties.

✓ No Historic Properties Affected

Based on the response, the review is in compliance with this section. Document and upload concurrence(s) or objection(s) below.

Document reason for finding:

✓ No historic properties present.

Historic properties present, but project will have no effect upon them.

No Adverse Effect

Adverse Effect

Screen Summary

Compliance Determination

Based on Section 106 consultation there are No Historic Properties Affected because there are no historic properties present in the defined APE. PED invited 19 tribes to consult on the project and received one response from Tribal Official members of the Iowa Tribe of Nebraska and Kansas. See "Tribal Consultation for the NECC" attachment which provides the dates and context of emails. This EA led the conclusion of a two-part SHPO review series initiated by different Responsible Entities accomplishing more than environmental review. Two separate federal grants from different federal agencies were awarded to the project (Outdoor Recreation Legacy Partnership (ORLP) grant from allocated from Land and Water Conservation Fund with the Dept. of Interior. This first grant award was administered by the MN Department of Resources Division of Parks and Trails) with this state agency being a Responsible Entity for environmental review in early 2022 at an exempt-level of environmental review. A year later, a HUD Community Project Funding (CPF) grant award triggered PED to review the project which requires, and Environmental Assessment given the scope, scale, and activities proposed for the federal undertaking. With the City of Saint Paul as the Responsible Entity required to review the entire scope of work, the HUD funding needed to pay for materials and construction of the \$25M community center. The attachments within provide background on the community engagement process undertaken, design approaches to site layout with alternative building sites, multimodal transportation planning considerations, historical contexts, sensitivities or inspiration to architectural perspectives, defined Area of Potential Effects (APE), and a thorough analysis of properties within. The PED form with project background that is requesting 106 consultation is attached. References to attachments A-F are found, also uploaded herein. See also enclosed the initial and final SHPO findings (a) as provided to the MN DNR in September 2022 letter, and (2) SHPO letter dated 4-14-23 to PED from their review of the entire project with construction scope of work, which resulted in a final letter documenting no concern from SHPO. The NECC project is in compliance with local, state and national historic preservation protections having

found that the historical George Washington High School, now known as Wellstone Elementary School, was determined ineligible for listing in the National Register of Historic Places (NRHP). There are no identified historic homes or commercial properties within the APE. The project is also in compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990. A review of the potential for protected archaeological and human remains was undertaken during consultation with SHPO and the Office of the State Archaeologist (OSA). See the letter response from the state archaeologist who found no concern for the potential existence of protected archaeological remains or resources for the project site.

Supporting documentation

[OSA Letter_North End Community Center_041323.pdf](#)
[NECC-S~1.PDF](#)
[July 12 Letter.pdf](#)
[Attachment F.pdf](#)
[Attachment E.pdf](#)
[Attachment D.pdf](#)
[Attachment B.pdf](#)
[Attachments A and C.pdf](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

Noise Abatement and Control

General requirements	Legislation	Regulation
HUD's noise regulations protect residential properties from excessive noise exposure. HUD encourages mitigation as appropriate.	Noise Control Act of 1972 General Services Administration Federal Management Circular 75-2: "Compatible Land Uses at Federal Airfields"	Title 24 CFR 51 Subpart B

1. What activities does your project involve? Check all that apply:

New construction for residential use

Rehabilitation of an existing residential property

A research demonstration project which does not result in new construction or reconstruction

An interstate land sales registration

Any timely emergency assistance under disaster assistance provision or appropriations which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance that has the effect of restoring facilities substantially as they existed prior to the disaster

✓ None of the above

Screen Summary

Compliance Determination

Based on the project description, this project includes no activities that would require further evaluation under HUD's noise regulation. The use of the land is non-residential in nature. The project does not require DNL levels to be calculated from noise sources to meet minimum standards. The project proposal is for construction of public facilities to facilitate outdoor and indoor recreation, which is not a noise-sensitive land use. See figures 1-7 in ERR the attachment for the project description for additional information. The project is in compliance with HUD's Noise regulation.

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Supporting documentation

Are formal compliance steps or mitigation required?

Yes

✓ No

Sole Source Aquifers

General requirements	Legislation	Regulation
The Safe Drinking Water Act of 1974 protects drinking water systems which are the sole or principal drinking water source for an area and which, if contaminated, would create a significant hazard to public health.	Safe Drinking Water Act of 1974 (42 U.S.C. 201, 300f et seq., and 21 U.S.C. 349)	40 CFR Part 149

1. Does the project consist solely of acquisition, leasing, or rehabilitation of an existing building(s)?

Yes

✓ No

2. Is the project located on a sole source aquifer (SSA)?

A sole source aquifer is defined as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. This includes streamflow source areas, which are upstream areas of losing streams that flow into the recharge area.

✓ No

Based on the response, the review is in compliance with this section. Document and upload documentation used to make your determination, such as a map of your project (or jurisdiction, if appropriate) in relation to the nearest SSA and its source area, below.

Yes

Screen Summary

Compliance Determination

The project is not located on a sole source aquifer area. See Figure 13 attached. The project is in compliance with Sole Source Aquifer requirements.

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Supporting documentation

[Figure 13 Sole Source Aquifer map MN.pdf](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

Wetlands Protection

General requirements	Legislation	Regulation
Executive Order 11990 discourages direct or indirect support of new construction impacting wetlands wherever there is a practicable alternative. The Fish and Wildlife Service's National Wetlands Inventory can be used as a primary screening tool, but observed or known wetlands not indicated on NWI maps must also be processed. Off-site impacts that result in draining, impounding, or destroying wetlands must also be processed.	Executive Order 11990	24 CFR 55.20 can be used for general guidance regarding the 8 Step Process.

1. Does this project involve new construction as defined in Executive Order 11990, expansion of a building's footprint, or ground disturbance? The term "new construction" shall include draining, dredging, channelizing, filling, diking, impounding, and related activities and any structures or facilities begun or authorized after the effective date of the Order

No

✓ Yes

2. Will the new construction or other ground disturbance impact an on- or off-site wetland? The term "wetlands" means those areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

"Wetlands under E.O. 11990 include isolated and non-jurisdictional wetlands."

✓ No, a wetland will not be impacted in terms of E.O. 11990's definition of new construction.

Based on the response, the review is in compliance with this section. Document and upload a map or any other relevant documentation below which explains your determination

Yes, there is a wetland that be impacted in terms of E.O. 11990's definition of new construction.

Screen Summary

Compliance Determination

The project will not impact on or off-site wetlands. Within the 5.9 +/- acre park, there are no surface waters or documented wetlands as per the attached Figure 14 map output by the National Wetlands Inventory maintained by the US Fish and Wildlife Service. The project is in compliance with Executive Order 11990.

Supporting documentation

[Figure 14 NWI wetlands and surface waters in proximity to NECC.pdf](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

Wild and Scenic Rivers Act

General requirements	Legislation	Regulation
The Wild and Scenic Rivers Act provides federal protection for certain free-flowing, wild, scenic and recreational rivers designated as components or potential components of the National Wild and Scenic Rivers System (NWSRS) from the effects of construction or development.	The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287), particularly section 7(b) and (c) (16 U.S.C. 1278(b) and (c))	36 CFR Part 297

1. Is your project within proximity of a NWSRS river?

✓ No

Yes, the project is in proximity of a Designated Wild and Scenic River or Study Wild and Scenic River.

Yes, the project is in proximity of a Nationwide Rivers Inventory (NRI) River.

Screen Summary

Compliance Determination

This project is not within proximity of a NWSRS river. See figure 15 which shows the location of the City of Saint Paul in relation to the Saint Croix River, which is a designated Wild and Scenic River. The project is in compliance with the Wild and Scenic Rivers Act.

Supporting documentation

[Figure 15 Wild and Scenic Rivers.pdf](#)

Are formal compliance steps or mitigation required?

Yes

✓ No

Environmental Justice

General requirements	Legislation	Regulation
Determine if the project creates adverse environmental impacts upon a low-income or minority community. If it does, engage the community in meaningful participation about mitigating the impacts or move the project.	Executive Order 12898	

HUD strongly encourages starting the Environmental Justice analysis only after all other laws and authorities, including Environmental Assessment factors if necessary, have been completed.

1. Were any adverse environmental impacts identified in any other compliance review portion of this project's total environmental review?

Yes

✓ No

Based on the response, the review is in compliance with this section.

Screen Summary

Compliance Determination

The project is in alignment with the City's adopted 2040 Comprehensive Plans, Parks and Recreation Plans, Capital Improvement Budget, state laws and regulations, federal environmental law, and locally adopted neighborhood plans (North End Neighborhood Organization, Planning District 6). The NECC project will serve a diverse low-income population. The federal undertaking is within an Area of Concentrated Poverty (ACP)50. No adverse environmental impacts were identified in the project's total environmental review disproportionately impacting this ACP50 population from review of environmental laws and authorities under NEPA and a multidimensional factor analysis. See the attached Environmental Justice Statement. The City has found no concern regarding vulnerability of park visitors to explosive, flammable, toxic or other hazardous materials. There are no known negative environmental externalities outward caused by the development of the outdoor recreational fields or the community center building. Nor are there known environmental harms given the existing environmental context of the vicinity that poses risks to future program

participants at the NECC. There are no known nearby above or below ground tanks of concern, contaminated soil or water tables not being addressed with site investigation and required clean-up activities, or active hazardous waste sites from business operations in need of remediation and regulation beyond what industry standards may already manage or control. Given this, we do not find any anticipated negative externalities or effects, primary or secondary, directly or indirectly, which disproportionately impact the ACP50 population in the North End. Rather, positive impacts were identified with the NECC as a causal agent, primarily the potential for cumulative public health and community development benefits. The results of the EA show significantly higher weight of positive benefits to the community across health and other socio-economic dimensions. The Environmental Review Record (ERR) in its entirety, along with the Rice Campus Engagement Plan, provides evidence of equitable planning process and outcomes from the North End in the City of Saint Paul. See the attachment for our research on the community context, identified needs in healthy community development, inclusive engagement processes undertaken and ongoing, incorporation of multimodal transportation systems, and sustainable development strategies to address the potential for the project's impact to climate change. The project is in compliance with Executive Order 12898.

Supporting documentation

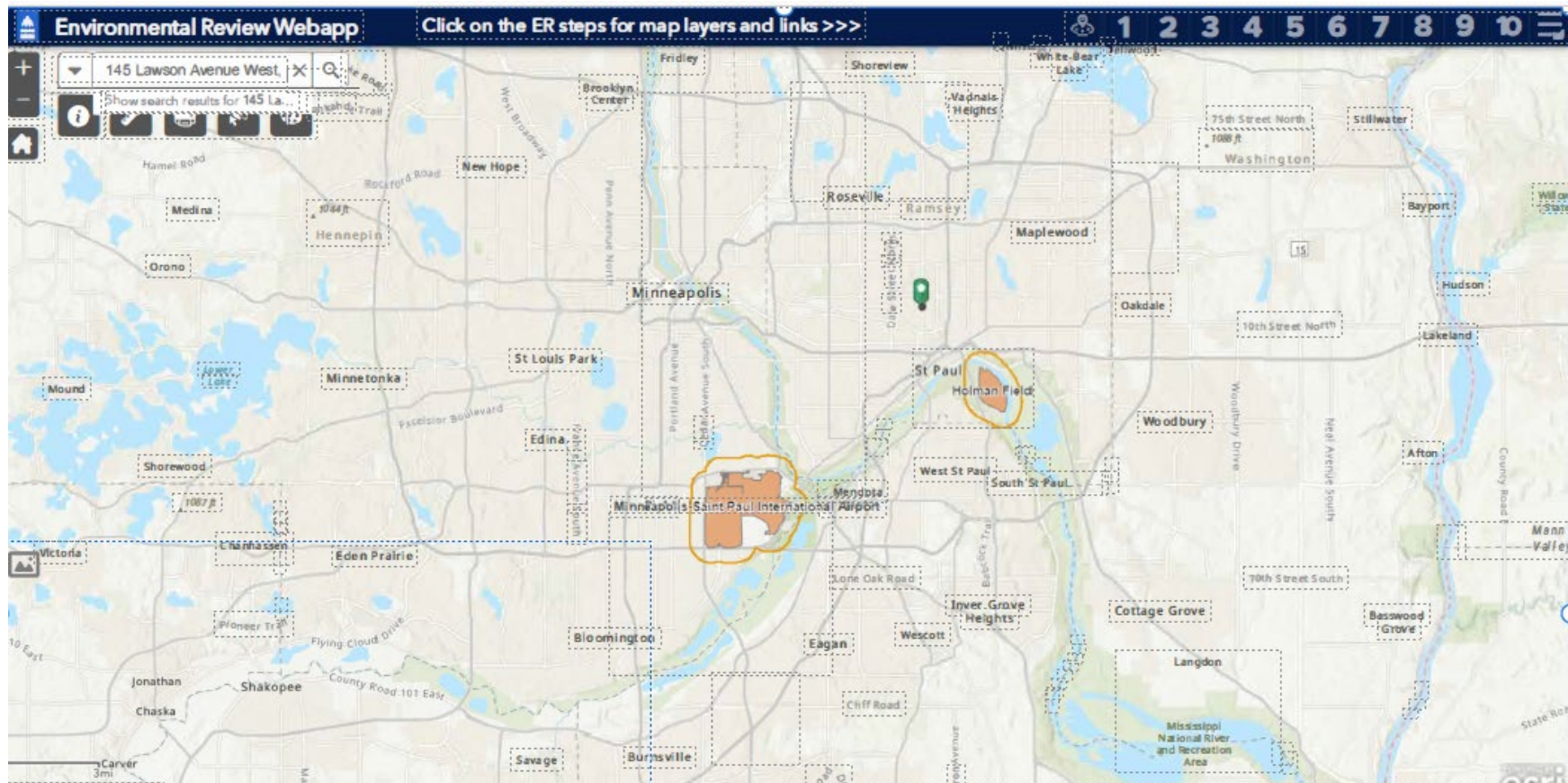
[NECC Environmental Justice Statement.pdf](#)

Are formal compliance steps or mitigation required?

Yes

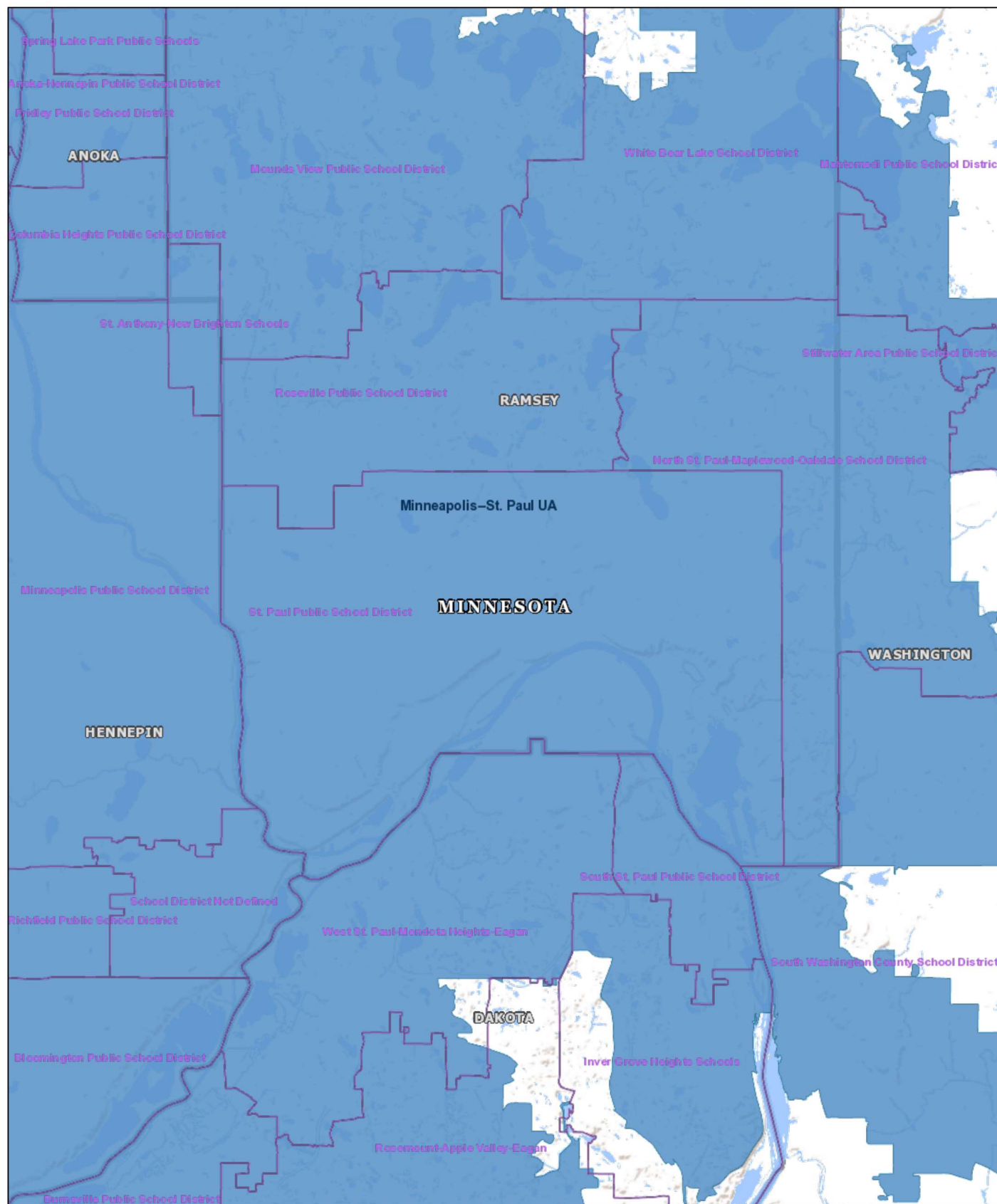
✓ No

Figure 1. NECC In Relation to Minneapolis Saint Paul (MSP) International Airport and Holman Field



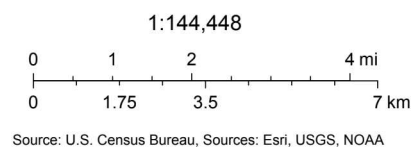
The project site is shown with a green label in relation to two airport areas shaded in orange. The NECC project site is not within 15,000 feet of a military airport or 2,500 feet of a civilian airport. The project location is approximately 33,909 feet from the closest point along the perimeter of the MSP airport's 2,500-foot buffer as shown as an orange outline. The park is approximately 11,750 feet (as the crow flies) to the closest point on the perimeter of Holman Field at the 2,500-buffer. The project is in compliance with Airport Hazards requirements.

Urbanized Area - City of Saint Paul (Outlined by School District)



May 26, 2022

Counties	Secondary School Districts	2010 Census Urban Clusters
States	Unified School Districts	2010 Census Urbanized Areas
2010 Census Urban Clusters	Elementary School Districts	Counties
2010 Census Urbanized Areas	Secondary School Districts	States
Elementary School Districts	Unified School Districts	



1953 Aerial Photo of NECC project site



city of saint paul
planning commission resolution
file number 21-13
date March 19, 2021

WHEREAS, City of Saint Paul, Real Estate Division, File # 21-237-397, has applied for a conditional use permit for multi-use community recreation center, with modification of conditions to permit parking in the minimum front yard and principal access to be from Lawson Street and variance for parking front setback (25' minimum, 7' proposed) under the provisions of §§ 61.501, 61.502, 61.601, 63.312, & 65.235 of the Saint Paul Legislative Code on property located at 1025 Rice Street, Parcel Identification Number (PIN) 25.29.23.14.0144, legally described as DAWSON AND RICE'S ADDITION, TO W 1/2 OF VAC WOODBRIDGE ST ACCRUING & E 1/2 OF VAC ALLEY ACCRUING & FOL; S 30 FT OF LOT 2 AND ALL OF LOTS 1,4 & LOT 5 BLK 3 & E 1/2 OF VAC WOODBRIDGE ST ACCRUING TO BLK 2 AND VAC ALLEYS IN BLKS 1 & 2 & VAC ALBEMARLE ST BETWEEN BLKS 1 AND 2; and

WHEREAS, the Zoning Committee of the Planning Commission, on March 11, 2021, held a public hearing at which all persons present were given an opportunity to be heard pursuant to said application in accordance with the requirements of § 61.303 of the Saint Paul Legislative Code; and

WHEREAS, the Saint Paul Planning Commission, based on the evidence presented to its Zoning Committee at the public hearing as substantially reflected in the minutes, made the following findings of fact:

1. The applicant is proposing to construct a three-level multi-use community recreation center on a site with existing ballfields on Rice Street between Lawson Avenue and Cook Avenue. The project is proposing 22 parking spaces and 12 bicycle parking spaces. A curb cut on Lawson Avenue will provide access to the new parking lot. There will be pedestrian access to the new building on Lawson Avenue, and pedestrian access to the new fields on Cook Avenue and Lawson Avenue. The new center will include recreation spaces, fitness spaces for strength training and yoga, staff offices, community meeting rooms, a community kitchen, and a teen center. The project will also provide new amenities for Fritz Clark Park such as a multi-purpose soccer, football, baseball, and softball field, basketball court, outdoor playground, and water feature.
2. A community recreation center requires a conditional use permit in the RT1 zoning district and must meet the following special standards and conditions for noncommercial recreation centers listed in Zoning Code § 65.235:
 - (a) *The proposed site for any of the uses permitted herein shall have at least one (1) property line abutting a major thoroughfare (in definition), and the site shall be so planned as to provide principal access directly to said major thoroughfare. This*

moved by Baker
seconded by _____
in favor 15 – 0 with 3 abstentions (Holst, Moore, Thomas)
against _____

condition is not met. Access to the proposed parking lot is from Lawson Avenue, which is not classified as a major thoroughfare but is designated as a local street. The main entrance to the community recreation center building also faces Lawson. Requested modification of this condition is addressed in finding 3 below.

- (b) *All yards shall be landscaped in trees, shrubs and grass. All such landscaping shall be maintained in a healthy condition. There shall be no parking or structures permitted in these minimum yards, except required entrance drives and those walls used to obscure the use from abutting residential districts.* Variance of the minimum front yard setback for the proposed parking lot is addressed in finding 5 below. Modification of this condition for proposed parking in the minimum required front yard is addressed in finding 3 below. Landscaping is planned around the parking lot, new community center, and as a buffer in between the parking lot and new multipurpose field.
 - (c) *Whenever a swimming pool is constructed under this subparagraph, said pool area shall be provided with a protective fence, six (6) feet in height, and entry shall be provided by means of a controlled gate.* No swimming pool is proposed, so this standard does not apply.
3. Zoning Code § 61.502 provides *that the Planning Commission, after public hearing, may modify special conditions when strict application of such special conditions would unreasonably limit or prevent otherwise lawful use of a piece of property and would result in exceptional undue hardship to the owner of such property; provided that such modification will not impair the intent and purpose of such special condition and is consistent with the health, morals and general welfare of the community and is consistent with reasonable enjoyment of adjacent property.*

Principal access on a major thoroughfare would result in a new curb cut on Rice Street which is not desirable by the Public Works Department or consistent with Policy T-12 of the Comprehensive Plan, which states new developments should minimize driveway curb cuts if the site can be reasonably accessed by side streets. The North End Community Center can be adequately accessed by a side street on Lawson Avenue. Providing a new curb cut on Rice Street would be in direct conflict with direction from a city department placing undue hardship on the applicant. Additionally, there is pedestrian access on the corner of the Rice Street. Access to the parking lot on Lawson Street will not impair the health and the welfare of the community. A curb cut on Rice street would make it unsafe for pedestrians by creating conflicts with vehicles on a busy corridor. It is safer and healthier for pedestrians for vehicles to access the community center on Lawson Avenue. Given the direction from the Public Works Department, the concern of stopping traffic mid-block on a busy corridor, grade challenges, and future programming of the park, the proposed community recreation center is designed with the Lawson Avenue side as the front yard. The current design of the site results in five parking spaces in the required front yard. Allowing parking in a required front yard will not impair the health and safety of the community, as it allows the greatest use of green spaces on the site and of the multipurpose community center. Additionally, providing the front of the building on Lawson Avenue improves connections to adjacent property, namely Rice Street Library. There would be an undue burden on the applicant if the project was to meet the required front setback as it would impact size of the multipurpose field and limit future programming on the site.

4. Zoning Code § 61.501 lists five standards that all conditional uses must satisfy:
- a. *The extent, location and intensity of the use will be in substantial compliance with the Saint Paul Comprehensive Plan and any applicable subarea plans which were approved by the city council.* This condition is met. The 2040 Comprehensive Plan identifies the site as a recreation and community center in the Parks, Recreation, and Open Space

chapter. Additionally, the site is located in the Metropolitan Council Areas of Concentrated Poverty (ACP50)-which are census tracts where at least half of the residents are people of color and at least 40% of the residents live below 185% of the federal poverty line. The investment in the recreation center and in an area of the City identified in ACP50 is consistent with *Policy PR-1 to Ensure equitable access to Parks and Recreation programs, resources and amenities* and with *Policy PR-5 Prioritize investment in physical assets of community centers, play areas, pools, and other amenities to ensure that common minimum standards are met*.

The project site is located in area identified as Urban Neighborhood in the Land Use Plan chapter of the Comprehensive Plan. Urban Neighborhoods are primarily residential with a variety of housing types, schools, neighborhood parks, religious institutions, and cemeteries with scattered neighborhood serving commercial. The multi-use community center is directly north of the Rice Street Library, west of neighborhood serving commercial, south of single-family homes, and east of an elementary school. A conditional use permit for a recreation facility would be consistent with the identified community and recreation centers in the Parks, Recreation, and Open Space chapter in the Comprehensive Plan and uses identified in the Urban Neighborhood. The project is also consistent with *Policy PR3 Improvements at parks and recreation centers* in the North End District 6 Plan.

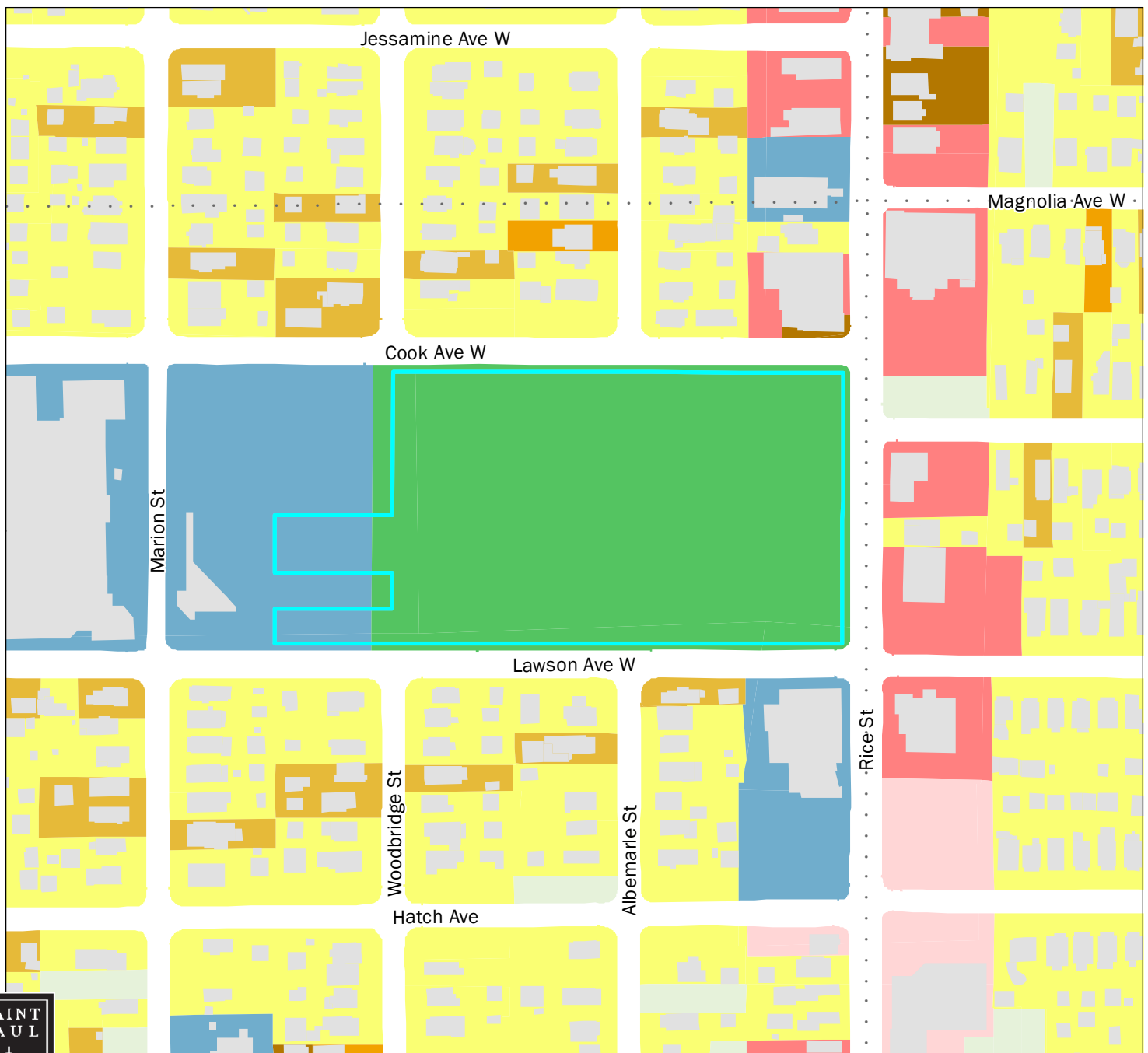
- b. *The use will provide adequate ingress and egress to minimize traffic congestion in the public streets.* This condition is met. The project is providing a new curb cut on Lawson Avenue to access the parking lot and pedestrian entrances to the building on the corner of Lawson Avenue and Rice Street. Gates on Cook Avenue, from the parking lot facing Lawson Avenue, and between Lawson Avenue and Cook Avenue provide pedestrian access to the new multipurpose field. Additionally, there will be bicycle parking on the site, and it is located on the 62 bus route.
 - c. *The use will not be detrimental to the existing character of the development in the immediate neighborhood or endanger the public health, safety and general welfare.* This condition is met. The recreation center will add to neighborhood character and increase access to public health resources through new recreational fields and new community services such as the teen center.
 - d. *The use will not impede the normal and orderly development and improvement of the surrounding property for uses permitted in the district.* This condition is met. The recreation center is consistent with past use as ballfields and complementary to existing land uses in the neighborhood. The proposed recreation center will not prevent future development that is consistent with the Comprehensive Plan and existing zoning.
 - e. *The use shall, in all other respects, conform to the applicable regulations of the district in which it is located.* This condition can be met subject to approval of the setback variance for parking, modification of the condition for no parking in the minimum required front yard, and modification of the condition for principal access directly to a major thoroughfare.
5. Zoning Code § 63.312 Setback for parking lots states that parking spaces shall not be in a required front yard, which is 25 feet in the RT1 zoning district. The proposed community recreation center is designed with the Lawson Avenue side as the front yard, and with 5 of the new parking spaces set back 7 feet from the front lot line Zoning Code § 61.601 states that the Planning Commission shall have the power to grant variances from the strict enforcement of the provisions of this code upon a finding that:
- (a) *The variance is in harmony with the general purposes and intent of the zoning code.*

This finding is met. Allowing the proposed 7 foot front setback for five of the parking allows the greatest use of green spaces on the site, provides for convenient access to the parking lot, and will not impair the health, safety, and general welfare of the community. Additionally, the parking lot on Lawson Avenue is proposed to be well landscaped, is facing the side yards of low-density residential and is not adjacent to any residential properties, consistent with protecting the aesthetics of the community.

- (b) *The variance is consistent with the comprehensive plan.* This finding is met. As noted in finding 2.a. the use itself is consistent with Policy *PR-1 to encourage equitable access of parks facilities* and *PR-5 to prioritize investment in physical assets such as community centers*. The variance for the parking setback to allow for more programmable area is consistent with the Comprehensive Plan and the purpose and intent of the Zoning Code.
- (c) *The applicant has established that there are practical difficulties in complying with the provision; that the property owner proposes to use the property in a reasonable manner not permitted by the provision. Economic considerations alone do not constitute practical difficulties.* This finding is met. The variance is necessary to increase the amount of programmable space for the community. Additionally, due to the size, grade, and orientation, and future uses on the site, Lawson Avenue is the best location for the parking lot. Without the variance the parking lot would impact the multipurpose field and move other park green space closer to the street from the interior of the park.
- (d) *The plight of the landowner is due to circumstances unique to the property not created by the landowner.* This finding is met. For more than 50 years the site was a recreational use (ballfields). A 25 foot setback would impede on the ability to program for the new multi-use community center.
- (e) *The variance will not permit any use that is not allowed in the zoning district where the affected land is located.* This finding is met. The use — a recreation facility— is conditionally permitted in the RT1 District. If the conditional use permit is approved, it will be consistent with RT1 zoning.
- (f) *The variance will not alter the essential character of the surrounding area.* This finding is met. The use is conditionally permitted in the existing zoning district and is consistent with surrounding development. The proposed multi-use community center is consistent with the type of development the Comprehensive Plan supports.

NOW, THEREFORE, BE IT RESOLVED, by the Saint Paul Planning Commission, under the authority of the City's Legislative Code, that the application of City of Saint Paul's Real Estate Division for a conditional use permit for multi-use community recreation center, with modification of conditions to permit parking in the minimum front yard and principal access to be from Lawson Street and variance for parking front setback (25' minimum, 7' proposed) at 1025 Rice Street is hereby approved, subject the following conditions:

1. Final plans approved by the Zoning Administrator for this use shall be in substantial compliance with the plan submitted and approved as part of this application.



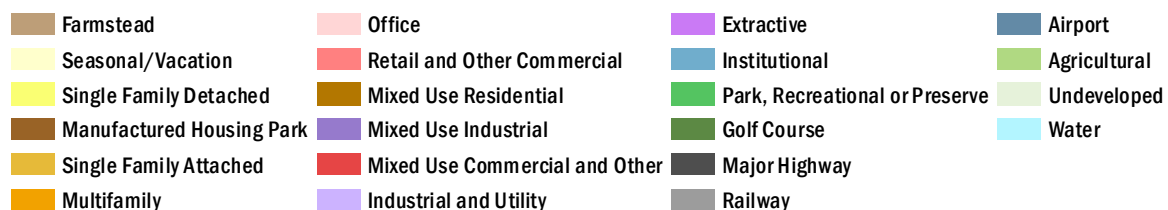
FILE #21-237-397 Existing Land Use Application of City of St. Paul - Real

Application Type: CUP/ variance
 Application Date: February 3, 2021
 Planning District:6

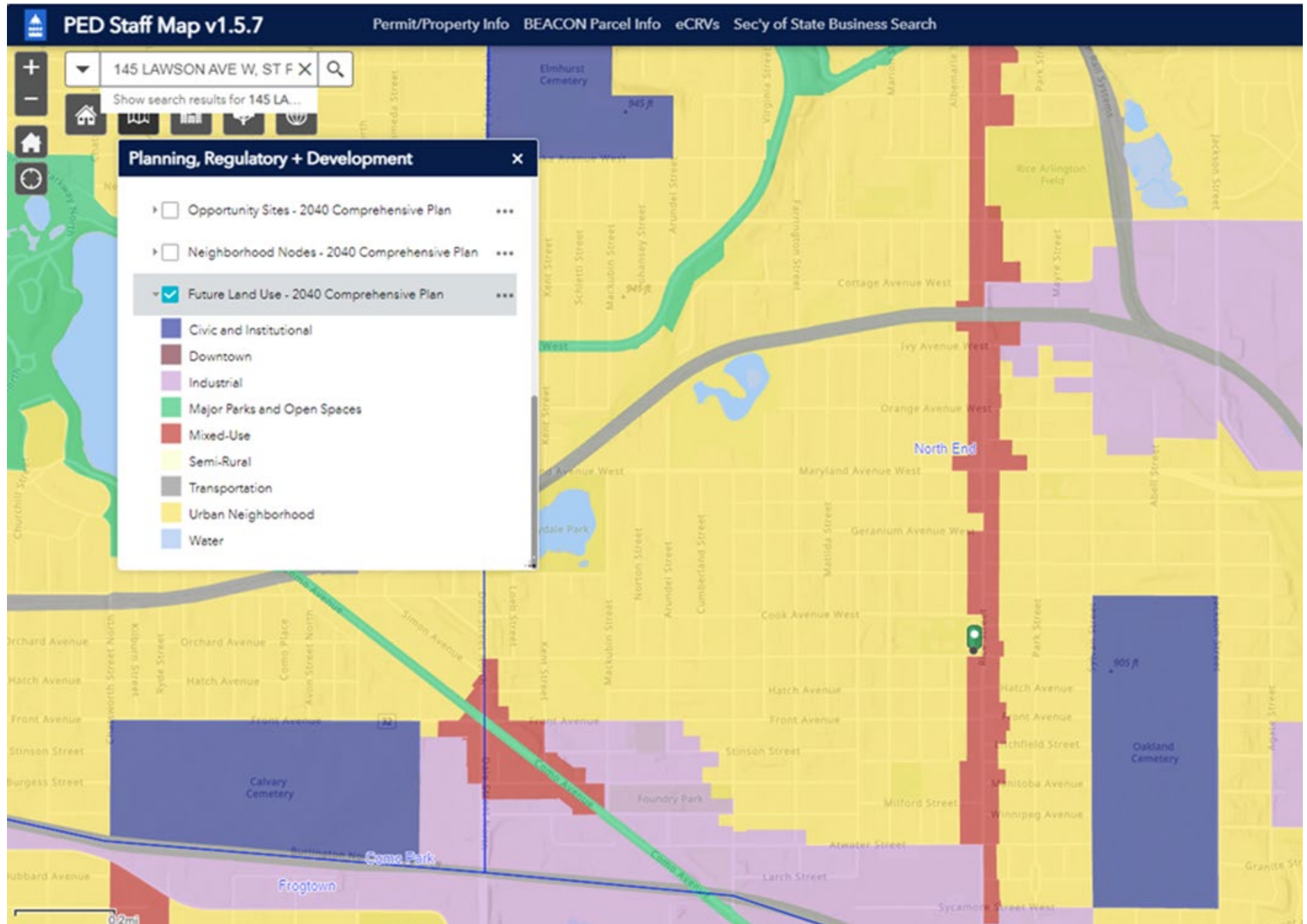


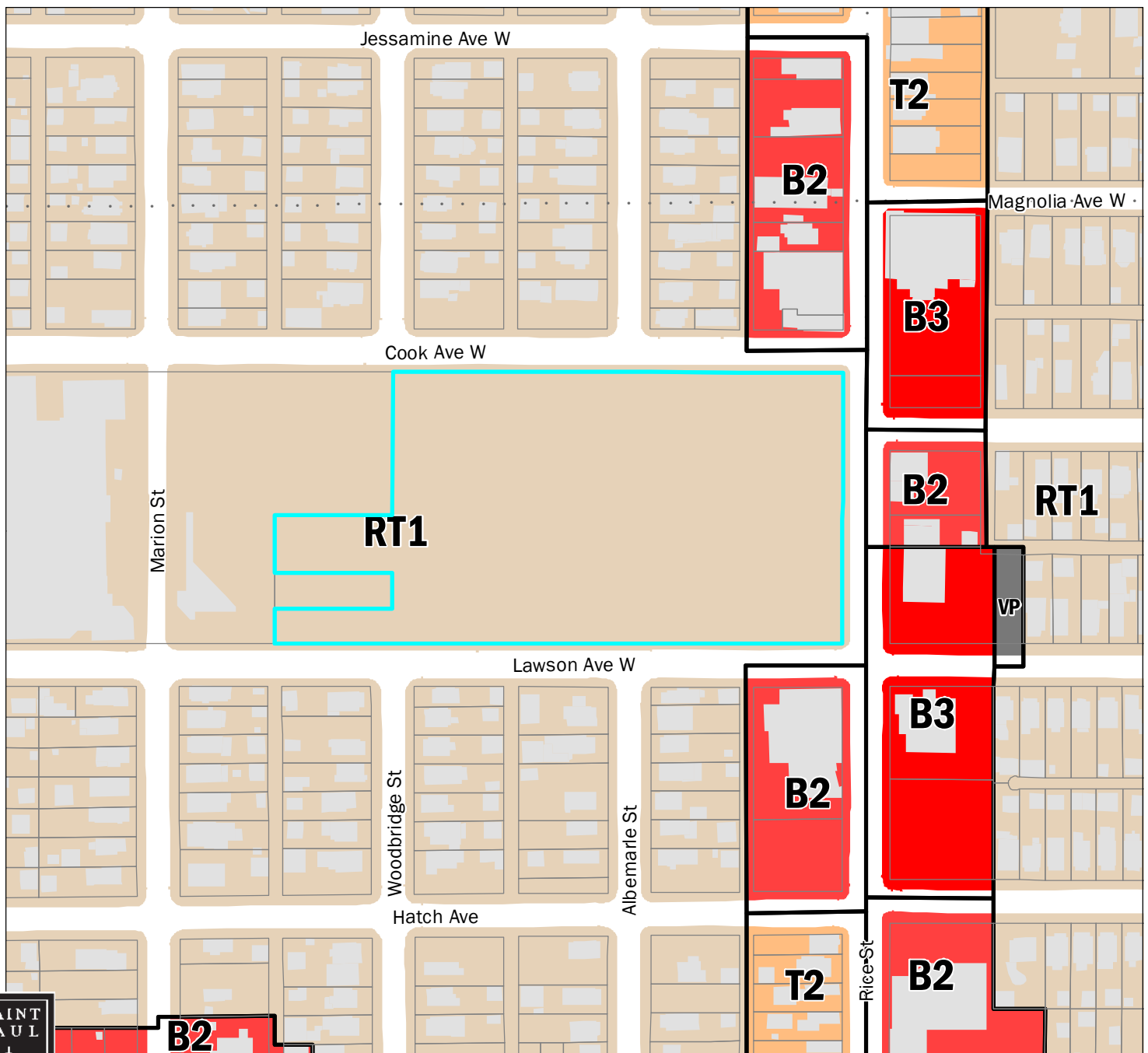
This document was prepared by the Saint Paul Planning and Economic Development Department and is intended to be used for reference and illustrative purposes only. This drawing is not a legally recorded plan, survey, official tax map or engineering schematic and is not intended to be used as such. Data sources: City of Saint Paul, Ramsey County, Metropolitan Council, State of Minnesota.

Subject Parcel(s) Outlined in Blue



North End Community Center Location within Future Land Use Plan Map, City of Saint Paul, 2040 Comprehensive Plan





FILE #21-237-397 Zoning Map Application of City of St. Paul - Real

Application Type: CUP/ variance
Application Date: February 3, 2021
Planning District:6



This document was prepared by the Saint Paul Planning and Economic Development Department and is intended to be used for reference and illustrative purposes only. This drawing is not a legally recorded plan, survey, official tax map or engineering schematic and is not intended to be used as such. Data sources: City of Saint Paul, Ramsey County, Metropolitan Council, State of Minnesota.

Subject Parcel(s) Outlined in Blue

ParcelPoly on	RM3 Multiple-Family	B2 Community Business	F2 Residential Low
RL One-Family Large Lot	T1 Traditional Neighborhood	B3 General Business	F3 Residential Mid
R1 One-Family	T2 Traditional Neighborhood	B4 Central Business	F4 Residential High
R2 One-Family	T3 Traditional Neighborhood	B5 Central Business Service	F5 Business
R3 One-Family	T3M T3 with Master Plan	IT Transitional Industrial	F6 Gateway
R4 One-Family	T4 Traditional Neighborhood	ITM IT with Master Plan	VP Vehicular Parking
RT1 Two-Family	T4M T4 with Master Plan	I1 Light Industrial	PD Planned Development
RT2 Townhouse	OS Office-Service	I2 General Industrial	CA Capitol Area Jurisdiction
RM1 Multiple-Family	B1 Local Business	I3 Restricted Industrial	
RM2 Multiple-Family	BC Community Business (converted)	F1 River Residential	



Section 06 - COMMUNITY ENGAGEMENT PLAN WORKSHEET

Design and Construction Division

06-01 Description

The Community Engagement Plan Worksheet will assist you in thinking about your process, purpose, primary audience, potential barriers, impacts and strategies to inform and involve your intended audience before you begin.

This worksheet is to be filled out and submitted for approval by your supervisor and the Division Manager at the prior to the start of a project. The worksheet has been developed with links to the information in this document to provide the relevant information necessary to determine the specific activities that will best suit the scale and type of project.

06-02 COMMUNITY ENGAGEMENT PLAN

Project: North End Community Center, formerly Rice Campus Planning

Project Manager: Chris Stark and Dave Ronzani

[Council Ward](#) #: Ward 5

Council Member: Amy Brendmoen

[District Council](#): Planning District 6

A - Project Description *(provide brief description including scope of work, phases of design and construction and amenities anticipated)*

The project includes construction of a new 25,000 square foot community center with spaces for social and recreational activities, and a complete redesign and reconstruction of the 5.9-acre park. Improvements will better accommodate today's community and multigenerational programming as determined by the community engagement process and evaluation of needs.

B - Project Timeline *(use budget to determine total design time and project forward according to PM schedule and workload)*

Schedule	Phase
April 2019	Project Start, Schematic Design & Community Engagement
May 2019- March 2020	Design Development & Community Engagement
May 2022- June 2020	Complete Construction Documents December 2017, January 2018 bidding.
March 2023	Construction Begins
November 2024	Construction Completion Date
December 2024	Target Opening Date

**C - Park Type: Service Area** [index of projects and types](#)

☐ Regional: Region wide ☐ Community: 1-2 miles ☒ Neighborhood: ½ mile
☐ Mini: ¼ mile ☐ Other

D - Service Area Information (use the following links to fill out this section)

[Saint Paul Neighborhoods Profile](#) [Community Data Works](#) [Center for Urban and Regional Affairs](#) [Community Facts \(US Census Bureau\)](#) [Saint Paul District Councils](#) [LISC Twin Cities](#)

Age:

- <18 (31%),
- 18-64 (62%)
- 65+ (6%)

Ethnicities:

- White: 33%
- Asian: 32%
- Black: 20%
- Hispanic: 10%
- Two or more: 3%
- American Indian: 1%
- Other:
 - *18% foreign born

Income:

Median: \$32,156 – less than median of St. Paul as a whole (\$38,774.00)

Access:

- 18% Households have no vehicle
- 43% One vehicle
- 30% have two vehicles
- 9% have three or more

Work commute

- 71% Drive alone to work
- 15% Carpool
- 8% Public Transportation
- 3% work from home
- 2% walk to work



Languages:

- 26% Non-English
- Asian Languages – 16%
- Spanish - 6%
- *13% do not speak English “very well”

Other relevant information:

E - PARTICIPANTS-STAKEHOLDERS-AUDIENCE**Parks & Recreation Department**

DIVISION	CONTACT PERSON		CONTACT	
Parks Department	Andy Rodriguez	Director	andy.rodriguez@ci.stpaul.mn.us	651-266-6409
Design & Construction	Alice Messer	Manager	alice.messer@ci.stpaul.mn.us	651-266-6424
	Ellen Stewart	Supervisor	Kathleen.Anglo@ci.stpaul.mn.us	651-266-6368
	Chris Stark	Project Manager	christopher.stark@ci.stpaul.mn.us	651-266-6419
	Dave Ronzani	Project Design	David.ronzani@ci.stpaul.mn.us	651-266-6410
Communications	Claire Cloyd	Public Service Manager	Claire.Cloyd@ci.stpaul.mn.us	651-266-6369
Recreation Services	Shaina Abraham	Manager	Shaina.abraham@ci.stpaul.mn.us	651-266-6430
	Gina Stokes	Program Supervisor	gina.stokes@ci.stpaul.mn.us	651-266-3961
Operations	Tom Hagel	Manager	tom.hagel@ci.stpaul.mn.us	651-632-2402
Park Maintenance	Nick Fadden	Supervisor	nick.fadden@ci.stpaul.mn.us	651-632-2456
Rec Center Director	Yer Chang	Rec Center Director	Alyssa.lasar@ci.stpaul.mn.us	651-558-2392

Community Organizations

ORGANIZATION	DESCRIPTION	CONTACT INFO
North End Area Booster Club	Support Parks and Recreation, facilities and fields, staff, youth, adults and seniors with additional programming. Every penny fundraising goes directly to support activities.	Contact District 6 Planning Council at 651-488-4485 District6ed@dist6pc.org For more info: www.district6stpaul
Rice Street Library	Public Library Across Lawson Ave from Project Site	651-558-2223
Wellstone Elementary School	School across park from project site	651-290-8354
Saint Paul Youth Commission	Youth Organization for teens	Mou.xiong@ci.stpaul.mn.us ; 651-266-6440

**Community Members and Related Coordinators**

REPRESENTATIVE	AFFILIATION	CONTACT INFORMATION
Kerry Antrim	District 6	ed@nenostpaul.org ; 651-488-4485
Yer Chang	Saint Paul Parks and Recreation	Yer.chang@ci.stpaul.mn.us ; 651-558-2392
Gina Stokes	Saint Paul Parks and Recreation	Gina.stokes@ci.stpaul.mn.us ; 651-266-6443
Tom Parent	Saint Paul Public Schools Facilities	Tom.parent@spps.org ; 651-744-1802
Angelica Van Iperen	Wellstone Elementary School	Angelica.van.iperen@spps.org ; 651-744-2362
Phasoua Vang	Rice Street Library	Phasoua.vang@ci.stpaul.mn.us ; 651-558-2223

F - ENGAGEMENT SCOPE

[What do you need from the community](#) to make the project successful?

What may be barriers to accomplishing that? Once you have identified those, you can tailor the activities you choose to the level of engagement that you are aiming for.

- To be successful, the community must have several opportunities to provide project feedback at the different stages of the project. City staff will ask questions related to the site and Community as to how they currently use the space, how they envision the space for future use, what isn't currently working for the space, what they would like to see from a site design and safety standpoint, what is the field currently used for, who uses it, how would they like to see it shaped for future use?
- Potential barriers include: Cultures new to the community who may not be fluent in English, lack of interest, or are not trusting of government and not interested in attending project meetings. People in this district may also not have the same access to computers and the internet than in some other areas of the city.
- More engagement than currently scheduled may need to be considered if the feedback we are trying to achieve is not met.

G - PLANNED ACTIVITIES



Use the [Methods and Activities Catalog](#) to Fill in the matrix below and develop your plan.

PARTICIPATORY ACTIONS	EXCHANGE		COOPERATE		CELEBRATE	
LEVELS OF ENGAGEMENT & GOALS	Inform	Consult	Involve	Collaborate	Empower	Perform
	One-way communication to let users know about the project, process, timeline and scope – usually one time hit	Gather information to shape and inform city solutions and actions – short term	Engage community members to help shape priorities and plans – medium to long term	Work with community to share in decision making co-creating decisions and solutions together – medium to long term	Community leads and directs strategy and action with technical assistance from City – medium to long term	Provide opportunity to celebrate with the community via festival, opening, performances etc.
METHODS & ACTIVITIES	Attend North End Summer Kickoff, Safe Summer Nights, and National Night out. Set up a tent/table at the event inform attendees about the project process and scope. Use information to help guide concept elements to be incorporated into the project.		Contact list received from Engaging with the community at neighborhood events. If community meetings are necessary, flyers will also be translated in both Somali and Karen. Interpreters will be available at the meetings upon request.		Bring Boards to North End Summer Kickoff, Safe Summer Nights, and National Night out. Gather input from attendees regarding conceptual campus layouts and ideas to be incorporated into the design. Create a mailing list for future correspondence about the project.	

Levels of Engagement from Collective Impact Forum, Tamarack Institute and IAP2

H - PROCESS SCHEDULE AND RELEVANT DATES

Dates	Activity	Location	Organizer/Planner
May 23 rd , 2019	North End Summer Kickoff	Rice Recreation Center	Ward 5, District 6
July 27, 2019	Rice Street Festival	Rice Recreation Center Fields	District 6 Planning Council
September 28, 2019	Marydale Festival	Marydale Park	District 6 Planning Council



November 11, 2019	North End Community Center, Schematic Design Open House #1	Rice Street Library	Parks and Recreation Design and Construction
December 12, 2019	North End Community Center, Schematic Design Open House #2	Rice Street Library	Parks and Recreation Design and Construction
January 6, 2020	Saint Paul Youth Commission Presentation	Frogtown Community Center	Parks and Recreation Design and Construction
March 17, 2020	Covid Begins	Remote Work / Virtual	
April 4, 2022	District 6 Update	Virtual	District 6 Planning Council
June 7, 2022	Wellstone School PTA Update	Virtual	Wellstone School PTA
October 6, 2022	MN 4 th District Presentation	Rice Street Library	Saint Paul Ward 5 Office
April 18, 2023	North End Neighborhood Organization Annual Meeting	1079 Rice Street, Saint Paul, MN 55117	District 6 Planning Council

I - EVALUATION

The Project Manager together with the Design Team will analyze the effectiveness of the engagement process and will recommend a brief summary statement. Use surveys for the formal format activities and ask the participants for their recommendations during the informal format activities.

Were you able to successfully reach the intended audience?

Did people receive the necessary information they needed to make a relevant response?

Did you choose the right type or level of engagement to match the purpose?

Was feedback received from the community positive or negative?

Did the community feel like they received proper feedback on the results of the engagement?

Did they indicate they want to be part of a similar process again? If not, why not?

What would you do differently to make the process better, more inclusive, and more impactful?

YOU ARE INVITED TO A **COMMUNITY OPEN HOUSE** to gather ideas for the **NEW RICE RECREATION CENTER**

For more information, or if you need special accommodations and/or translation services, please contact:

Bianca Paz (651) 266-6418
(para info en español)

Cheeneng Yang (651) 266-6414
(yog koj xav tau kev pab los sis muaj lus noog)

Ahmed Mohamed (651) 266-6437
(ila soo xiriir af Somali)

Jubilee Dee (651) 488-7684
NENO Community Coordinator
(တၢ်ဂ့ၢ်တၢ်ကျိၤလၢပုၤတၢ်ညိၣ်တၢ်တၢ်)

**WELLSTONE
ELEMENTARY**

Join us at **Rice Street Library**
1011 Rice St, St Paul, MN 55117
on November 7
from 5:00 - 7:00 pm

**Come share your ideas
and take part in the design
process for the new
rec center building and
improved park and library!**



Saint Paul Parks and Recreation

If you have questions, suggestions, or comments please contact
Dave Ronzani: david.ronzani@ci.stpaul.mn.us | (651) 266-6410
Chris Stark: christopher.stark@ci.stpaul.mn.us | (651) 266-6419

US Census, American Community Survey (ACS) and Longitudinal Employer-Household Dynamics (LEHD) Wilder Foundation's Minnesota Compass Project.

Table 1. North End Planning District 6 Demographics and Socioeconomics 2020

North End District Council 6		
Population (Decennial Census)	Count	Percent
2010	21,659	
2020	23,752	
% Change	10%	
Age (ACS 2016-2020)	Count	Percent
Under 5 years	2,071	8.40%
5-9 years	2,219	9.00%
10-14 years	2,119	8.60%
15-17 years	1,594	6.50%
under 18 years	8,003	24.53%
18-24 years	2,587	10.50%
25-34 years	4,374	17.80%
35-44 years	3,277	13.30%
45-54 years	2,524	10.20%
55-64 years	2,366	9.60%
65-74 years	1,055	4.30%
75-84 years	205	0.80%
85 years and older	237	1.00%
Sex	Count	Percent
Male	12,270	49.80%
Female	12,358	50.20%

Race & Ethnicity (ACS 2016-2020)	Count	Percent
White	6,483	26.30%
Of Color	16,989	69.00%
Black or African American alone	6,079	24.70%
American Indian and Alaskan Native alone	suppressed	
Asian or Pacific Islander alone	8,576	34.80%
Other alone	suppressed	
Two or more races alone	1,172	4.80%
Hispanic or Latino (of any race)	2,146	8.70%
Language (ACS 2016-2020)	Count	Percent
Population (5 years and older)	22,557	100.00%
English only	11,634	51.60%
Language other than English	10,923	48.40%
Speaks English less than "very well"	6,033	26.70%
Disability Status (ACS 2016-2020)	Count	Percent
Total population for whom disability status is determined	24,544	100.00%
Population with a disability	3,145	12.80%
Nativity (ACS 2016-2020)	Count	Percent
Foreign-born residents	7,946	32.30%
Residency (ACS 2016-2020)	Count	Percent
Population (1 year and over in US)	24,179	100.00%
Same residence	19,867	82.20%

Different residence in the U.S.	4,194	17.30%
Different residence outside the U.S.	suppressed	
Household Income (ACS 2016-2020)	Count	Percent
Total households	7,769	100.00%
Less than \$35,000	3,293	42.40%
\$35,000-\$49,999	1,173	15.10%
\$50,000-\$74,999	1,390	17.90%
\$75,000-\$99,999	893	11.50%
\$100,000 or more	1,020	13.10%
Median household income (2020 dollars)	\$46,250	100.00%
Poverty (ACS 2016-2020)	Count	Percent
All people for whom poverty status is determined	24,391	100.00%
With income below poverty	6,744	27.60%
With income 100-149 of poverty	3,722	15.30%
With income 150-199 of poverty	3,603	14.80%
With income 200 of poverty or higher	10,322	42.30%
17 years and younger (percent of people under age 18)	3,178	40.50%
18-24 (percent of people age 18-24)	621	24.00%
25-34 (percent of people age 25-34)	927	21.20%
35-44 (percent of people age 35-44)	781	23.80%
45-54 (percent of people age 45-54)	472	18.70%
55-64 (percent of people age 55-64)	406	17.20%
18-64 (percent of people 18-64)	3,207	21.20%
65 years and older (percent of people age 65+)	359	25.00%
Health Coverage (ACS 2016-2020)	Count	Percent

Total population age 65 and under for whom health insurance coverage status is determined	23,106	94.10%
Population 65 and under without health insurance coverage	1,534	6.60%
Total housing units (ACS 2016-2020)	Count	Percent
Total housing units	8,333	100.00%
Owned and Rental Housing (ACS 2016-2020)	Count	Percent
Vacant housing units (seasonal units included)	564	6.80%
Occupied housing units	7,769	93.20%
Average household size	3.2	100.00%
Owner-occupied	3,420	41.00%
Average household size	3.2	100.00%
Renter-occupied	4,349	52.20%
Average household size	3.2	100.00%
Year built (ACS 2016-2020)	Count	Percent
2000 or later	514	6.20%
1970-1999	3,053	36.60%
1940-1969	2,466	29.60%
1939 or earlier	2,300	27.60%
Households (ACS 2016-2020)	Count	Percent
Total households	7,769	100.00%
Households by type (ACS 2016-2020)	Count	Percent
Family households	4,789	61.60%
With children under 18 years	3,244	41.80%

Married-couple family households	2,693	34.70%
With children under 18 years	1,739	22.40%
Single-person family households	2,096	27.00%
With children under 18 years	1,505	19.40%
Nonfamily households	2,980	38.40%
Householder living alone	2,247	28.90%
65 years and over	484	6.20%
Households with one or more children under 18 years	3,251	41.80%
Households with one or more people 65 years and over	1,212	15.60%
Year householder moved into unit (ACS 2016-2020)	Count	Percent
Moved in 2010 or later	5,336	68.70%
Moved in 2000-2009	1,253	16.10%
Moved in 1990-1999	595	7.70%
Moved in 1989 or earlier	585	7.50%
Cost-burdened households (ACS 2016-2020)	Count	Percent
All households for which cost burden is calculated	7,601	100.00%
Cost-burdened households	3,483	45.80%
Owner households for which cost burden is calculated	3,401	100.00%
Cost-burdened owner households	901	26.50%
Renter households for which cost burden is calculated	4,200	100.00%
Cost-burdened renter households	2,582	61.50%
Rent paid (ACS 2016-2020)	Count	Percent
Households paying rent	4,236	100.00%
Median rent paid (2020 dollars)	\$828	100.00%

Vehicles per household (ACS 2016-2020)	Count	Percent
No vehicles	1,325	17.10%
1 vehicle available	3,049	39.20%
2 vehicles available	2,284	29.40%
3 or more vehicles available	1,111	14.30%
Transportation to work (ACS 2016-2020)	Count	Percent
Workers (16 years and older)	10,271	100.00%
Car, truck, or van (including passengers)	8,267	80.50%
Public transportation	943	9.20%
Walked, biked, worked at home, or other	1,061	10.30%
Travel time to work (ACS 2016-2020)	Count	Percent
Total workers age 16+ (not home based)	9,493	100.00%
Less than 10 minutes	726	7.60%
10-19 minutes	3,030	31.90%
20-29 minutes	2,706	28.50%
30 minutes or longer	3,031	31.90%
Educational attainment (ACS 2016-2020)	Count	Percent
Population (25 years and older)	14,038	100.00%
Less than high school	3,561	25.40%
High school diploma or GED	3,912	27.90%
Some college or associate's degree	4,391	31.30%
Bachelor's Degree	1,336	9.50%
Graduate or professional degree	838	6.00%
High school graduate or higher	10,477	74.60%
Bachelor's degree or higher	2,174	15.50%

Working Adults (ACS 2016-2020)	Count	Percent
Total civilian non-institutionalized population, age 18-64	15,115	100.00%
Working age adults who are employed	10,268	67.90%
Civilian labor force	11,077	100.00%
Unemployed	809	7.30%
Total employed workers (ACS 2016-2020)	Count	Percent
Total employed workers	10,628	100.00%
Worker age	Count	Percent
Age 29 or younger	3,351	31.50%
Age 30 to 54	5,631	53.00%
Age 55 or older	1,646	15.50%
Workers by earnings (LEHD 2019)	Count	Percent
\$15,000 per year or less	2,770	26.10%
\$15,001 to \$39,999 per year	4,307	40.50%
\$40,000 or more per year	3,551	33.40%
Workers by industry of employment (LEHD 2019)	Count	Percent
Accommodation and food services	938	8.80%
Administration & support, waste management, and remediation	suppressed	
Agriculture, forestry, fishing and hunting	857	8.10%
Arts, entertainment, and recreation	221	2.10%
Construction	266	2.50%
Educational services	758	7.10%
Finance and insurance	380	3.60%

Health care and social assistance	2,623	24.70%
Information	128	1.20%
Management of companies and enterprises	284	2.70%
Manufacturing	1,211	11.40%
Mining, quarrying, and oil and gas extraction	suppressed	
Other services (excluding public administration)	395	3.70%
Professional, scientific, and technical services	473	4.50%
Public administration	371	3.50%
Real estate and rental and leasing	118	1.10%
Retail trade	858	8.10%
Transportation and warehousing	326	3.10%
Utilities	suppressed	
Wholesale trade	386	3.60%
Workers by race (LEHD 2019)	Count	Percent
White alone	4,908	46.20%
Black or African American alone	2,390	22.50%
American Indian or Alaska Native alone	104	1.00%
Asian alone	2,836	26.70%
Native Hawaiian or Other Pacific Islander alone	12	0.10%
Two or more race groups	378	3.60%
Hispanic or Latino (of any race)	874	8.20%
Workers by educational attainment (LEHD 2019)	Count	Percent
Less than high school	1,037	9.80%
High school or equivalent, no college	1,832	17.20%
Some college or associate degree	2,184	20.50%
Bachelor's degree or advanced degree	2,224	20.90%

Geotechnical Evaluation Report

Rice Recreation Center
Southwest of Rice St. and Cook Ave.
Saint Paul, Minnesota

Prepared for

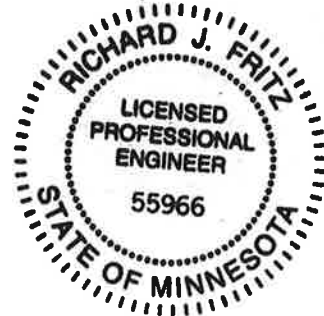
City of St. Paul Parks and Recreation

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.



Richard J. Fritz, PE
Project Engineer
License Number: 55966
November 6, 2019



Project B1909075

Braun Intertec Corporation

November 6, 2019

Project B1909075

Mr. David Ronzani
City of Saint Paul Parks and Recreation
24 West 4th Street, Suite 400
Saint Paul, MN 55102

Re: Geotechnical Evaluation
Rice Recreation Center
Southwest of Rice Street and Cook Avenue
Saint Paul, Minnesota

Dear Mr. Ronzani:

We are pleased to present this Geotechnical Evaluation Report for the proposed Rice Recreation Center.

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 Richard Fritz at 651.487.7079 (rfritz@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION



Richard J. Fritz, PE
Project Engineer



Mark L. Jenkins, PE
Senior Engineer

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Appendix

Soil Boring Location Sketch

Log of Boring Sheets ST-1 to ST-11

Descriptive Terminology of Soil

A. Introduction

A.1. Project Description

This Geotechnical Evaluation Report addresses the proposed design and construction of the Rice Recreation Center, located at the Rice Park in Saint Paul, Minnesota. The project will include the construction of a two story recreation center and gymnasium on the east side of the existing park as well as developing the reamaining park with new pavement and parking, new basketball courts, and new synthetic turf fields. Tables 1 and 2 provide project details.

Table 1. Building Description

Aspect	Description
Below grade levels	None (Provided)
Above grade levels	Two (Provided)
Lowest level floor elevation	853 (Assumed)
Column loads (kips)	75 (Provided)
Wall loads (kips/foot)	3 (Provided)
Nature of construction	Steel framed slab on grade (Provided)
Cuts or fills for buildings	Less than 3 foot fills with cuts of up to 5 feet (Assumed)
Tolerable building settlement	Less than one inch (Assumed)

Table 2. Site Aspects and Grading Description

Aspect	Description
Pavement type(s)	Bituminous
Provided/Assumed Pavement loads	Light-duty: 50,000 ESALs*
	Heavy-duty: 100,000 ESALs*

Aspect	Description
Pavement type(s)	Bituminous
Grade changes	Less than 3 feet (Assumed)

*Equivalent 18,000-lb single axle loads based on 20-year design.

The figure below shows an illustration of the proposed site layout.

Figure 1. Site Layout

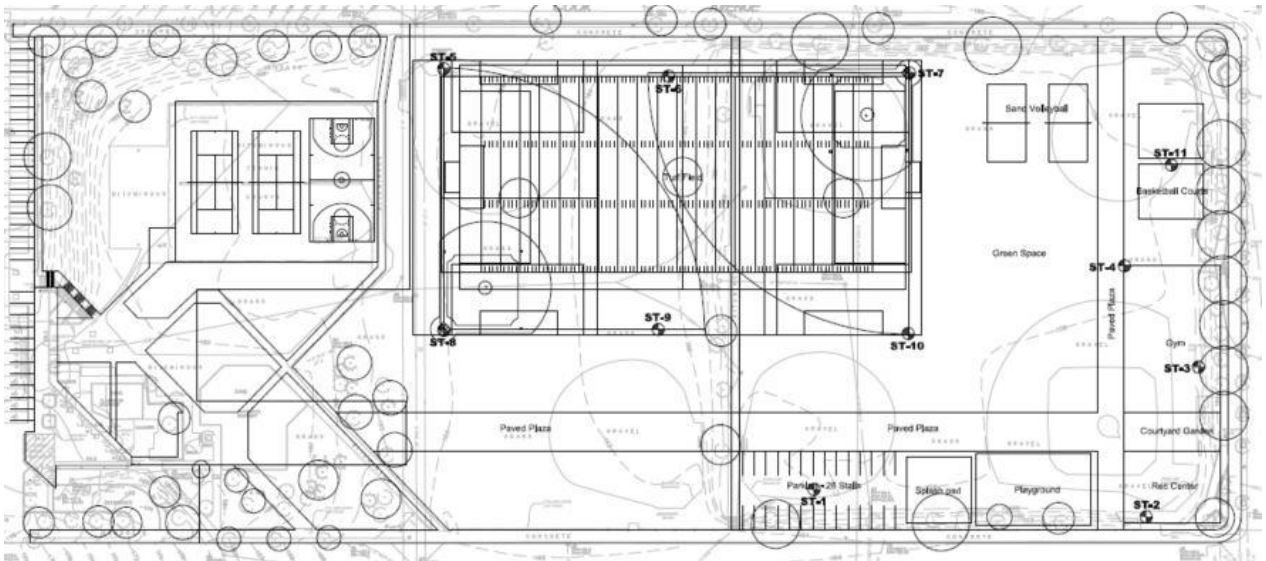


Figure provided by Snow Kreilich Architects dated August 19, 2019.

A.2. Site Conditions and History

Currently, the site exists as an open park featuring six baseball fields. The site is generally flat with grades sloping up on the far west side of the site towards Rice Street.

Photograph 1. Aerial Photograph of the Site in 2018



Photograph provided by Google Earth™.

A.3. Purpose

The purpose of our geotechnical evaluation will be to characterize subsurface geologic conditions at selected exploration locations, evaluate their impact, and provide geotechnical recommendations for the design and construction of the proposed Rice Recreation Center.

A.4. Background Information and Reference Documents

We reviewed the following information:

- Site layout with proposed boring location, provided by the City of St. Paul.

In addition to the provided sources, we have used several publicly available sources of information including:

- Geologic Atlas of Ramsey County Minnesota, University of Minnesota, 1992.
- Aerial Imagery of the site available through Google Earth®
- Ground surface elevations collected via LiDAR technology by the Minnesota Department of Natural Resources.

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.5. Scope of Services

We performed our scope of services for the project in accordance with our Proposal for a geotechnical evaluation to Saint Paul Parks and Recreation, dated August 7, 2019, and authorized on August 15, 2019. 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. We selected and we staked the new 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 11 standard penetration test (SPT) borings, denoted as ST-1 to ST-11, to nominal depths of 10 to 25 feet below grade across the site.
- Performing laboratory testing on select samples to aid in soil classification and engineering analysis.
- Perform engineering analysis including bearing capacity and settlement.

- 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 structure and pavement subgrade preparation and the design of foundations, floor slabs, exterior slabs, utilities, stormwater improvements and pavements.

Our scope of services did not include environmental services or testing, and we did not train the personnel performing this evaluation to provide environmental services or testing. We can provide these services or testing at your request.

B. Results

B.1. Geologic Overview

Based on the geologic atlas of Ramsey County and our previous experience in the area the natural soils generally consist of glacial outwash sand soils. We based the geologic origins used in this report on the soil types, 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 Results

Table 3 provides a summary of the soil boring results, in the general order we encountered the strata. 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 Table 3.

Table 3. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Topsoil fill	SM, ML	--	<ul style="list-style-type: none">▪ Predominantly SM.▪ Dark brown to black.▪ Thicknesses at boring locations varied from 0.7 to 2 feet.▪ Generally moist.

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Fill	SP-SM, SM, SC, CL, PT	3 to 20 BPF	<ul style="list-style-type: none"> General penetration resistance of 5 to 8 BPF. Generally moist. Thicknesses at boring locations varied from 4 to 10 feet. Occasional layers of slightly organic to organic soils, with layers of buried topsoil and swamp deposit soils below.
Buried Topsoil and Swamp deposits	OL, CL	3 to 7 BPF	<ul style="list-style-type: none"> Dark brown to black, with roots and organic material. Organic content varied from 3 to 16 percent. Thicknesses at boring locations varied from 1 to 4 feet.
Lacustrine	CL	3 to 10 BPF	<ul style="list-style-type: none"> General penetration resistance of 3 to 5 BPF. Generally moist to wet.
Glacial deposits	SP, SP-SM, SM	4 to 13 BPF	<ul style="list-style-type: none"> General penetration resistance of 6 to 8 BPF. Intermixed layers of glacial outwash and till. Variable amounts of gravel; may contain cobbles and boulders. Generally moist.

*Abbreviations defined in the attached Descriptive Terminology sheets.

For simplicity in this report, we define existing fill to mean existing, uncontrolled or undocumented fill.

B.3. Groundwater

Table 4 summarizes the depths where we observed groundwater; the attached Log of Boring sheets in the Appendix also include this information and additional details.

Table 4. Groundwater Summary

Location	Surface Elevation	Measured or Estimated Depth to Groundwater (ft)	Corresponding Groundwater Elevation (ft)
ST-1	854	10	844
ST-2	854.5	12	842.5
ST-3	855	11	844

Location	Surface Elevation	Measured or Estimated Depth to Groundwater (ft)	Corresponding Groundwater Elevation (ft)
ST-4	853.5	10.5	843
ST-7	853	8	845
ST-10	853	10	843
ST-11	854	11	843

At the time of our observation, the groundwater surface elevation appeared to be about elevation 843 to 844 feet. The soil borings indicate a layered soil profile near the surface that is conducive for encountering perched water conditions. Project planning should expect groundwater will fluctuate seasonally and annually.

B.4. Laboratory Test Results

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

The moisture content of the near surface fill and native soils varied from approximately 4 to 20 percent, indicating that the material varied from below to well above its optimum moisture content.

Our mechanical analyses indicated that the sandy fill soils contained about 3 to 39 percent silt and clay by weight.

C. Recommendations

C.1. Design and Construction Discussion

C.1.a. Existing Fill

The existing uncontrolled fill and organic soils are generally not suitable for support of the proposed community center building. We recommend removing and replacing any uncontrolled fill, organic soils, and any soft clays from below the proposed building and its oversize area. Any of the non-organic debris free fill soils can generally be reused as backfill and fill below the proposed building.

It should be noted that any silty sand soils will generally require more effort to moisture condition and compact than a cleaner poorly graded sand soil. Depending on the time of year construction takes place moisture conditioning soils could be difficult or impractical.

The fill soils and organic soils also pose a risk to cause settlement below the turf of greater than an inch. Based on the borings the soils and organic layers are variable and could generally cause variable or localized settlement below the turf. We recommend removing any organic soils and removing and recompacting any non-organic fill soils below the turf to provide a stable subgrade for the turf.

The fill soils and organic soils below the proposed courts pose a risk for uneven support or settlement. We recommend removing these soils from below the turf. If the owner were willing to accept some risk of settlement of the court, another option would be to prepare the subgrade below the non-frost susceptible soils and perform a proofroll test to identify areas that may require additional correction.

C.1.b. Frost Considerations

From our experience on past projects, we understand that synthetic turf fields are sensitive to movement from settlement as well as heaving from frost action in the winter. Movement of the turf can create wrinkles in the field that can create a trip hazard as well as potentially cause downtime for use of the field. For the best performance of the field, we recommend placing 4 feet of free draining non-frost susceptible sand as outlined in table 6, below the field turf. If the project team is willing to accept the risk of movement from frost action in the soils below the turf, a thinner section of sand could be considered; however, manufacturer's guidelines are recommended to be followed at a minimum.

In a similar manner to the turf field, basketball and tennis courts are generally susceptible to cracking caused by movement of the subgrade. For the best performance of the court, to prevent any frost cracking of the surface, we recommend placing 4 feet of non-frost susceptible sand below the court. The sand sections should include drain tile at low points to limit the water that remains in the sand section and can cause frost related movement.

Based on the borings areas of the site may contain poorly graded sand meeting the non-frost susceptible specification, however depending on final site grades these soils will likely need to be imported.

C.1.c. Groundwater

Groundwater was encountered sporadically on the site at a general elevation of about 843 to 844. The onsite soils are generally a layered soil profile that is conducive to trapping layers of perched water. If excavations on site encounter water or collect water from outside sources the water should be removed promptly to prevent disturbance of the subgrade soils.

C.1.d. Construction Disturbance

The contractor should note the on-site, silty and clayey soils are highly susceptible to disturbance, due to repeated construction traffic. Disturbance of these soils may cause areas that were previously prepared, or that were suitable for pavement or structure support, to become unstable and require moisture conditioning and compaction. Subcutting and replacing the disturbed material with crushed, coarse gravel, free of fines is also an alternative. The contractor should use means and methods to limit disturbance of the soils.

C.1.e. Pavement

In preparation of pavement subgrades, the project team should anticipate some areas of unstable clayey or silty soils. If required, the contractor should perform scarification, drying and recompaction, as outlined in Section C.2.g. Depending on the time of year and weather conditions, scarification, drying and recompaction efforts may require multiple iterations to stabilize pavement subgrades. In some cases removal and replacement of the unsuitable soils may be necessary.

C.2. Site Grading and Subgrade Preparation

C.2.a. Building Subgrade Excavations

We recommend removing unsuitable materials from below the proposed building and its one to one oversizing area. We define unsuitable materials as existing fill, frozen materials, organic soils, existing structures, existing utilities, vegetation, and any soft or loose soils. For the best performance of the turf, we also recommend removing any organic material from below the turf. Table 5 shows the anticipated excavation depths and bottom elevations for each of the borings.

Table 5. Building Excavation Depths

Location	Approximate Surface Elevation (ft)	Anticipated Excavation Depth (ft)	Anticipated Bottom Elevation (ft)	Anticipated Depth Below floor slab or estimated field surface elevation (ft)
ST-2 (rec center)	854.5	9	845.5	7.5
ST-3 (rec center)	855	6	849	4
ST-4 (rec center)	853	7	846	7
ST-5 (turf field)	859	14	845	10
ST-6 (turf field)	857	9	848	7
ST-7 (turf field)	853	1	852	3
ST-8 (turf fields)	859	9	850	5
ST-9 (turf field)	857	11	846	9
ST-10 (turf field)	853	8.5	844.5	10.5

*Turf field assumed surface elevation of 855.

Excavation depths will vary between the borings. Portions of the excavations may also extend deeper than indicated by the borings. A geotechnical representative should observe the excavations to make the necessary field judgments regarding the suitability of the exposed soils.

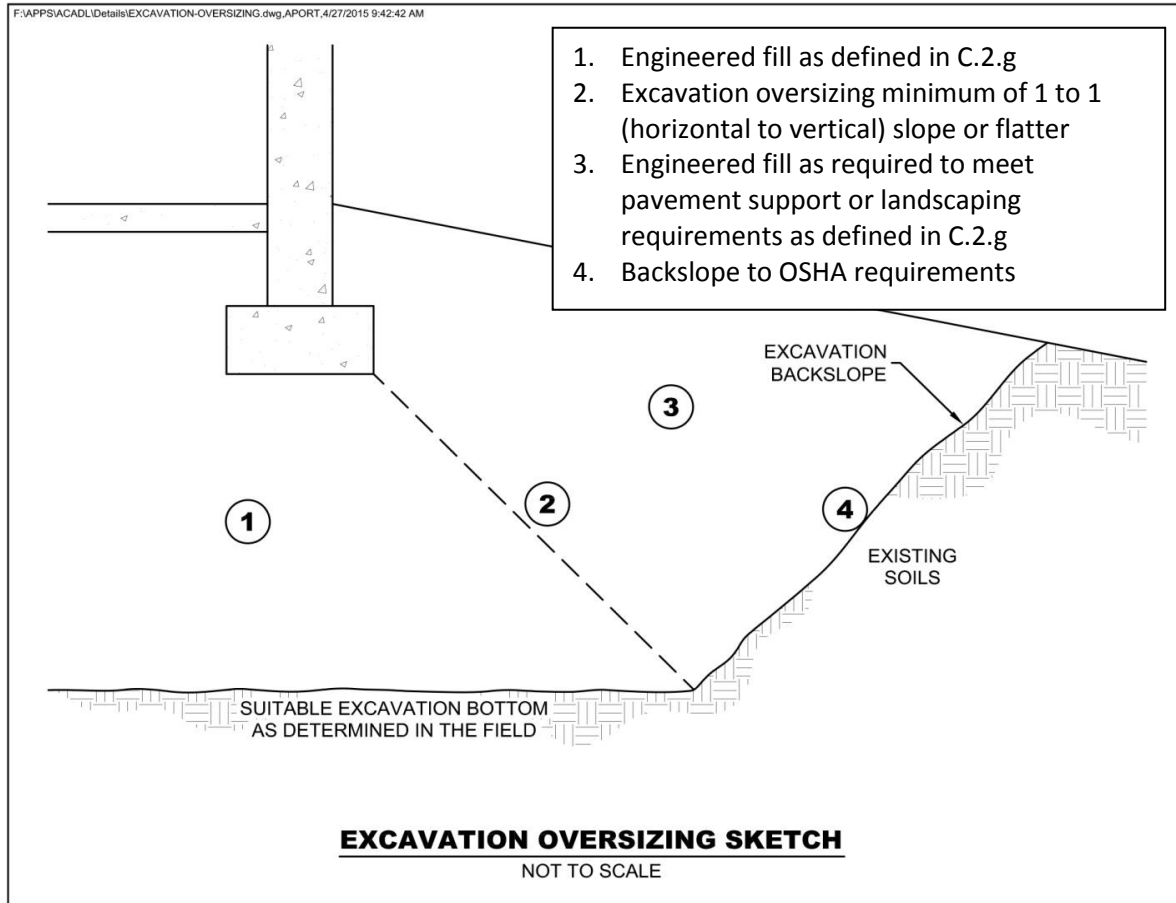
The contractor should use equipment and techniques to minimize soil disturbance. If soils become disturbed or are wet, we recommend excavation and replacement.

Prior to the placement of engineered fill or footings, we recommend surface compacting the exposed soils in the bottoms of the excavations to a minimum of 98 percent of the standard Proctor. Areas that yield or pump during surface compaction may require additional subcutting.

C.2.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. See Figure 2 for an illustration of excavation oversizing.

Figure 2. Generalized Illustration of Oversizing



C.2.c. Excavated Slopes

Based on the borings, we anticipate on-site soils in excavations will consist of silty and clayey fill soils over glacial sand 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.2.d. Excavation Dewatering

If encountered, we recommend removing groundwater from the excavations. Project planning should include temporary sumps and pumps for excavations in low-permeability soils, such as clays. Dewatering at deeper depths in the of high-permeability soils (e.g., glacial outwash sands) from within the excavation with conventional pumps has the potential to loosen the soils, due to upward flow. A well contractor should develop a dewatering plan; the design team should review this plan.

C.2.e. Pavement and Exterior Slab Subgrade Preparation

We recommend the following steps for pavement and exterior slab subgrade preparation, understanding the site will have a grade change of 3 feet or less. Note that project planning may need to require additional subcuts to limit frost heave.

1. Strip unsuitable soils consisting of topsoil, organic soils, peat, vegetation, existing structures and pavements from the area, within 3 feet of the surface of the proposed pavement grade.
2. Have a geotechnical representative observe the excavated subgrade to evaluate if additional subgrade improvements are necessary.
3. Slope subgrade soils to areas of sand or drain tile to allow the removal of accumulating water.
4. Scarify, moisture condition, and surface compact the subgrade to at least 98 percent of standard Proctor density.
5. Place pavement engineered fill to grade and compact in accordance with Section C.2.g to bottom of pavement and exterior slab section. See Section C.6 for additional considerations related to frost heave.
6. Proofroll the pavement or exterior slab subgrade as described in Section C.2.f.

C.2.f. Pavement Subgrade Proofroll

After preparing the subgrade as described above and prior to the placement of the aggregate base, we recommend proofrolling the subgrade soils with a fully loaded tandem-axle truck. 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, subcutting and replacement with soil or crushed aggregate, chemical stabilization and/or geotextiles. We recommend performing a second proofroll after the aggregate base material is in place, and prior to placing bituminous or concrete pavement.

C.2.g. Engineered Fill Materials and Compaction

Table 6 below contains our recommendations for engineered fill materials.

Table 6. Engineered Fill Materials*

Locations To Be Used	Engineered Fill Classification	Possible Soil Type Descriptions	Gradation	Additional Requirements
<ul style="list-style-type: none"> Below foundations Below interior slabs 	Structural fill	SP, SP-SM, SM	100% passing 2-inch sieve	< 2% Organic Content (OC)
<ul style="list-style-type: none"> Drainage layer Non-frost-susceptible Upper 4 feet below synthetic turf field and below basketball court 	<ul style="list-style-type: none"> Free-draining Non-frost-susceptible fill 	GP, GW, SP, SW	100% passing 1-inch sieve < 50% passing #40 sieve < 5% passing #200 sieve	< 2% OC
Behind below-grade walls, beyond drainage layer	Retained fill	SP, SW, SP-SM, SW-SM, SM	100% passing 3-inch sieve < 20% passing #200 sieve	< 2% OC Plasticity Index (PI) < 4%
Pavements	Pavement fill	SP, SM, SC, CL	100% passing 3-inch sieve	< 2% OC PI < 15%
Below landscaped surfaces, where subsidence is not a concern	Non-structural fill		100% passing 6-inch sieve	< 10% OC

*More select soils comprised of coarse sands with < 5% passing #200 sieve may be needed to accommodate work occurring in periods of wet or freezing weather.

We recommend spreading engineered fill in loose lifts of approximately 8 inches thick. We recommend compacting engineered fill in accordance with the criteria presented below in Table 7. The project documents should specify relative compaction of engineered fill, based on the structure located above the engineered fill, and vertical proximity to that structure.

Table 7. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D698 – Standard Proctor)	Moisture Content Variance from Optimum, percentage points	
		< 12% Passing #200 Sieve (typically SP, SP-SM)	> 12% Passing #200 Sieve (typically CL, SC, ML, SM)
Below foundations and oversizing zones	98	±3	-1 to +3
Below interior slabs	98	±3	-1 to +3
Within 3 feet of pavement subgrade	100	±3	-1 to +3
More than 3 feet below pavement subgrade	95	±3	±3
Below landscaped surfaces	90	±5	±4
Within 4 feet of the surface of synthetic turf and concrete court surface	100	±3	NA
Retained Fill	95*	±3	-1 to +3

*Increase compaction requirement to meet compaction required for structure supported by this engineered fill.

The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material. Frost should not penetrate under foundations during construction.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

C.2.h. Special Inspections of Soils

We recommend including the site grading and placement of engineered fill within the building pad under the requirements of Special Inspections, as provided in Chapter 17 of the International Building Code, which is part of the Minnesota State Building Code. Special Inspection requires observation of soil conditions below engineered fill or footings, evaluations to determine if excavations extend to the anticipated soils, and if engineered fill materials meet requirements for type of engineered fill and compaction condition of engineered fill. A licensed geotechnical engineer should direct the Special Inspections of site grading and engineered fill placement.

The purpose of these Special Inspections is to evaluate whether the work is in accordance with the approved Geotechnical Report for the project. Special Inspections should include evaluation of the subgrade, observing preparation of the subgrade (surface compaction or dewatering, excavation oversizing, placement procedures and materials used for engineered fill, etc.) and compaction testing of the engineered fill.

C.3. Spread Footings

Table 8 below contains our recommended parameters for foundation design.

Table 8. Recommended Spread Footing Design Parameters

Item	Description
Maximum net allowable bearing pressure (psf)	4,000
Minimum factor of safety for bearing capacity failure	3.0
Minimum width (inches)	24 for strip footings 36 for individual column pads
Minimum embedment below final exterior grade for heated structures (inches)	42
Minimum embedment below final exterior grade for unheated structures or for footings not protected from freezing temperatures during construction (inches)	60
Total estimated settlement (inches)	Less than one inch
Differential settlement	Typically about 2/3 of total settlement*

*Actual differential settlement amounts will depend on final loads and foundation layout.

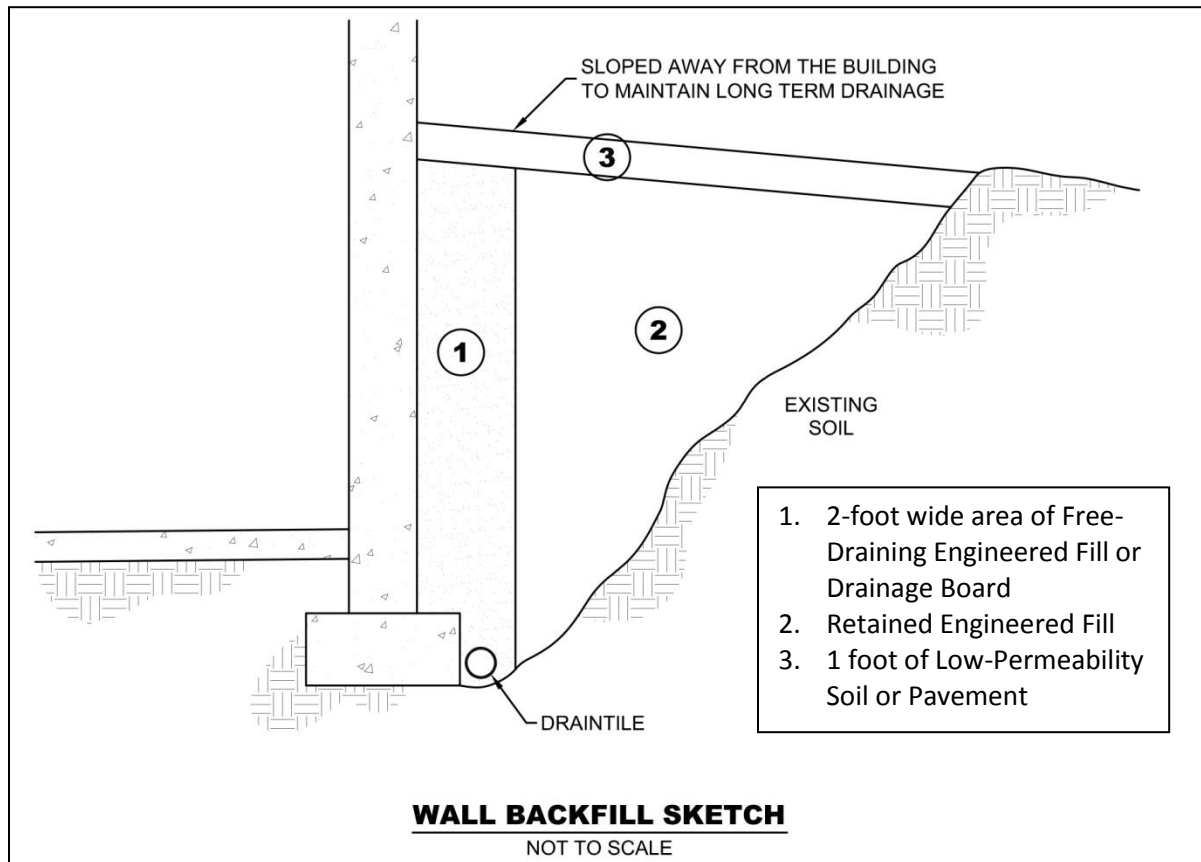
C.4. Below-Grade Walls

C.4.a. Drainage Control

We recommend installing drain tile to remove water behind the below-grade walls, at the location shown in Figure 3. The below-grade wall drainage system should also incorporate free-draining, engineered fill or a drainage board placed against the wall and connected to the drain tile.

Even with the use of free-draining, engineered fill, we recommend general waterproofing of below-grade walls that surround occupied or potentially occupied areas because of the potential cost impacts related to seepage after construction is complete.

Figure 3. Generalized Illustration of Wall Engineered Fill



The materials listed in the sketch should meet the definitions in Section C.2.g. Low-permeability material is capable of directing water away from the wall, like clay, topsoil or pavement. The project documents should indicate if the contractor should brace the walls prior to filling and allowable unbalanced fill heights.

As shown in Figure 3, we recommend Zone 2 consist of retained, engineered fill, and this material will control lateral pressures on the wall. However, we are also providing design parameters for using other engineered fill material. If final design uses non-sand material for engineered fill, project planning should account for the following items:

- Other engineered fill material may result in higher lateral pressure on the wall.
- Other engineered fill material may be more difficult to compact.
- Post-construction consolidation of other engineered fill material may result in settlement-related damage to the structures or slabs supported on the engineered fill. Post-construction settlement of other engineered fill material may also cause drainage towards the structure. The magnitude of consolidation could be up to about 3 percent of the wall fill thickness.

C.4.b. Configuring and Resisting Lateral Loads

Below-grade wall design can use active earth pressure conditions, if the walls can rotate slightly. If the wall design cannot tolerate rotation, then design should use at-rest earth pressure conditions. Rotation up to 0.002 times the wall height is generally required for walls supporting sand.

Table 9 presents our recommended lateral coefficients and equivalent fluid pressures for wall design of active, at-rest and passive earth pressure conditions. The table also provides recommended wet unit weights and internal friction angles. Designs should also consider the slope of any engineered fill and dead or live loads placed behind the walls within a horizontal distance that is equal to the height of the walls. Our recommended values assume the wall design provides drainage so water cannot accumulate behind the walls. The construction documents should clearly identify what soils the contractor should use for engineered fill of walls.

Table 9. Recommended Below-Grade Wall Design Parameters – Drained Conditions

Retained Soil	Wet Unit Weight, pcf	Friction Angle, degrees	Active Lateral Equivalent Fluid Pressure* (pcf)	At-Rest Lateral Equivalent Fluid Pressure* (pcf)	Passive Lateral Equivalent Fluid Pressure* (pcf)
Retained fill (SP, SP-SM, SM)	120	32	37	56	390

*Based on Rankine model for soils in a region behind the wall extending at least 2 horizontal feet beyond the bottom outer edges of the wall footings and then rising up and away from the wall at an angle no steeper than 60 degrees from horizontal.

Sliding resistance between the bottom of the footing and the soil can also resist lateral pressures. We recommend assuming a sliding coefficient equal to 0.35 between the concrete and soil.

The values presented in this section are un-factored.

C.5. Interior Slabs

C.5.a. Subgrade Modulus

The anticipated floor subgrade is poorly graded sand with silt and silty sand fill soils. We recommend using a modulus of subgrade reaction, k , of 175 pounds per square inch per inch of deflection (pci) to design the slabs. If the slab design requires placing 6 inches of compacted crushed aggregate base immediately below the slab, the slab design may increase the k -value by 50 pci. We recommend that the aggregate base materials be free of bituminous. In addition to improving the modulus of subgrade reaction, an aggregate base facilitates construction activities and is less weather sensitive.

C.5.b. Moisture Vapor Protection

Excess transmission of water vapor could cause floor dampness, certain types of floor bonding agents to separate, or mold to form under floor coverings. If project planning includes using floor coverings or coatings, we recommend placing a vapor retarder or vapor barrier immediately beneath the slab. We also recommend consulting with floor covering manufacturers regarding the appropriate type, use and installation of the vapor retarder or barrier to preserve warranty assurances.

C.6. Frost Protection

C.6.a. General

Silty and clayey soils will underlie all or some of the exterior slabs, as well as pavements. We consider silts and clays moderately to highly frost susceptible. Soils of this type can retain moisture and heave upon freezing. In general, this characteristic is not an issue unless these soils become saturated, due to surface runoff or infiltration, or are excessively wet in situ. Once frozen, unfavorable amounts of general and isolated heaving of the soils and the surface structures supported on them could develop. This type of heaving could affect design drainage patterns and the performance of exterior slabs and pavements, as well as any isolated exterior footings and piers.

Note that general runoff and infiltration from precipitation are not the only sources of water that can saturate subgrade soils and contribute to frost heave. Roof drainage and irrigation of landscaped areas in close proximity to exterior slabs, pavements, and isolated footings and piers, contribute as well.

C.6.b. Frost Heave Mitigation

To address most of the heave related issues, we recommend setting general site grades and grades for exterior surface features to direct surface drainage away from buildings, across large paved areas and away from walkways. Such grading will limit the potential for saturation of the subgrade and subsequent heaving. General grades should also have enough “slope” to tolerate potential larger areas of heave, which may not fully settle after thawing.

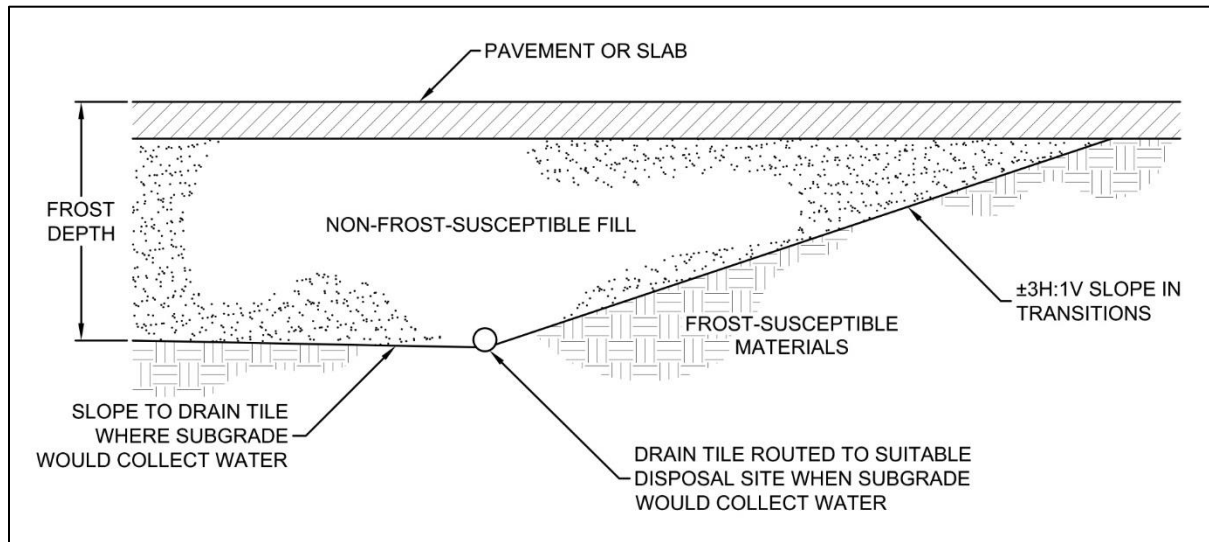
Even small amounts of frost-related differential movement at walkway joints or cracks can create tripping hazards. Project planning can explore several subgrade improvement options to address this condition.

One of the more conservative subgrade improvement options to mitigate potential heave is removing any frost-susceptible soils present below the exterior slab areas down to a minimum depth of 4 feet below subgrade elevations. We recommend filling the resulting excavation with non-frost-susceptible fill. We also recommend sloping the bottom of the excavation toward one or more collection points to remove any water entering the engineered fill. This approach will not be effective in controlling frost heave without removing the water.

An important geometric aspect of the excavation and replacement approach described above is sloping the banks of the excavations to create a more gradual transition between the unexcavated soils considered frost susceptible and the engineered fill in the excavated area, which is not frost susceptible. The slope allows attenuation of differential movement that may occur along the excavation boundary. We recommend slopes that are 3H:1V, or flatter, along transitions between frost-susceptible and non-frost-susceptible soils.

Figure 4 shows an illustration summarizing some of the recommendations.

Figure 4. Frost Protection Geometry Illustration



Another option is to limit frost heave in critical areas, such as doorways and entrances, via frost-depth footings or localized excavations with sloped transitions between frost-susceptible and non-frost-susceptible soils, as described above.

Over the life of slabs and pavements, cracks will develop and joints will open up, which will expose the subgrade and allow water to enter from the surface and either saturate or perch atop the subgrade soils. This water intrusion increases the potential for frost heave or moisture-related distress near the crack or joint. Therefore, we recommend implementing a detailed maintenance program to seal and/or fill any cracks and joints. The maintenance program should give special attention to areas where dissimilar materials abut one another, where construction joints occur and where shrinkage cracks develop.

C.7. Pavements and Exterior Slabs

C.7.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 similar silty sand and poorly graded sand with silt soils anticipated at the pavement subgrade elevation, we recommend pavement design assume an R-value of 50.

Note the contractor may need to perform limited removal of unsuitable or less suitable soils to achieve this value. Table 10 provides recommended pavement sections, based on the soils support and traffic loads.

Table 10. Recommended Bituminous Pavement Sections

Use	Light Duty	Heavy Duty
Minimum asphalt thickness (inches)	3.5	4
Minimum aggregate base thickness (inches)	7	8

C.7.b. Bituminous Pavement Materials

We recommend specifying crushed aggregate base meeting the requirements of Minnesota Department of Transportation (MnDOT) Specification 3138 for Class 5. We recommend that the bituminous wear and non-wear courses meet the requirements of Specifications 2360, with the following designations:

- Wear: SPWEA340C
- Non-wear: SPNWB330C

In the above mixes, aggregate A (as in SPWEA240B), a 1/2-inch maximum size, will provide a surface with less visible aggregate than B (3/4-inch maximum size).

We recommend asphalt grade C (as in SPWEA240C), or 58-34.

We recommend compacting the aggregate base to meet the requirements of MnDOT Specification 2211.3.D.2.c (Penetration Index Method for the dynamic cone penetrometer (DCP)). We recommend compacting bituminous pavements to at least 92 percent of their maximum theoretical (Rice) density.

C.7.c. Subgrade Drainage

We recommend installing perforated drainpipes throughout pavement areas at low points, around catch basins, and behind curb in landscaped areas. We also recommend installing drainpipes along pavement and exterior slab edges where exterior grades promote drainage toward those edge areas. The contractor should place drainpipes in small trenches, extended at least 8 inches below the granular subbase layer, or below the aggregate base material where no subbase is present.

C.7.d. Performance and Maintenance

We based the above pavement designs on a 20-year performance life for bituminous. This is the amount of time before we anticipate the pavement will require reconstruction. This performance life assumes routine maintenance, such as seal coating and crack sealing. 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 construction traffic.

Many conditions affect the overall performance of the exterior slabs and pavements. Some of these conditions include the environment, loading conditions and the level of ongoing maintenance. With regard to bituminous pavements in particular, it is common to have thermal cracking develop within the first few years of placement, and continue throughout the life of the pavement. We recommend developing a regular maintenance plan for filling cracks in exterior slabs and pavements to lessen the potential impacts for cold weather distress due to frost heave or warm weather distress due to wetting and softening of the subgrade.

C.8. Utilities

C.8.a. Subgrade Stabilization

Earthwork activities associated with utility installations located inside the building area should adhere to the recommendations in Section C.2.g.

For exterior 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. Project design and construction should not place utilities within the 1H:1V oversizing of foundations.

C.8.b. Corrosion Potential

Based on our experience, 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.9. Equipment Support

The recommendations included in the report may not be applicable to equipment used for the construction and maintenance of this project. We recommend evaluating subgrade conditions in areas of shoring, scaffolding, cranes, pumps, lifts and other construction equipment prior to mobilization to determine if the exposed materials are suitable for equipment support, or require some form of subgrade improvement. We also recommend project planning consider the effect that loads applied by such equipment may have on structures they bear on or surcharge – including pavements, buried utilities, below-grade walls, etc. We can assist you in this evaluation.

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. We collected thin-walled tube samples in general accordance with ASTM D1587 at selected depths. The boring logs show the actual sample intervals and corresponding depths. We also collected bulk samples of auger cuttings at selected locations for laboratory testing.

Our drilling subcontractor sealed penetration test boreholes meeting the Minnesota Department of Health (MDH) Environmental Borehole criteria with an MDH-approved grout. They will forward/forwarded a sealing record (or sealing records) for those boreholes to the Minnesota Department of Health Well Management Section.

D.2. Exploration Logs

D.2.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 and other in-situ tests performed. The logs also present the results of laboratory tests performed on penetration test samples, and groundwater measurements.

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.2.b. Geologic Origins

We assigned geologic origins to the materials shown on the logs and referenced within this report, based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance values, (4) laboratory test results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

D.3. Material Classification and Testing

D.3.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.3.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 or AASHTO procedures.

D.4. Groundwater Measurements

The drillers checked for groundwater while advancing the penetration test borings, and again after auger withdrawal. We then filled the boreholes 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.

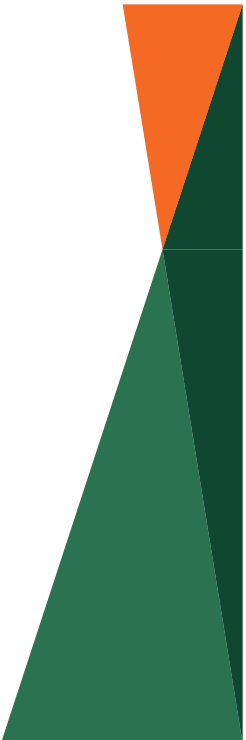
E.3. Use of Report

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



Drawing Information

Project No:
B1909075

Drawing No:
B1909075

Drawn By: JAG
Date Drawn: 8/21/19
Checked By: RJF
Last Modified: 9/12/19

Project Information

Rice Recreation Center

Southwest of Rice Street
and Cook Avenue

St. Paul, Minnesota

**Soil Boring
Location Sketch**






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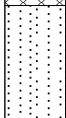
● DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



40' 0 80'
SCALE: 1"= 80'

Project Number B1909075 Geotechnical Evaluation Rice Recreation Center Southwest of Rice St. and Cook Avenue Saint Paul, Minnesota					BORING: ST-1		
					LOCATION: See attached sketch		
					NORTHING:		EASTING:
DRILLER: Element		LOGGED BY: R. Fritz		START DATE: 09/09/19	END DATE: 09/09/19		
SURFACE ELEVATION: 853.8 ft		RIG: Subcontractor	METHOD: 3 1/4" HSA	SURFACING: Grass	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
853.1 0.7		SILTY SAND (SM), with roots, dark brown, moist (TOPSOIL FILL)					
		FILL: POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained Sand, trace Gravel, brown, moist					
849.8 4.0		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained Sand, trace Gravel, brown, moist to wet, very loose to loose (GLACIAL OUTWASH)	5	2-2-2 (4) 12"		4	P200=6%
				5-4-4 (8) 12"			
842.8 11.0		END OF BORING	10	4-3-3 (6) 12"			Water observed at 10.0 feet while drilling.
		Boring immediately backfilled					
			15				
			20				
			25				
			30				

Project Number B1909075 Geotechnical Evaluation Rice Recreation Center Southwest of Rice St. and Cook Avenue Saint Paul, Minnesota					BORING: ST-2		
					LOCATION: See attached sketch		
					NORTHING:		EASTING:
DRILLER: Element		LOGGED BY: R. Fritz		START DATE: 09/09/19	END DATE: 09/09/19		
SURFACE ELEVATION: 854.6 ft		RIG: Subcontractor	METHOD: 3 1/4" HSA	SURFACING: Grass	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
853.8 0.8		 SILTY SAND (SM), fine-grained Sand, with roots, dark brown, moist (TOPSOIL FILL) FILL: POORLY GRADED SAND with SILT (SM), fine-grained Sand, brown, moist	5	2-3-2 (5) 10"			
			5	2-4-4 (8) 18"			
847.1 7.5		 SANDY LEAN CLAY (CL), with roots, dark brown, moist (BURIED TOPSOIL)		3-3-3 (6) 12"			
845.6 9.0			10	1-1-4 (5) 12"			
842.6 12.0			 SILTY SAND (SM), fine to medium-grained Sand, trace Gravel, dark gray, wet (GLACIAL OUTWASH)	15	2-3-4 (7) 4"		
	20			1-2-2 (4) 18"			
	25			2-3-4 (7) 18"			
828.6 26.0	END OF BORING						Water observed at 12.0 feet while drilling.
	Boring immediately grouted						
			30				


Project Number B1909075 Geotechnical Evaluation Rice Recreation Center Southwest of Rice St. and Cook Avenue Saint Paul, Minnesota					BORING: ST-3		
					LOCATION: See attached sketch		
					NORTHING:		EASTING:
DRILLER: Element		LOGGED BY: R. Fritz		START DATE: 09/09/19	END DATE: 09/09/19		
SURFACE ELEVATION: 855.1 ft		RIG: Subcontractor	METHOD: 3 1/4" HSA	SURFACING: Grass	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
854.3 0.8		 SILTY SAND (SM), fine-grained Sand, with roots, dark brown, moist (TOPSOIL FILL) FILL: SILTY SAND (SM), fine to medium-grained Sand, brown to dark brown, moist		3-3-3 (6) 10"		4	P200=22%
			5	4-4-4 (8) 10"			
849.1 6.0		 POORLY GRADED SAND (SP), fine to medium-grained Sand, with Gravel, brown, moist to wet, loose (GLACIAL OUTWASH)		3-3-3 (6) 12"			
			10	3-3-3 (6) 8"			
				3-2-3 (5) 8"			
			15	2-2-2 (4) 18"			
	20		2-2-2 (4) 18"				
829.1 26.0		END OF BORING	25	3-4-4 (8) 18"		Water observed at 11.0 feet while drilling.	
		Boring immediately grouted					
			30				

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Project Number B1909075 Geotechnical Evaluation Rice Recreation Center Southwest of Rice St. and Cook Avenue Saint Paul, Minnesota					BORING: ST-5		
					LOCATION: See attached sketch		
					NORTHING:		EASTING:
DRILLER: Element		LOGGED BY: R. Fritz		START DATE: 09/10/19	END DATE: 09/10/19		
SURFACE ELEVATION: 859.0 ft		RIG: Subcontractor	METHOD: 3 1/4" HSA	SURFACING: Grass	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
858.0 1.0		SILTY SAND (SM), fine-grained Sand, with roots, dark brown, moist (TOPSOIL FILL)					
		FILL: POORLY GRADED SAND with SILT (SP-SM), interlayered with Silty Sand, brown, moist	4-3-3 (6) 10"		3		
			5	2-1-2 (3) 10"		9	P200=22%
				2-1-2 (3) 12"			
849.0 10.0		ORGANIC SILT (OL), with roots, and fibers, dark brown, moist (SWAMP DEPOSIT)	10	2-1-2 (3) 12"			
				3-3-4 (7) 12"		93	OC=16.0%
845.0 14.0		LEAN CLAY (CL), gray, moist, soft (LACUSTRINE)	15	1-1-2 (3) 12"			
843.0 16.0		END OF BORING					
		Boring immediately grouted					Water not observed while drilling.
			20				
			25				
			30				

Project Number B1909075 Geotechnical Evaluation Rice Recreation Center Southwest of Rice St. and Cook Avenue Saint Paul, Minnesota					BORING: ST-6		
					LOCATION: See attached sketch		
					NORTHING:		EASTING:
DRILLER: Element		LOGGED BY: R. Fritz		START DATE: 09/10/19	END DATE: 09/10/19		
SURFACE ELEVATION: 857.2 ft		RIG: Subcontractor	METHOD: 3 1/4" HSA	SURFACING: Grass	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
856.2		SILTY SAND fine-grained Sand, trace roots, dark brown, moist (TOPSOIL FILL)					
1.0		FILL: SILTY SAND (SM), fine to medium- grained Sand, interlayered with Sand, dark brown to brown, moist		3-3-3 (6) 6"		9	
			5	7-9-11 (20) 14"			
				1-2-3 (5) 4"			
848.2		Pieces of glass at 8 feet					
9.0		POORLY GRADED SAND (SP), fine to medium-grained Sand, trace Gravel, light brown, moist, medium dense (GLACIAL OUTWASH)	10	4-6-7 (13) 12"			
846.2		END OF BORING					
11.0		Boring immediately backfilled					
			15				
			20				
			25				
			30				

Project Number B1909075 Geotechnical Evaluation Rice Recreation Center Southwest of Rice St. and Cook Avenue Saint Paul, Minnesota					BORING: ST-7	
					LOCATION: See attached sketch	
					NORTHING:	EASTING:
DRILLER: Element	LOGGED BY: R. Fritz		START DATE: 09/10/19	END DATE: 09/10/19		
SURFACE ELEVATION: 853.1 ft	RIG: Subcontractor	METHOD: 3 1/4" HSA	SURFACING: Grass	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
852.4							
0.7							
848.1			5	4-3-4 (7) 2"		5	P200=3%
5.0				3-3-3 (6) 12"			
				1-2-2 (4) 12"			
842.1			10	2-3-4 (7) 12"			
11.0		END OF BORING					Water observed at 8.0 feet while drilling.
		Boring immediately backfilled					
			15				
			20				
			25				
			30				

Project Number B1909075 Geotechnical Evaluation Rice Recreation Center Southwest of Rice St. and Cook Avenue Saint Paul, Minnesota					BORING: ST-8	
					LOCATION: See attached sketch	
					NORTHING:	EASTING:
DRILLER: Element		LOGGED BY: R. Fritz		START DATE: 09/09/10	END DATE: 09/09/10	
SURFACE ELEVATION: 858.7 ft		RIG: Subcontractor	METHOD: 3 1/4" HSA	SURFACING: Grass	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
857.9		SILTY SAND (SM), fine-grained Sand, with roots, dark brown, moist (TOPSOIL FILL) FILL: LEAN CLAY (CL), brown, moist				20	Water not observed while drilling.
0.8							
854.7		FILL: SANDY LEAN CLAY (CL), trace Gravel, brown, moist					
4.0							
851.7		FILL: SANDY LEAN CLAY (CL), with construction debris, dark brown, moist					
7.0							
849.7		POORLY GRADED SAND with GRAVEL (SP), fine to medium-grained Sand, brown, moist, loose (GLACIAL OUTWASH)					
9.0							
847.7		END OF BORING					
11.0		Boring immediately backfilled					
			15				
			20				
			25				
			30				

Project Number B1909075 Geotechnical Evaluation Rice Recreation Center Southwest of Rice St. and Cook Avenue Saint Paul, Minnesota					BORING: ST-9		
					LOCATION: See attached sketch		
					NORTHING:		EASTING:
DRILLER: Element		LOGGED BY: R. Fritz		START DATE: 09/10/19	END DATE: 09/10/19		
SURFACE ELEVATION: 857.1 ft		RIG: Subcontractor	METHOD: 3 1/4" HSA	SURFACING: Grass		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
855.1		SILT (ML), fine-grained Sand, trace roots, dark brown, moist (TOPSOIL FILL)					
2.0		FILL: CLAYEY SAND (SC), trace Gravel, brown, moist	5	2-4-7 (11) 18"		12	
850.1				7-8-9 (17) 12"		11	P200=39%
7.0		FILL: POORLY GRADED SAND with SILT and GRAVEL (SP-SM), fine to medium-grained Sand, trace Gravel, brown, moist		2-2-4 (6) 10"			
847.1			10	3-1-2 (3) 12"			
10.0		ORGANIC SILT (OL), dark brown, moist (BURIED TOPSOIL)					Water not observed while drilling.
846.1		END OF BORING					
11.0		Boring immediately backfilled					
			15				
			20				
			25				
			30				

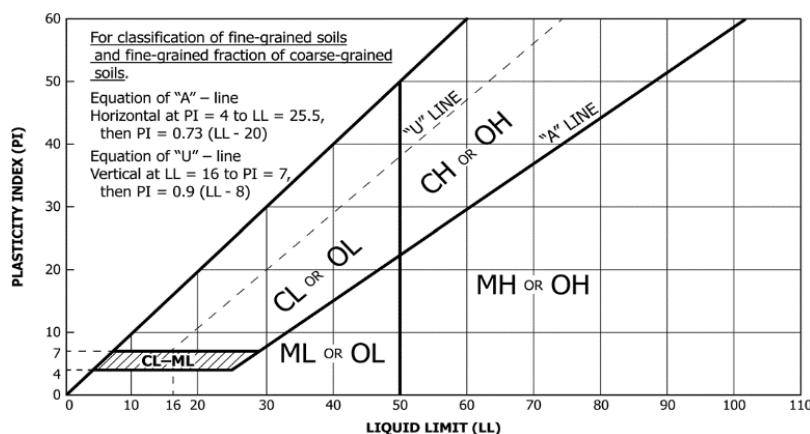
B1909075 Braun Intertec Corporation ST-10 page 1 of 1

Project Number B1909075 Geotechnical Evaluation Rice Recreation Center Southwest of Rice St. and Cook Avenue Saint Paul, Minnesota					BORING: ST-11	
					LOCATION: See attached sketch	
					NORTHING:	EASTING:
DRILLER: Element		LOGGED BY: R. Fritz		START DATE: 09/10/19	END DATE: 09/10/19	
SURFACE ELEVATION: 853.7 ft		RIG: Subcontractor	METHOD: 3 1/4" HSA	SURFACING: Grass	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
851.7		SILTY SAND (SM), fine-grained Sand, trace roots, dark brown, moist (TOPSOIL FILL)					
2.0		FILL: POORLY GRADED SAND with SILT (SP-SM), fine-grained Sand, brown, moist	5	2-2-7 (9) 8"			
846.7		LEAN CLAY (CL), with organic, dark brown, moist to wet (BURIED TOPSOIL)	10	2-2-2 (4) 14"		32	OC=4.0%
842.7		LEAN CLAY (CL), gray, wet, medium (LACUSTRINE)		2-3-3 (6) 14"		24	OC=3.0%
11.0				3-5-5 (10) 14"			
840.2		END OF BORING					Water observed at 11.0 feet while drilling.
13.5		Boring immediately backfilled	15				
			20				
			25				
			30				

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Group Symbol	Soil Classification
					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 ^{EFG}
			Fines Classify as CL or CH	GC	Clayey gravel ^{EFG}
	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 ^{FGI}
			Fines classify as CL or CH	SC	Clayey sand ^{FGI}
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 ^{KLM}
			PI < 4 or plots below "A" line ^J	ML	Silt ^{KLM}
		Organic	Liquid Limit – oven dried Liquid Limit – not dried <0.75	OL	Organic clay ^{KLMN} Organic silt ^{KLMQ}
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay ^{KLM}
			PI plots below "A" line	MH	Elastic silt ^{KLM}
		Organic	Liquid Limit – oven dried Liquid Limit – not dried <0.75	OH	Organic clay ^{KLMP} Organic silt ^{KLMQ}
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

- Based on the material passing the 3-inch (75-mm) sieve.
- If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
- 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
- $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
- If soil contains $\geq 15\%$ sand, add "with sand" to group name.
- If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
- If fines are organic, add "with organic fines" to group name.
- 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
- If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.
- If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
- If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
- If soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.
- If soil contains $\geq 30\%$ plus No. 200 predominantly gravel, add "gravelly" to group name.
- PI ≥ 4 and plots on or above "A" line.
- PI plots on or above "A" line.
- PI plots below "A" line.



DD Dry density, pcf
WD Wet density, pcf
P200 % Passing #200 sieve

Laboratory Tests
OC Organic content, %
q_p Pocket penetrometer strength, tsf
MC Moisture content, %
q_u Unconfined compression test, tsf

LL Liquid limit
PL Plastic limit
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..... $\geq 15\%$

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 ().



**FORMATION THERMAL CONDUCTIVITY
TEST & DATA ANALYSIS**

TEST LOCATION **North End Community Center
St. Paul, MN**

TEST DATE November 10-12, 2020

ANALYSIS FOR Mineral Service Plus
16409 371st Ave
Green Isle, MN 55338
Phone: (320) 238-0195

TEST PERFORMED BY Geothermal Resource Technologies, Inc.

EXECUTIVE SUMMARY

A formation thermal conductivity test was performed on the geothermal bore with a GPS location of N 44.972544°, W 93.106736° at the North End Community Center in St. Paul, Minnesota. The vertical bore was completed on November 4, 2020 by Mineral Service Plus. Geothermal Resource Technologies' (GRTI) test unit was attached to the vertical bore on the afternoon of November 10, 2020.

This report provides an overview of the test procedures and analysis process, along with plots of the loop temperature and input heat rate data. The collected data was analyzed using the "line source" method and the following average formation thermal conductivity was determined.

Formation Thermal Conductivity = 1.89 Btu/hr-ft-°F

Due to the necessity of a thermal diffusivity value in the design calculation process, an estimate of the average thermal diffusivity was made for the encountered formation.

Formation Thermal Diffusivity \approx 1.26 ft²/day

The undisturbed formation temperature was measured by lowering a temperature probe into the water filled U-bend prior to the start of the test.

Undisturbed Formation Temperature = 51.6-53.8°F, 52.8°F average

The formation thermal properties determined by this test do not directly translate into a loop length requirement (i.e. feet of bore per ton). These parameters, along with many others, are inputs to commercially available loop-field design software to determine the required loop length. Additional questions concerning the use of these results are discussed in the frequently asked question (FAQ) section at www.grti.com.

TEST PROCEDURES

The American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) has published recommended procedures for performing formation thermal conductivity tests in the ASHRAE HVAC Applications Handbook, Geothermal Energy Chapter. The International Ground Source Heat Pump Association (IGSHPA) also lists test procedures in their Design and Installation Standards. GRTI's test procedures meet or exceed those recommended by ASHRAE and IGSHPA, with the specific procedures described below:

Grouting Procedure for Test Loops – To ensure against bridging and voids, it is recommended that the bore annulus is uniformly grouted from the bottom to the top via tremie pipe.

Time Between Loop Installation and Testing – A minimum delay of five days between loop installation and test startup is recommended for bores that are air drilled, and a minimum waiting period of two days for mud rotary drilling.

Undisturbed Formation Temperature Measurement – The undisturbed formation temperature should be determined by recording the loop temperature as the water returns from the u-bend at test startup.

Required Test Duration – A minimum test duration of 36 hours is recommended, with a preference toward 48 hours.

Data Acquisition Frequency - Test data is recorded at five minute intervals.

Equipment Calibration/Accuracy – Transducers and datalogger are calibrated per manufacturer recommendations. Manufacturer stated accuracy of power transducers is less than $\pm 2\%$. Temperature sensor accuracy is periodically checked via ice water bath.

Power Quality – The standard deviation of the power should be less than or equal to 1.5% of the average power, with maximum power variation of less than or equal to 10% of the average power.

Input Heat Rate – The heat flux rate should be 51 Btu/hr (15 W) to 85 Btu/hr (25 W) per foot of installed bore depth to best simulate the expected peak loads on the u-bend.

Insulation – GRTI's equipment has 1 inch of foam insulation on the FTC unit and 1/2 inch of insulation on the hose kit connection. An additional 2 inches of insulation is provided for both the FTC unit and loop connections by insulating blankets.

Retesting in the Event of Failure – In the event that a test fails prematurely, a retest may not be performed until the bore temperature is within 0.5°F of the original undisturbed formation temperature or until a period of 14 days has elapsed.

DATA ANALYSIS

Geothermal Resource Technologies, Inc. (GRTI) uses the "line source" method of data analysis to determine the thermal conductivity of the formation. The line source method assumes an infinitely thin line source of heat in a continuous medium. A plot of the late-time temperature rise of the line source temperature versus the natural log of elapsed time will follow a linear trend. The linear slope is inversely proportional to the thermal conductivity of the medium. Applying the line source method to a u-bend grouted in a borehole, the test must be run long enough to allow the finite dimensions of the u-bend pipes and the grout to become insignificant. Experience has shown that approximately ten hours is required to allow the error of early test times and the effects of finite borehole dimensions to become insignificant.

In the analysis of the data from the formation thermal conductivity test, the average temperature of the water entering and exiting the u-bend heat exchanger was plotted versus the natural log of elapsed testing time. Using the Method of Least Squares, linear coefficients were calculated that produce a line that fit the data. This procedure was repeated for various time intervals to ensure that variations in the power or other effects did not produce inaccurate results.

The calculated results are based on test bore information submitted by the driller/testing agency. GRTI is not responsible for inaccuracies in the results due to erroneous bore information. All data analysis is performed by personnel that have an engineering degree from an accredited university with a background in heat transfer and experience with line source theory. The test results apply specifically to the tested bore. Additional bores at the site may have significantly different results depending upon variations in geology and hydrology.

Through the analysis process, the collected raw data is converted to spreadsheet format (Microsoft Excel®) for final analysis. If desired, please contact GRTI and a copy of the data will be made available in either a hard copy or electronic format.

CONTACT: Galen Streich
Regional Managing Engineer
Elkton, SD
Ph: 866-991-4784
gstreich@grti.com

TEST BORE DETAILS**(AS PROVIDED BY MINERAL SERVICE PLUS)**

Site Name North End Community Center
 Location St. Paul, MN
 Driller Mineral Service Plus
 Installed Date November 4, 2020
 Borehole Diameter 4 ¾ inches
 U-Bend Size 1 inch DR-11 HDPE
 U-Bend Depth Below Grade 248 ft
 Grout Type Portland cement/sand
 Grout Mixture 100 lb sand per 94 lb cement
 Grouted Portion Entire bore

DRILL LOG

FORMATION DESCRIPTION	DEPTH (FT)
Topsoil	0'-4'
Sand/gravel	4'-52'
Gray lime	52'-82'
White sandstone	82'-189'
Gray shale sandstone	189'-243'
Red brown lime	243'-250'

UNDISTURBED FORMATION TEMPERATURE DATA

The undisturbed formation temperature was determined by lowering a temperature probe into the water filled U-bend prior to the test on November 10, 2020. The average temperature from the readings was 52.8°F.

DEPTH (FT)	TEMPERATURE (°F)
50	53.8
125	53.0
200	52.6
248	51.6

THERMAL CONDUCTIVITY TEST DATA

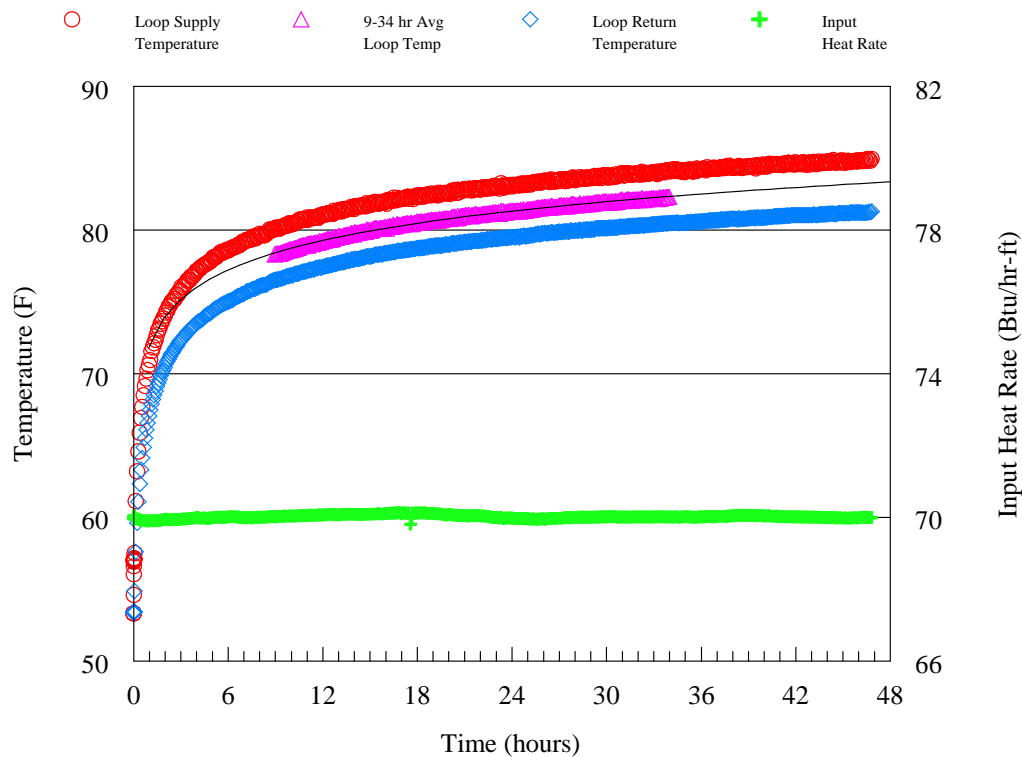


FIG. 1: TEMPERATURE & HEAT RATE DATA VS TIME

Figure 1 above shows the loop temperature and heat input rate data versus the elapsed time of the test. The temperature of the fluid supplied to and returning from the U-bend are plotted on the left axis, while the amount of heat supplied to the fluid is plotted on the right axis on a per foot of bore basis. In the test statistics below, calculations on the power data were performed over the analysis time period listed in the Line Source Data Analysis section.

SUMMARY TEST STATISTICS

Test Date	November 10-12, 2020
Duration	46.8 hr
Average Voltage	235.5 V
Average Heat Input Rate	5,091 Btu/hr (17,370 W)
Avg Heat Input Rate per Foot of Bore	70.0 Btu/hr-ft (20.5 W/ft)
Circulator Flow Rate	9.6 gpm
Standard Deviation of Power	0.07%
Maximum Variation in Power	0.34%

LINE SOURCE DATA ANALYSIS

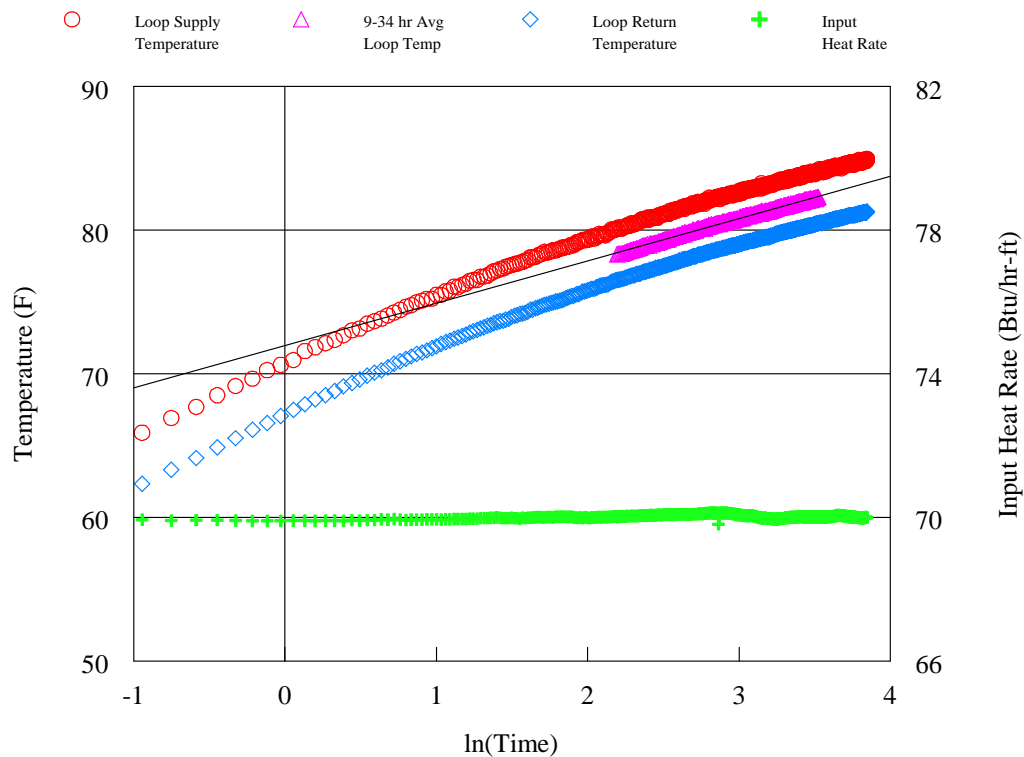


FIG. 2: TEMPERATURE & HEAT RATE VS NATURAL LOG OF TIME

The loop temperature and input heat rate data versus the natural log of elapsed time are shown above in Figure 2. The temperature versus time data was analyzed using the line source method (see page 3) in conformity with ASHRAE and IGSHA guidelines. A linear curve fit was applied to the average of the supply and return loop temperature data between 9 and 34.0 hours. The slope of the curve fit was found to be 2.94. The resulting thermal conductivity was found to be **1.89 Btu/hr-ft-°F**.

THERMAL DIFFUSIVITY

The reported drilling log for this test borehole indicated that the formation consisted of sand, gravel, sandstone and lime. Heat capacity values for sandstone and limestone were calculated from specific heat and density values listed by Kavanaugh and Rafferty¹. A weighted average of heat capacity values based on the indicated formation was used to determine an average heat capacity of 36.2 Btu/ft³-°F for the formation. A diffusivity value was then found using the calculated formation thermal conductivity and the estimated heat capacity. The thermal diffusivity for this formation was estimated to be **1.26 ft²/day**.

¹Stephen P. Kavanaugh and Kevin Rafferty, Geothermal Heating and Cooling: Design of Ground-Source Heat Pump Systems (Atlanta: ASHRAE, 2014), 75.

CERTIFICATE OF CALIBRATION

GRTI maintains calibration of the datalogger, current transducer and voltage transducer on a regular schedule. The components are calibrated by the manufacturer using recognized national or international measurement standards such as those maintained by the National Institute of Standards and Technology (NIST).

FTC Unit 201

DA Unit 70

PRIMARY EQUIPMENT		
COMPONENT	CALIBRATION DATE	CALIBRATION DUE DATE
Datalogger	7/20/2018	7/20/2021
Current Transducer	7/23/2018	7/23/2021
Voltage Transducer	7/23/2018	7/23/2021

GRTI periodically verifies the combined temperature sensor/datalogger accuracy via a water bath. Temperature readings are simultaneously taken with a digital thermometer that has been calibrated using instruments traceable to NIST.

DATE	9/21/2020			
THERMOCOUPLE 1 (°F)	32.1 32.1 32.1			
THERMOCOUPLE 2 (°F)	32.1 32.0 32.1			
THERMOCOUPLE 3 (°F)	32.1 32.1 32.1			
THERMOCOUPLE 4 (°F)	32.2 32.2 32.2			
DIGITAL THERMOMETER (°F)	32.3 32.2 32.2			



You are here: EPA Home > Green Book > >National Area and County-Level Multi-Pollutant Information >Minnesota Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants

Minnesota Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants

Data is current as of March 31, 2023

Listed by County, NAAQS, Area. The 8-hour Ozone (1997) standard was revoked on April 6, 2015 and the 1-hour Ozone (1979) standard was revoked on June 15, 2005.

* The 1997 Primary Annual PM-2.5 NAAQS (level of 15 µg/m³) is revoked in attainment and maintenance areas for that NAAQS. For additional information see the PM-2.5 NAAQS SIP Requirements Final Rule, effective October 24, 2016. (81 FR 58009)

Change the State:

MINNESOTA



GO

Important Notes

Download National Dataset: dbf | xls | Data dictionary (PDF)

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
MINNESOTA								
Anoka County	Carbon Monoxide (1971)	Minneapolis-St. Paul, MN	92939495969798	11/29/1999	Moderate <= 12.7ppm	Whole	330,844	27/003
Anoka County	Sulfur Dioxide (1971)	Minneapolis-St. Paul, MN	9293949596	07/14/1997		Whole	330,844	27/003
Carver County	Carbon Monoxide (1971)	Minneapolis-St. Paul, MN	92939495969798	11/29/1999	Moderate <= 12.7ppm	Part	77,969	27/019
Carver County	Sulfur Dioxide (1971)	Minneapolis-St. Paul, MN	9293949596	07/14/1997		Whole	91,042	27/019
Dakota County	Carbon Monoxide (1971)	Minneapolis-St. Paul, MN	92939495969798	11/29/1999	Moderate <= 12.7ppm	Part	380,675	27/037
Dakota County	Lead (1978)	Dakota County, MN	9293	12/19/1994		Part	318,833	27/037
Dakota County	Lead (2008)	Eagan, MN	1011121314151617181920212223	//		Part	8,997	27/037
Dakota County	Sulfur Dioxide (1971)	Minneapolis-St. Paul, MN	9293949596	07/14/1997		Whole	398,552	27/037
Hennepin County	Carbon Monoxide (1971)	Minneapolis-St. Paul, MN	92939495969798	11/29/1999	Moderate <= 12.7ppm	Whole	1,152,425	27/053
Hennepin County	Sulfur Dioxide (1971)	Minneapolis-St. Paul, MN	9293949596	07/14/1997		Whole	1,152,425	27/053

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/ County FIPS Codes
Olmsted County	PM-10 (1987)	Olmsted County, MN	929394	07/31/1995	Moderate	Part	96,199	27/109
Olmsted County	Sulfur Dioxide (1971)	Olmsted County; City of Rochester, MN	929394959697989900	05/08/2001		Part	106,769	27/109
Ramsey County	Carbon Monoxide (1971)	Minneapolis-St. Paul, MN	92939495969798	11/29/1999	Moderate <= 12.7ppm	Whole	508,640	27/123
Ramsey County	PM-10 (1987)	Ramsey County, MN	92939495969798990001	09/24/2002	Moderate	Part	284,783	27/123
Ramsey County	Sulfur Dioxide (1971)	Minneapolis-St. Paul, MN	9293949596	07/14/1997		Whole	508,640	27/123
Scott County	Carbon Monoxide (1971)	Minneapolis-St. Paul, MN	92939495969798	11/29/1999	Moderate <= 12.7ppm	Part	119,772	27/139
Scott County	Sulfur Dioxide (1971)	Minneapolis-St. Paul, MN	9293949596	07/14/1997		Whole	129,928	27/139
St. Louis County	Carbon Monoxide (1971)	Duluth, MN	9293	06/13/1994	Moderate <= 12.7ppm	Part	85,857	27/137
Washington County	Carbon Monoxide (1971)	Minneapolis-St. Paul, MN	92939495969798	11/29/1999	Moderate <= 12.7ppm	Part	236,399	27/163
Washington County	Sulfur Dioxide (1971)	Minneapolis-St. Paul, MN	9293949596	07/14/1997		Whole	238,136	27/163
Wright County	Carbon Monoxide (1971)	Minneapolis-St. Paul, MN	92939495969798	11/29/1999	Moderate <= 12.7ppm	Part	113,454	27/171

Important Notes

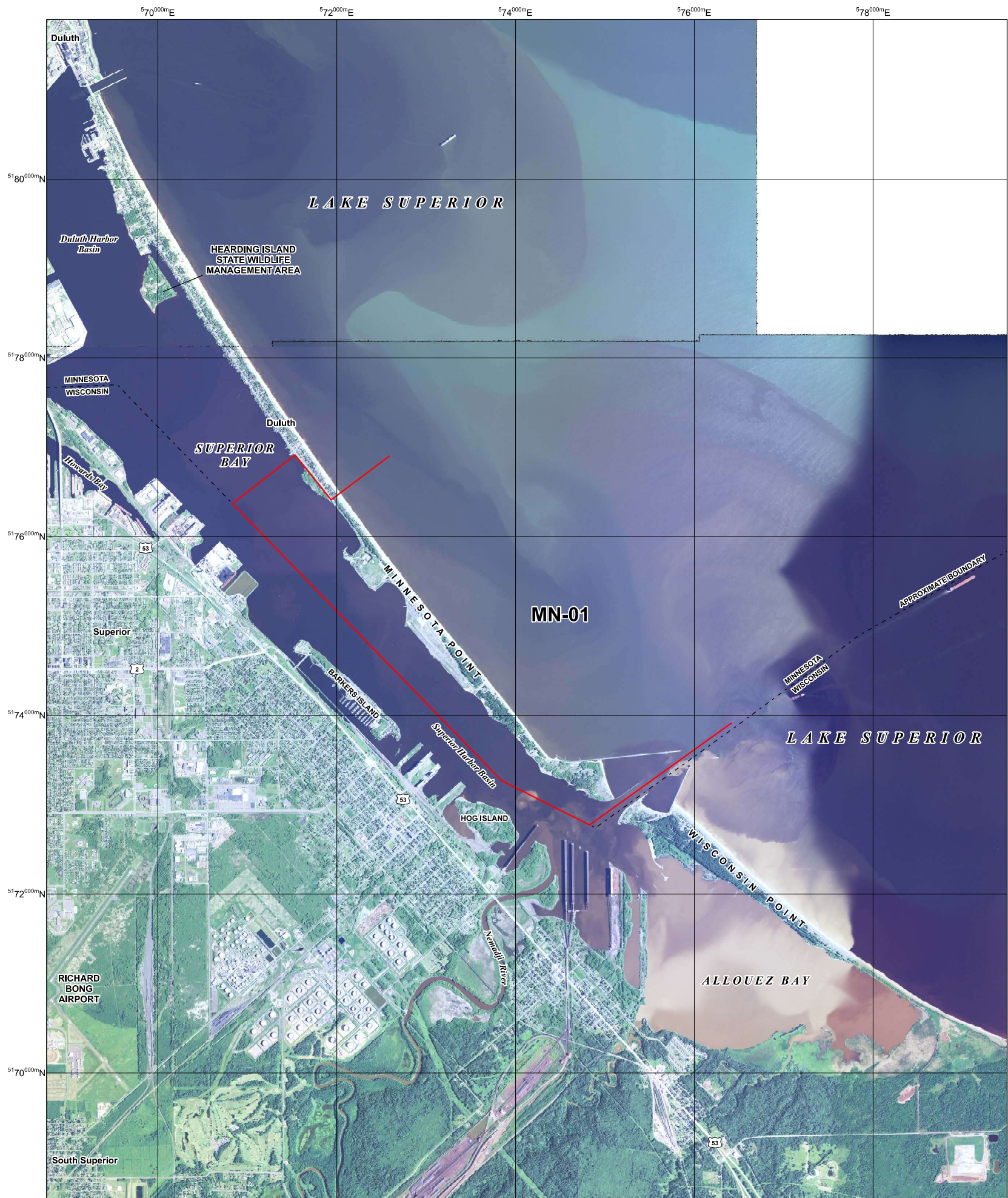
Discover.

Connect.

Ask.

Follow.

2023-03-31



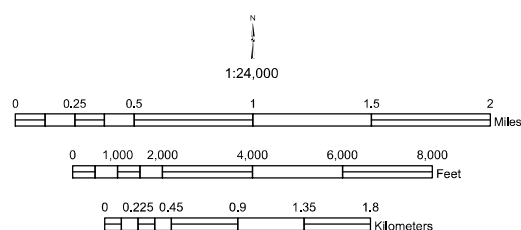
JOHN H. CHAFEE COASTAL BARRIER RESOURCES SYSTEM

Minnesota Point Unit MN-01

This map has been produced by the U.S. Fish and Wildlife Service as authorized by Section 4(c) of the Coastal Barrier Resources Act (CBRA) of 1982 (Pub. L. 97-348), as amended by the Coastal Barrier Improvement Act of 1990 (Pub. L. 101-591). The CBRA requires the Secretary of the Interior to review the maps of the Coastal Barrier Resources System (CBRS) at least once every 5 years and make any minor and technical modifications to the boundaries of the CBRS units as are necessary solely to reflect changes that have occurred in the size or location of any CBRS unit as a result of natural forces.

The seaward side of the CBRS unit includes the entire sand-sharing system, including the beach and nearshore area. The sand-sharing system of coastal barriers is normally defined by the 30-ft bathymetric contour. In large coastal embayments and the Great Lakes, the sand-sharing system is defined by the 20-ft bathymetric contour or a line approximately one mile seaward of the shoreline, whichever is nearer the coastal barrier.

For additional information about the CBRA or CBRS, please visit www.fws.gov/cbra.



- System Unit Boundary
- Otherwise Protected Area (OPA) Boundary; OPAs are identified on the map by the letter "P" following the unit number
- - - - - Approximate State Boundary
- 36°54'00"N 2000- meter Universal Transverse Mercator grid values, Zone 15 North

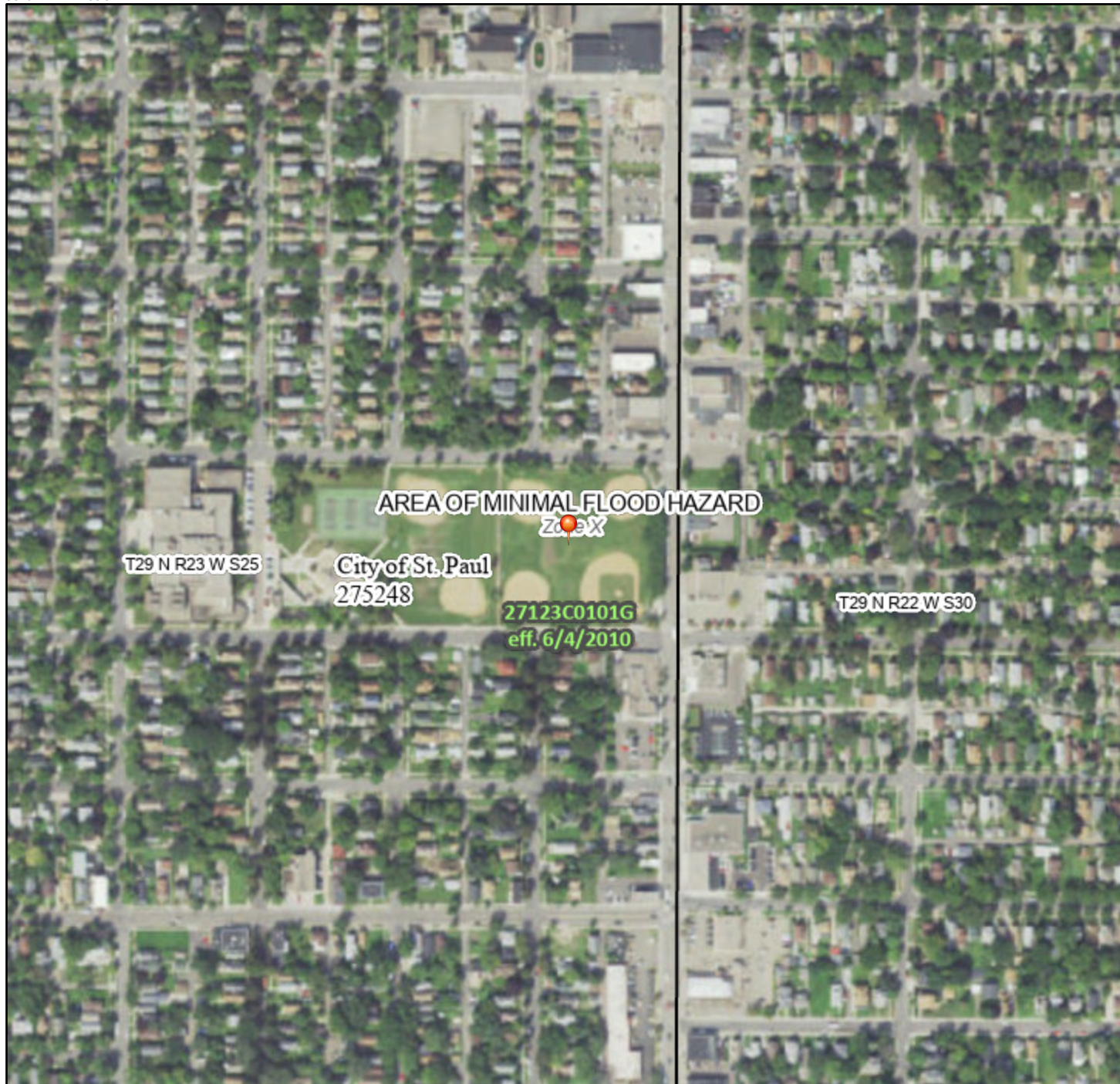
Imagery Date(s): 2013
Imagery Source(s): United States Department of Agriculture National Agriculture Imagery Program
Coordinate System: North American Datum 1983 Universal Transverse Mercator, Zone 15 North

Map 27-001A January 11, 2016

National Flood Hazard Layer FIRMette



93°6'44"W 44°58'34"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

93°6'6"W 44°58'9"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Digital Data Available
		No Digital Data Available
MAP PANELS		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

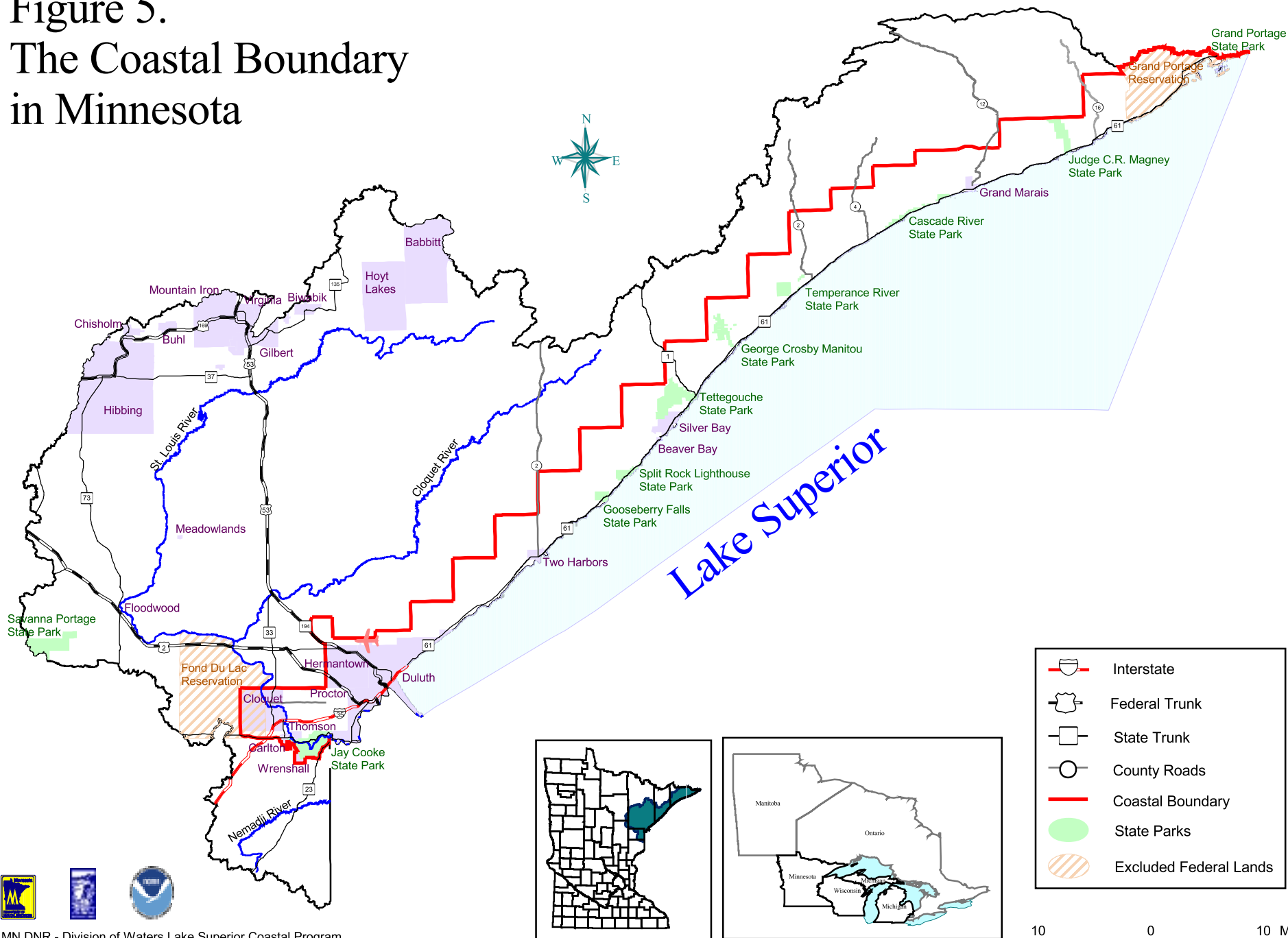


This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **2/7/2023 at 10:00 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Figure 5. The Coastal Boundary in Minnesota



North End Community Center

Compliance Determination for Site Contamination and Toxic Substances

NEPA, CERCLA and RCRA

HUD Environmental Policy in 24 CRF Part 50.3 (i)

HUD Environmental Standards found in 24 CFR Part 58.5 (i)(2)

It is HUD policy that all property proposed for use in HUD programs be free of hazardous materials, contamination, toxic chemicals and gasses, and radioactive substances, where a hazard could affect the health and safety of occupants or conflict with the intended utilization of the property. The following information outlines PEDS research methods and findings for compliance with HUD policy and environmental standards for evaluation and mitigation of any potential contamination and toxic substances for the NECC project.

Historical Land Use Determinations

The environmental review of the NECC includes evaluation of historical land use of the project site and any evidence of contamination on or near the site to assure that occupants of proposed sites are not adversely affected by soil contamination, toxic chemicals and gases, or radioactive substances. Research and evaluation for documentation of compliance is required for non-residential property as well as multi-family projects utilizing sources of federal funding.

24 CRF 50.3 (a-f) sets standards for research and compliance methods, followed herein. PED evaluated previous uses of the site and any data sources for evidence of contamination on or near the site from historical and current information sources. The historical review period for PED data analysis goes back 150-180 years ago, depending on the information source, when records began to be compiled and saved, and the availability of records today.

Planning and Historical Preservation Staff reviewed a 1927 Sanborn insurance map to evaluate historical land use. Figures 1- 4 provide for a look at land use in 1927.

The City of Saint Paul began early permitting and land records documentation along with the county. City permitting records began to be compiled for the City of Saint Paul in 1883. Building permit records research was undertaken to define structures and assumption of land use. Scanned copies of five historic structures were retrieved and evaluated for documentation of the type of structure (see the scanned attachments).

The intrinsic nature of the historic residential and public parks use of the land informs the potential for soil or groundwater contamination. Commercial or industrial operations of the land are typically uses that we would be looking for with operations that manage toxic chemicals or other hazardous materials which could have negative environmental externalities that contaminated the soil or water table. Conversely, residential and parks and recreation land uses are not operations typically associated with the use of toxic chemicals or hazardous waste operations.

Superfund, other brownfield, and toxic or hazardous materials research

The existence and proximity of the NECC to any historical dumps, landfills, industrial sites, or other locations that contain, or may have contained, hazardous wastes are identified and evaluated. To accomplish this, both federal and state data is evaluated for brownfield investigation work. A phase I ESA may be required in certain triggers of regulations from the Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA).

The Environmental Protection Agency (EPA) and the Minnesota Pollution Control Agency (MPCA) manage brownfields in the state. The Resource Conservation and Recovery Act (RCRA) creates programmatic and legal framework for proper

management of hazardous and non-hazardous solid waste which is also managed by the EPA and MPCA at the federal and state levels of program management. Documentation of nearby property owner / business entities historical compliance with RCRA, CERCLA and other industry standard operation or regulations.

The Environmental Protection Agency (EPA) assists NEPA research for compliance with the interactive GIS tool which displays the sites geographically and provides interaction with data for records retrieval. With this function, brownfield and RCRA sites are retrieve and displayed for known properties that have historical or active sites in terms of current site investigations.

Historic and current records are maintained in these inventories with the EPA and MPCA and include evidence of the responsible entities program participation in required investigation and cleanup programs, with detail on the related activities, status dates, registrations, license, fieldwork, and record close-out dates. Where data points occur within the two interactive GIS based research tools near the NECC site, the symbolized point data is evaluated for the record of a historical leak or other event for response or remediation. These records provided within show MPCA program participation for an organization that is known, registered, investigated and contained, with former soil or water contamination historically remediated as necessary.

Figure 1 Saint Paul Insurance Maps, Sanborn Map Company, 1927 hardcover copy

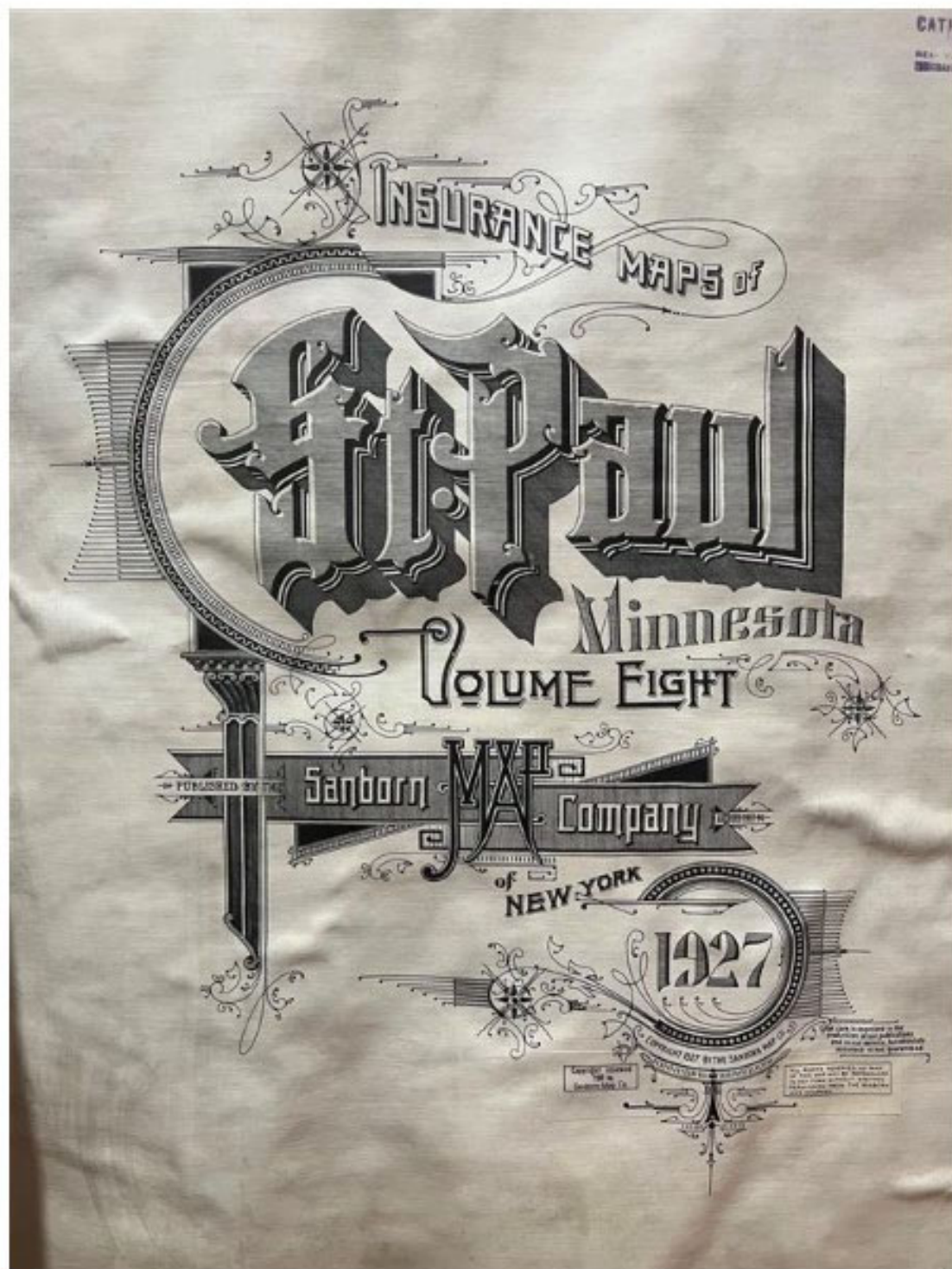


Figure 2. George Washington High School, Lot Location, Building Footprint, Blocks, Sanborn Map, 1927



Figure 3- Rice & Lawson Playground Lot East of George Washington H.S., vacated unpaved road, Formerly Subdivided Eastern Section of the Project Site along Rice Street, Park Shelter

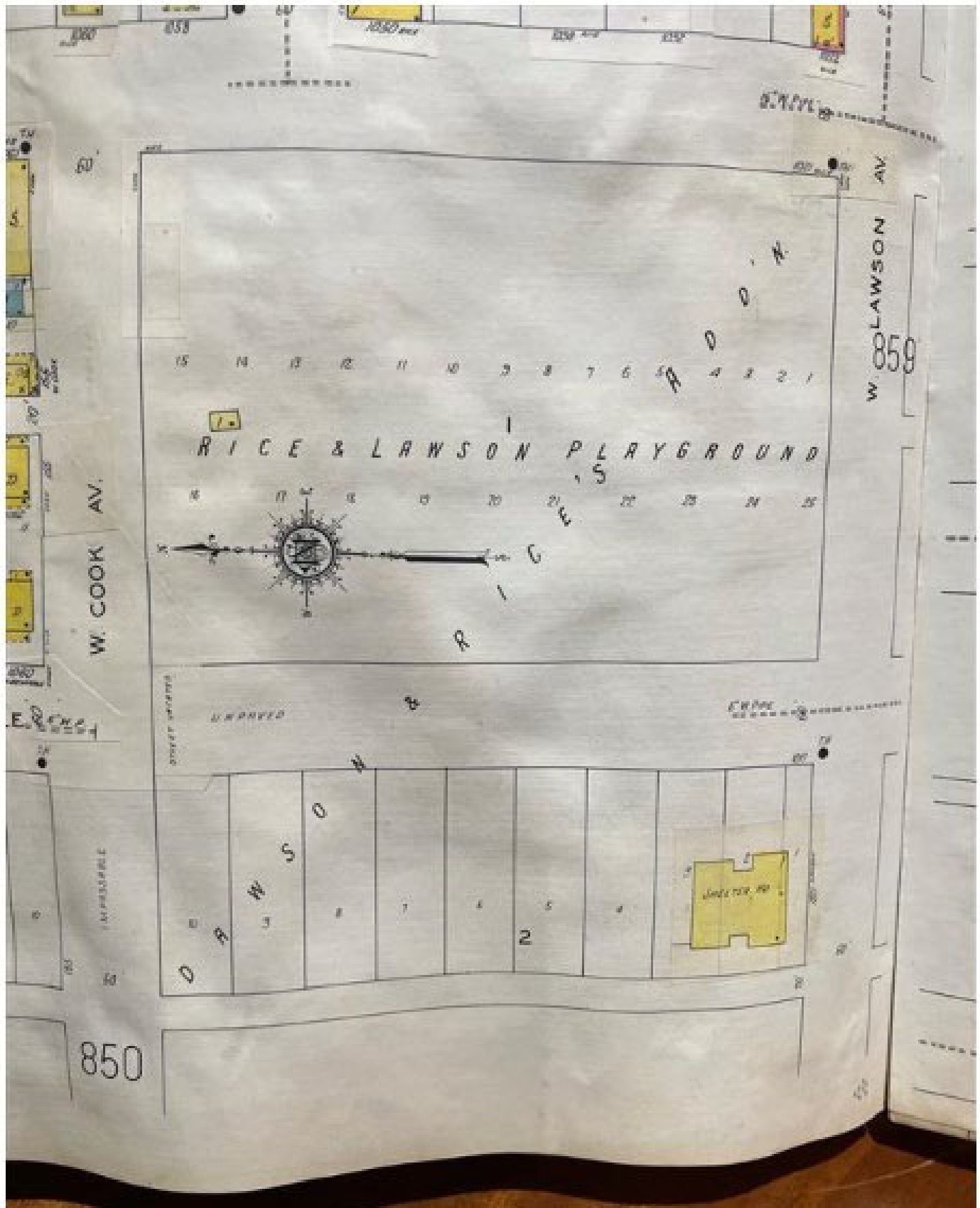


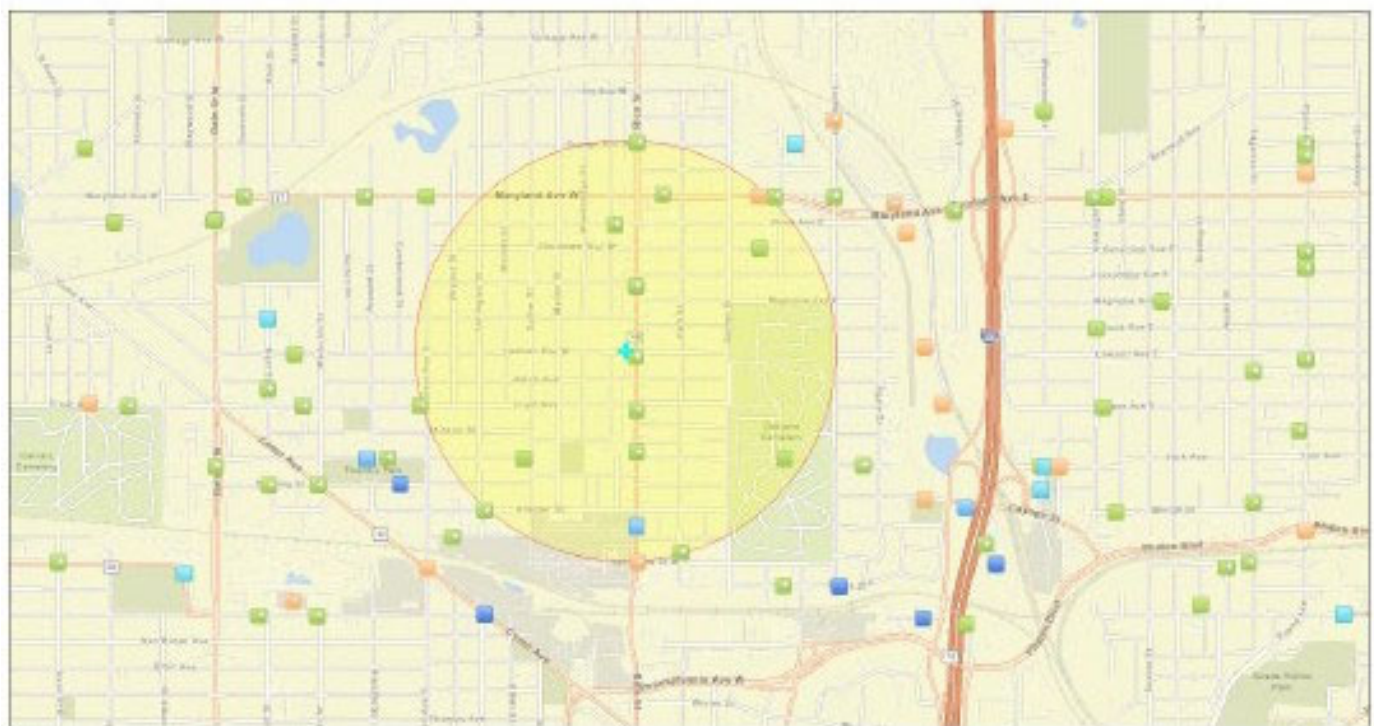
Figure 4- North Compass Orientation of Rice's Subdivided Block with Vacated Right of Way, Historical Structures



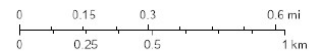
NEPAssist Report

North End Community Center

Figure 6- 0.5 NECC brownfields, toxic release inventory, and hazardous waste (RCRA) sites within 0.5 Miles



- Water Dischargers (NPDES)
- Brownfields (ACRES)
- Hazardous Waste (RCRAInfo)
- Toxic Releases (TRI)
- Air Pollution (ICIS-AIR)
- Project Buffer
- Brownfields (ACRES)
- Hazardous Waste (RCRAInfo)
- ★ North End Community Center



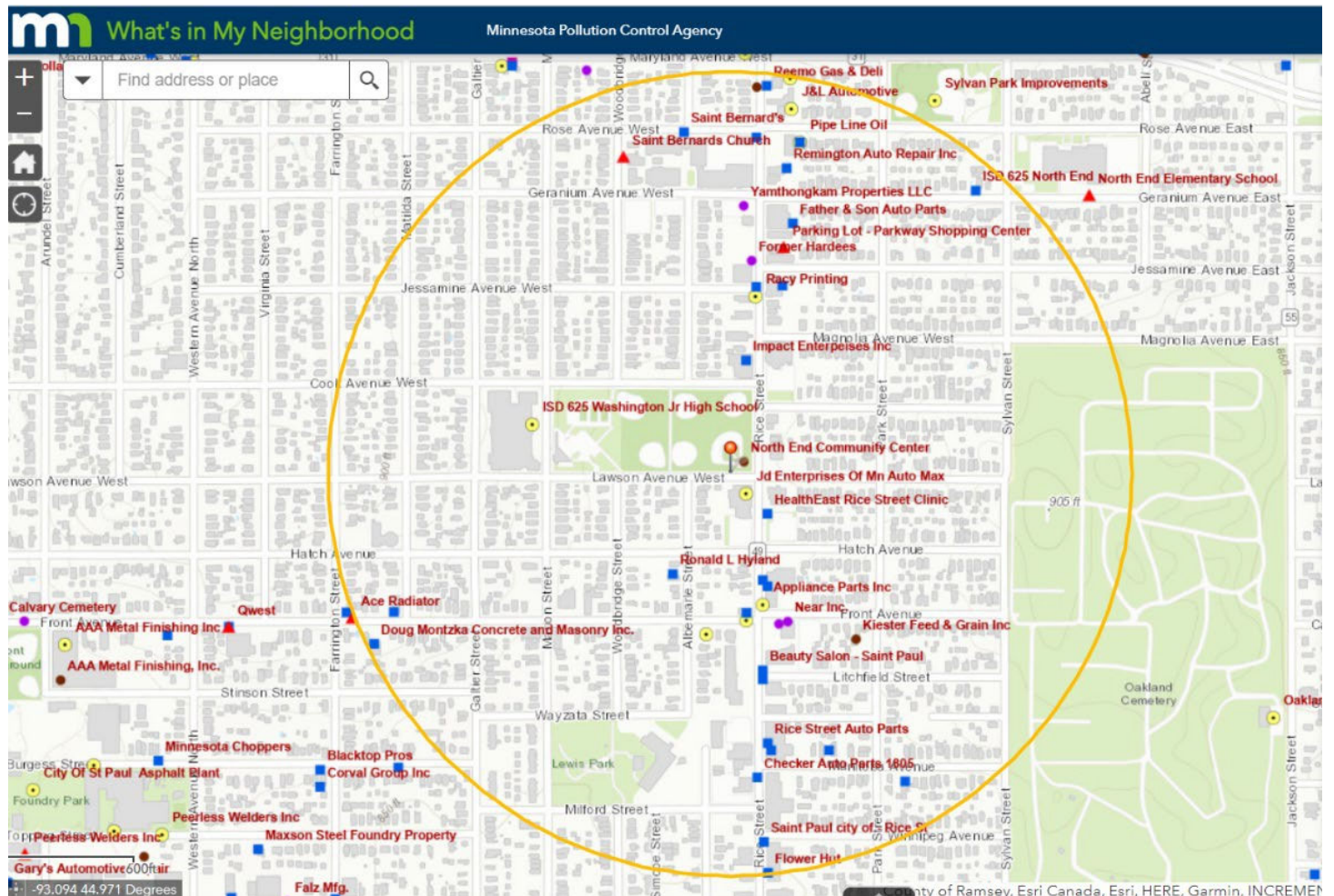
Metropolitan Council, MapInfo, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, MET/NASA, USGS, EPA, NP3, US Census Bureau, USDA

Table 1. NEPA Assist Report for the NECC

Project Location	44.972081,- 93.106475
Within 0.5 miles of an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	no
Within 0.5 miles of an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	no
Within 0.5 miles of a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within 0.5 miles of a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within 0.5 miles of a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
Within 0.5 miles of a PM2.5 Annual (1997 standard) Non-Attainment/Maintenance Area?	no
Within 0.5 miles of a PM2.5 Annual (2012 standard) Non-Attainment/Maintenance Area?	no
Within 0.5 miles of a PM10 (1987 standard) Non-Attainment/Maintenance Area?	no
Within 0.5 miles of a Federal Land?	no
Within 0.5 miles of an impaired stream?	no
Within 0.5 miles of an impaired waterbody?	no
Within 0.5 miles of a waterbody?	no
Within 0.5 miles of a stream?	no
Within 0.5 miles of an NWI wetland?	Available Online
Within 0.5 miles of a Brownfields site?	yes
Within 0.5 miles of a Superfund site?	no
Within 0.5 miles of a Toxic Release Inventory (TRI) site?	no
Within 0.5 miles of a water discharger (NPDES)?	yes
Within 0.5 miles of a hazardous waste (RCRA) facility?	yes
Within 0.5 miles of an air emission facility?	yes

Within 0.5 miles of a school?	yes
Within 0.5 miles of an airport?	no
Within 0.5 miles of a hospital?	no
Within 0.5 miles of a designated sole source aquifer?	no
Within 0.5 miles of a historic property on the National Register of Historic Places?	yes
Within 0.5 miles of a Toxic Substances Control Act (TSCA) site?	no
Within 0.5 miles of a Land Cession Boundary?	yes
Within 0.5 miles of a tribal area (lower 48 states)?	no
Within 0.5 miles of the service area of a mitigation or conservation bank?	yes
Within 0.5 miles of the service area of an In-Lieu-Fee Program?	no
Within 0.5 miles of a Public Property Boundary of the Formerly Used Defense Sites?	no
Within 0.5 miles of a Munitions Response Site?	no
Within 0.5 miles of an Essential Fish Habitat (EFH)?	no
Within 0.5 miles of a Habitat Area of Particular Concern (HAPC)?	no
Within 0.5 miles of an EFH Area Protected from Fishing (EFHA)?	no
Within 0.5 miles of a Bureau of Land Management Area of Critical Environmental Concern?	no
Within 0.5 miles of an ESA-designated Critical Habitat Area per U.S. Fish & Wildlife Service?	no
Within 0.5 miles of an ESA-designated Critical Habitat river, stream or water feature per U.S. Fish & Wildlife Service?	no

Figure 6 MPCA Brownfield, Hazardous Waste, Multiple Programs, and Tanks, within the 0.5 mile of the NECC



Legend

MPCA Sites

sites

program

- Multiple Programs
- Air Quality
- Environmental Review
- Feedlots
- Hazardous Waste
- Investigation and Cleanup
- Pollution Prevention
- Solid Waste
- Stormwater
- ▲ SSTS
- ▲ Tanks
- ▲ Water Quality

MPCA Data Interpretation & Summary of Findings

Purple Dots:

Purple dots symbolize brownfield sites that are either historically or currently in a site investigation and potentially a soil or groundwater contamination cleanup program. There are four purple dots within 0.5 miles of the project site. The current MPCA records for each, with highlighted data or status variables selected are provided for in Records 1 through 4.

- Record 1 has a history of a petroleum brownfield with a leak site. The responsible party was determined in 2015 with start of work in 2016 and close out of the site shortly thereafter. Status is inactive – no concern.
- Record 2 is the site of the former Hardees. The record was opened with an investigation on a petroleum leak in 1998, evaluated without a cause identified or a field record for cleanup shown. The site was immediately closed out one month after the record was opened.
- Record 3 is a site of a former gasoline leak that was quickly discovered and closed out three months later.
- Record 4 is a record of a 2017 record of a petroleum leak site that had investigation, cleanup and close-out.

Yellow Dots with Black Circles:

Multiple programs with MPCA:

There are three brownfield sites with multiple program participation for voluntary investigation or cleanup, petroleum leak site remediation, and the current registrations and licensures required for current management of regulated hazardous waste as provided in Records 5 – 7 contained herein:

- Saint Paul Public Schools site – now known as Wellstone Elementary School, has multiple programs which may include the storage, handling and management of hazardous waste.
- JD Enterprises of MN Auto Max had a historical petroleum spill which was managed
- Racy Printing is an authorized limited quantity hazardous waste generator, which is registered and known.

Blue Squares:

Blue squares provide are a data point for historic or current sites with hazardous waste as provided in Figure 6. Records 8 and 9 are sites with businesses within close proximity to the NECC site.

- Impact Enterprises – low quantity generator of hazardous waste
- Racy Printing – low quantity generator of hazardous waste

Red Triangles:

Indicated existence of above and/or below fuel tanks. These data points are related but evaluated under separate HUD regulation. See PEDs map and data interpretation in our research documentation for compliance HUD Explosive and Flammable Hazards Compliance 24 CFR Part 51 Subpart C and related federal laws and authorities.

MPCA Purple Dot – Brownfield Records

----- Record 1 -----

Yamthongkam Properties LLC

Location: 1141 Rice St

Saint Paul, MN 55117

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.97548996

Longitude: -93.10623551

Coordinate collection method: Digitized - MPCA internal map

Currently active? Yes

Institutional controls: No

Activity overview

Documents (2)

Activity Investigation and Cleanup Investigation and Cleanup

Brownfields - BF0000045 - Petroleum Brownfield

Status: Inactive

Brownfields are potentially contaminated sites where the MPCA is helping buyers, sellers, developers or local governments to voluntarily investigate and clean up land for sale, financing or redevelopment. Sites may be petroleum brownfields, non-petroleum brownfields, or both.

Petroleum Remediation - LS0019905 - Leak Site

Status: Inactive

Leak sites are locations where a release of petroleum products has occurred from a tank system. Leak sites can occur from aboveground or underground tank systems as well as from spills at tank facilities.

Commissioner's Site Report Request Processed 12/15/2016 12/16/2016

Commissioner's Site Report Review Request Completed 12/06/2016 12/15/2016

Referred to MPCA Site Assessment Program 07/11/2016 07/11/2016

Site Closed 07/11/2016 07/11/2016

Limited Site Investigation Reviewed 06/06/2016 07/11/2016

Technical Review of Limited Site Investigation Report Completed 06/06/2016 07/11/2016

Responsible Party Determined 10/02/2015 10/02/2015

Standard Letter Issued 10/02/2015 10/02/2015

Leak Reported 09/23/2015 09/23/2015

Leak Discovered 08/17/2015 08/17/2015

Inspections and field work

Type Date

Field Work Notification 04/11/2016

Field Work Notification 02/24/2016

Field Work Notification 01/05/2016

Links to additional data sources

Leak Data - LS0019905

Site Assessment - SA0000335

Status: Inactive

State Assessment sites are places the MPCA has investigated due to suspected contamination. They are assessed to determine if they pose a risk to human health or the environment. If so, they are referred to a cleanup program.

Event Start End

Site Closed 03/30/2017 03/30/2017

Monitoring Report Reviewed 01/23/2017 03/30/2017

Application/Notification/Registration Received 07/11/2016 07/11/2016

Links to additional data sources

There are no links for this activity. Contact the file manager or program contact to determine if additional information is available.

-----Record 2-----

Former Hardees

Location: 1115 Rice St

Saint Paul, MN 55117

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.9747928

Longitude: -93.1060928

Coordinate collection method: Digitized - MPCA internal map

Currently active? Yes

Institutional controls: No

MPCA contacts

Alternate names

Owners

Documents (1)

Activity Investigation and Cleanup Investigation and Cleanup

Petroleum Remediation - LS0011151 - Leak Site

Status: Inactive

Leak sites are locations where a release of petroleum products has occurred from a tank system. Leak sites can occur from aboveground or underground tank systems as well as from spills at tank facilities.

Event Start End

Limited Site Investigation Reviewed 04/24/1998 06/09/1998

Site Closed 04/24/1998 06/09/1998

General Information Reviewed 04/08/1998 04/14/1998

Non-Corrective Action Design Approved 04/08/1998 04/14/1998

Responsible Party Determined 03/30/1998 03/30/1998

Standard Letter Issued 03/30/1998 03/30/1998

Leak Reported 03/16/1998 03/16/1998

Leak Discovered 03/14/1998 03/14/1998

Links to additional data sources

Leak Data - LS0011151

Tank and leak site dashboard

Former Hardees

Site ID LS0011151

Site type Leak Site

Location 1115 Rice St

Saint Paul, MN 55117

Ramsey County

Release discovered 03/14/1998

Release reported 03/16/1998

Site closure date 06/09/1998

Product released Unknown

Regulatory designation Federal

Groundwater

Drinking water contamination Free product observed at closure Maximum free product thickness

Groundwater contamination Regional groundwater flow direction

No Unknown Unknown No Unknown

Cleanup actions

There are no cleanup actions to display for this site.

Site contacts

Type Name Address Start date End date

Responsible Party 1ST NATIONAL BANK

03/16/1998

Responsible Party C.LE ANDERSON

Responsible Party has a consultant with DPRA Environmental Consulting Inc

332 Minnesota St Ste E-1310

Saint Paul, Minnesota 55101 04/08/1998 04/24/1998

Treatments

There are no treatments to display for this site.

Reporting

Task Start End

Leak Discovered 03/14/1998 03/14/1998

Leak Reported 03/16/1998 03/16/1998

Standard Letter Issued 03/30/1998 03/30/1998

Responsible Party Determined 03/30/1998 03/30/1998

General Information Reviewed 04/08/1998 04/14/1998

Non-Corrective Action Design Approved 04/08/1998 04/14/1998

Limited Site Investigation Reviewed 04/24/1998 06/09/1998

Site Closed 04/24/1998 06/09/1998

Field work

There are no field work events to display for this site.

Near Inc.**Location:** 954 Rice St**Saint Paul, MN 55117**

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.9702028

Longitude: -93.1054428

Coordinate collection method: Digitized - MPCA internal map

Currently active? Yes

Institutional controls: No

Activity overview

MPCA contacts

Alternate names

Owners

Documents (0)

Activity Investigation and Cleanup Investigation and Cleanup**Petroleum Remediation - LS0004834 - Leak Site****Status: Inactive**

Leak sites are locations where a release of petroleum products has occurred from a tank system. Leak sites can occur from aboveground or underground tank systems as well as from spills at tank facilities.

Event	Start	End
-------	-------	-----

Site Assessment Reviewed	12/20/1991	02/14/1992
--------------------------	------------	------------

Site Closed	12/20/1991	02/14/1992
-------------	------------	------------

Technical Review of Site Assessment Completed	12/20/1991	02/14/1992
---	------------	------------

Responsible Party Determined	12/09/1991	12/09/1991
------------------------------	------------	------------

Standard Letter Issued	12/09/1991	12/09/1991
------------------------	------------	------------

Leak Discovered	11/19/1991	11/19/1991
-----------------	------------	------------

Leak Reported	11/19/1991	11/19/1991
---------------	------------	------------

Links to additional data sources

Leak Data - LS0004834

Near Inc.

Site ID LS0004834

Site type Both Leak/PBP Site

Location 954 Rice St

Saint Paul, MN 55117

Ramsey County

Release discovered 11/19/1991

Release reported 11/19/1991

Site closure date 02/14/1992

Product released Gasoline, Type Unknown

Regulatory designation Federal

Groundwater

Drinking water contamination Free product observed at closure Maximum free product thickness

Groundwater contamination Regional groundwater flow direction

No Unknown Unknown No Unknown

Cleanup actions

Type Quantity

Excavation 0 cubic yards

Site contacts

Type Name AddressStart date End date

Responsible Party DAN JEANS

11/19/1991

DAN BARTHOLOMAY

Treatments

There are no treatments to display for this site.

Reporting

Task Start End

Leak Discovered 11/19/1991 11/19/1991

Leak Reported 11/19/1991 11/19/1991

Responsible Party Determined 12/09/1991 12/09/1991

Standard Letter Issued 12/09/1991 12/09/1991

Technical Review of Site Assessment Completed 12/20/1991 02/14/1992

Site Closed 12/20/1991 02/14/1992

Site Assessment Reviewed 12/20/1991 02/14/1992

Field work

There are no field work events to display for this site.

Site Assessment - SA0004016

Status: Inactive

State Assessment sites are places the MPCA has investigated due to suspected contamination. They are assessed to determine if they pose a risk to human health or the environment. If so, they are referred to a cleanup program.

Event Start End

Referred to MPCA Brownfields Program 09/01/1999 09/01/1999

Site Closed 09/01/1999 09/01/1999

Application/Notification/Registration Received 01/01/1987 01/01/1987

Links to additional data sources

There are no links for this activity. Contact the file manager or program contact to determine if additional information is available.

Site Assessment - SA0002088

Status: Inactive

State Assessment sites are places the MPCA has investigated due to suspected contamination. They are assessed to determine if they pose a risk to human health or the environment. If so, they are referred to a cleanup program.

Event Start End

Referred to MPCA Brownfields Program 09/01/1999 09/01/1999

Site Closed 09/01/1999 09/01/1999

Application/Notification/Registration Received 01/01/1987 01/01/1987

Links to additional data sources

There are no links for this activity. Contact the file manager or program contact to determine if additional information is available.

Yamthongkam Properties LLC**Location: 1141 Rice St****Saint Paul, MN 55117**

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.97548996

Longitude: -93.10623551

Coordinate collection method: Digitized - MPCA internal map

Currently active? Yes

Activity overview

MPCA contacts

Alternate names

Owners

Documents (2)

Activity Investigation and Cleanup Investigation and Cleanup**Brownfields - BF0000045 - Petroleum Brownfield****Status: Inactive**

Brownfields are potentially contaminated sites where the MPCA is helping buyers, sellers, developers or local governments to voluntarily investigate and clean up land for sale, financing or redevelopment. Sites may be petroleum brownfields, non-petroleum brownfields, or both.

Petroleum Remediation - LS0019905 - Leak Site**Status: Inactive**

Leak sites are locations where a release of petroleum products has occurred from a tank system. Leak sites can occur from aboveground or underground tank systems as well as from spills at tank facilities.

Event Start End

Commissioner's Site Report Request Processed 12/15/2016 12/16/2016

Commissioner's Site Report Review Request Completed 12/06/2016 12/15/2016

Referred to MPCA Site Assessment Program 07/11/2016 07/11/2016

Site Closed 07/11/2016 07/11/2016

Limited Site Investigation Reviewed 06/06/2016 07/11/2016

Technical Review of Limited Site Investigation Report Completed 06/06/2016 07/11/2016

Responsible Party Determined 10/02/2015 10/02/2015

Standard Letter Issued 10/02/2015 10/02/2015

Leak Reported 09/23/2015 09/23/2015

Leak Discovered 08/17/2015 08/17/2015

Inspections and field work

Type Date

Field Work Notification 04/11/2016

Field Work Notification 02/24/2016

Field Work Notification 01/05/2016

Links to additional data sources

Leak Data - LS0019905

Site Assessment - SA0000335

Status: Inactive

State Assessment sites are places the MPCA has investigated due to suspected contamination. They are assessed to determine if they pose a risk to human health or the environment. If so, they are referred to a cleanup program.

Event Start End

Site Closed 03/30/2017 03/30/2017

Monitoring Report Reviewed 01/23/2017 03/30/2017

Application/Notification/Registration Received 07/11/2016 07/11/2016

MPCA Yellow Circle with Black Dots Records

Sites with multiple programs within 1-2 Blocks

-----Record 5-----

Jd Enterprises Of Mn Auto Max

Location: 1015 Rice St

Saint Paul, MN 55117-4952

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.9718309

Longitude: -93.1061905

Coordinate collection method: Address Matching House Number

Currently active? Yes

Industry classification: Automotive Repair, Services, and Parking

Institutional controls: No

Activity overview

MPCA contacts

Alternate names

Owners

Documents (1)

Activity Hazardous Waste Hazardous Waste

Hazardous Waste - MND130630304 - Very small quantity generator

Status: Active

Hazardous waste includes substances that are corrosive, explosive, toxic and-or fire hazards. Very Small Quantity Generators produce 220 pounds or less of hazardous waste, and less than 2.2 pounds of acute hazardous waste per month. Businesses in this classification require a license.

Activity Investigation and Cleanup Investigation and Cleanup

Petroleum Remediation - LS0009121 - Leak Site

Status: Inactive

Leak sites are locations where a release of petroleum products has occurred from a tank system. Leak sites can occur from aboveground or underground tank systems as well as from spills at tank facilities.

Event Start End

Excavation Report Reviewed 03/19/1996 04/24/1996

Site Closed 03/19/1996 04/24/1996

Responsible Party Determined 03/13/1996 03/13/1996

Standard Letter Issued 03/13/1996 03/13/1996

Leak Reported 02/02/1996 02/02/1996

Leak Discovered 01/02/1996 01/02/1996

Links to additional data sources

Leak Data - LS0009121

Activity Tanks Tanks

Underground Tanks - TS0019524

Status: Inactive

An underground storage tank site has at least one tank of a certain size on the premises. A tank site may have multiple tanks and these tanks may contain food products, petroleum products or other substances.

Event	Start	End
-------	-------	-----

Registration Received	01/12/1996	01/12/1996
-----------------------	------------	------------

Notice Received	12/22/1995	12/22/1995
-----------------	------------	------------

Registration Received	01/01/1900	01/01/1900
-----------------------	------------	------------

Links to additional data sources

Tank Data - TS0019524

Auto Max

Site ID TS0019524

Location 1015 Rice St

Saint Paul, MN 55117-4952

Ramsey County

Tank Count 2 tanks are (or were) located at this site.

Tank number	Install date	Registration date	Tank capacity	Tank status	Stored product	Above or underground
-------------	--------------	-------------------	---------------	-------------	----------------	----------------------

01	Unknown	Unknown	560	Removed	Used or waste oil	Underground
----	---------	---------	-----	---------	-------------------	-------------

02	Unknown	Unknown	560	Removed	Used or waste oil	Underground
----	---------	---------	-----	---------	-------------------	-------------

-----Record 6-----

Racy Printing

Location: 1101 Rice St

Saint Paul, MN 55117-4920

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.9743393

Longitude: -93.1060195

Coordinate collection method: Digitized - MPCA internal map

Currently active? Yes

Institutional controls: No

MPCA contacts

Alternate names

Owners

Documents (0)

Activity Hazardous Waste Hazardous Waste

Hazardous Waste - MND985713411

Status: Inactive

Event Start End

Application/Notification/Registration Received 04/02/2019 04/02/2019

Application/Notification/Registration Received 03/28/2019 03/28/2019

Annual Gen License Report 01/28/2008

Application/Notification/Registration Received 11/16/2007 11/16/2007

Links to additional data sources

HW Generator License Application Data - MND985713411

Activity Stormwater Stormwater

Industrial Stormwater - MNRNE33J7

Status: Inactive

At industrial sites, stormwater may come into contact with harmful pollutants such as toxic metals, oil, grease and de-icing salts. Industrial stormwater permits are designed to limit the contaminants that reach surface and groundwater.

Event Start End

No Exposure Exclusion 05/11/2010 04/04/2015

No Exposure Exclusion 09/26/2008 04/04/2010

Links to additional data sources

ISW Online Permit Data - MNRNE33J7

Industrial Stormwater - MNRNE39DF

Status: Inactive

At industrial sites, stormwater may come into contact with harmful pollutants such as toxic metals, oil, grease and de-icing salts. Industrial stormwater permits are designed to limit the contaminants that reach surface and groundwater.

Event Start End

No Exposure Termination 04/30/2019 04/30/2019

No Exposure Exclusion 04/05/2015 04/29/2019

Links to additional data sources

ISW Online Permit Data - MNRNE39DF

-----Record 7-----

ISD 625 Washington Jr High School

Location: 1041 Marion St

Saint Paul, MN 55117

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.9727106

Longitude: -93.1100375

Coordinate collection method: Address Matching House Number

Currently active? Yes

Industry classification: Elementary and Secondary Schools

Institutional controls: No

MPCA contacts

Alternate names

Owners

Documents (0)

Activity Hazardous Waste Hazardous Waste

Hazardous Waste - MND100629070

Status: Inactive

Event Start End

Application/Notification/Registration Received 01/01/1985 01/01/1985

Links to additional data sources

HW Generator License Application Data - MND100629070

Industry classification: Automotive Repair Shops

Institutional controls: No

Activity overview

MPCA contacts

Alternate names

Owners

Documents (0)

Activity Hazardous Waste Hazardous Waste

Hazardous Waste - MND982210866

Status: Inactive

Event Start End

Application/Notification/Registration Received 12/16/2020 12/16/2020

Application/Notification/Registration Received 01/01/1985 01/01/1985

Links to additional data sources

HW Generator License Application Data - MND982210866

-----Record 9-----

Health East Rice Street Clinic

Location: 1006 Rice St

Saint Paul, MN 55117

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.9715748

Longitude: -93.1058092

Coordinate collection method: Address Matching House Number

Currently active? No

Industry classification: Offices of Physicians (except Mental Health Specialists)

Institutional controls: No

Activity overview

Activity Tanks Tanks

Underground Tanks - TS0003392

Status: Active

An underground storage tank site has at least one tank of a certain size on the premises. A tank site may have multiple tanks and these tanks may contain food products, petroleum products or other substances.

Event	Start	End
-------	-------	-----

Registration Received	09/01/1989	09/01/1989
-----------------------	------------	------------

Registration Received	05/20/1986	05/20/1986
-----------------------	------------	------------

Links to additional data sources

Tank Data - TS0003392

Underground Tanks - TS0003392

Status: Active

An underground storage tank site has at least one tank of a certain size on the premises. A tank site may have multiple tanks and these tanks may contain food products, petroleum products or other substances.

Event	Start	End
-------	-------	-----

Registration Received	09/01/1989	09/01/1989
-----------------------	------------	------------

Registration Received	05/20/1986	05/20/1986
-----------------------	------------	------------

**Blue Square Hazardous Materials Records
within 1-2 Blocks of NECC.**

-----Record 8 -----

Impact Enterprises Inc

Location: 1067 Rice St

Saint Paul, MN 55117-4920

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.9735259

Longitude: -93.1061946

Coordinate collection method: Address Matching House Number

Currently active? Yes

MPCA contacts

Alternate names

Owners

Documents (0)

Activity Hazardous Waste Hazardous Waste

Hazardous Waste - MND076489020

Status: Inactive

Event Start End

Application/Notification/Registration Received	12/29/2004	12/29/2004
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Links to additional data sources

HW Generator License Application Data - MND076489020 |

[MR1]

BUILDING PERMIT INDEX CARD

CITY OF SAINT PAUL, DEPARTMENT OF PARKS AND RECREATION AND PUBLIC BUILDINGS
BUREAU OF PUBLIC BUILDINGS



STREET Lawson W NO. 195 TYPE OF STRUCTURE Shelter WARD 8 LOT 11-20 BLOCK 2
ORIGINAL CONSTRUCTION PERMITS ADDITION Lawson & Rice Ash OWNER City of St Paul

TYPE OF PERMIT	DATE ISSUED	PERMIT NUMBER	DATE OF FINAL INSP.	CONTRACTOR	ESTIMATED COST	TYPE OF CONSTRUCTION	NO. OF STORIES	WIDTH, FEET	LENGTH, FEET
BUILDING	6/21/71	128604		Gray Ironwork Co	74,000	Masonry	1	109	62
PLASTERING							HEIGHT, FEET	AREA SQ. FT.	VOL. CU. FT.
ELECTRICAL	6/24/71	129109		Hunt Elec.	12,200		15		
PLUMBING	5/6/71	127022		Harris	9,400		TOTAL ORIGINAL COST		
HEATING STEAM & HW							COST PER CUBIC FOOT		
WARM AIR	7/23/71	130106		Northwest Co.	8580-	↓	GENERAL	MECHANICAL	ELECTRICAL
REFRIGERATION									
Gas burner	8/6/71	28198		Harris	W ² 1200				

RECORD OF ADDITIONAL PERMITS

TYPE OF PERMIT	PERMIT NUMBER	DATE ISSUED	DATE OF FINAL INSP.	OWNER	CONTRACTOR	ESTIMATED COST	TYPE OF CONSTRUCTION	PURPOSE OF WORK
Plbg	133865	10/26/71		City of St Paul	R.W. Martin	1,500		

BUILDING PERMIT INDEX CARD—CITY OF ST. PAUL DEPARTMENT OF PARKS, PLAYGROUNDS AND PUBLIC BUILDINGS—DIVISION OF BUILDING INSPECTION
W. P. A. PROJECT 465-71-3-267 WP6008

STREET Woodbridge NO. 1019 TYPE OF STRUCTURE Single WARD 142 LOT 3 BLOCK 3 ADDITION

ORIGINAL-CONSTRUCTION PERMITS OWNER E. Martin CENSUS TRACT CENSUS TRACT BLOCK

TYPE OF PERMIT	DATE ISSUED	PERMIT NUMBER	DATE LAST INSPECTION	CONTRACTOR	ESTIMATED COST	TYPE OF STRUCTURE	TYPE OF CONSTRUCTION	12/31/22 E. Martin											
BUILDING	11-3 1922	89162	4-1 1923	Adam Cuthman	6100	BLS 1	TC 2200	NO. OF STORIES	WIDTH, FEET	LENGTH, FEET	HEIGHT, FEET	FLOORSPACE							
								1	26	38	—								
PLASTER- ING								INTERIOR LATH	EXTERIOR PLASTER	EXTERIOR LATH									
Wrecked 7-28-69 Permit #102964								TYPE OF WORK DONE											
ELECTRICAL								CODE	NO.	CODE	NO.	CODE	NO.	CODE	NO.	CODE	NO.		
HEATING STEAMFITTING	11-3 1922	89162	4-1 1923	—	—	BLS 1	TC 2200	HSA 2											
WARMAIR																			
PLUMBING								CODE	NO.	LO.	CODE	NO.	LO.	CODE	NO.	LO.	CODE	NO.	LO.
ELEVATOR								TYPE	POWER	NO. OF CARS	NO. OF LDGS.								
AGE OF BUILDING AS OF JANUARY 1, 1939				TOTAL ESTIMATED COST OF BUILDING															

BUILDING PERMIT INDEX CARD—CITY OF ST. PAUL DEPARTMENT OF PARKS, PLAYGROUNDS AND PUBLIC BUILDINGS—DIVISION OF BUILDING INSPECTION

10

TYPE OF PERMIT	DATE ISSUED	PERMIT NUMBER	DATE LAST INSPECTION	CONTRACTOR	ESTIMATED COST			TYPE OF STRUCTURE	TYPE OF CONSTRUCTION	11/14/23 <i>X Briffel</i>											
BUILDING	11-14 1923	6236	5-20 1924	—	4500			BLS 1	TC 1100	NO. OF STORIES 1 1/2	WIDTH, FEET 26	LENGTH, FEET 36	HEIGHT, FEET 26	FLOORSPACE							
PLASTERING										INTERIOR LATH		EXTERIOR PLASTER		EXTERIOR LATH							
										TYPE OF WORK DONE											
ELECTRICAL										CODE	NO.	CODE	NO.	CODE	NO.	CODE	NO.	CODE	NO.		
HEATING STEAMFITTING																					
WARMAIR	11-14 1923	6236	5-20 1924	—				BLS 1	TC 1100	HWA 5											
PLUMBING										CODE	NO.	LO.	CODE	NO.	LO.	CODE	NO.	LO.	CODE	NO.	LO.
ELEVATOR										TYPE		POWER		NO. OF CARS		NO. OF LDGS.					
AGE OF BUILDING AS OF JANUARY 1, 1939				TOTAL ESTIMATED COST OF BUILDING																	

RECORD OF SUB-PERMITS

TYPE OF PERMIT	PERMIT NUMBER	DATE ISSUED	DATE LAST INSPECTION	OWNER	CONTRACTOR	ESTIMATED COST		TYPE STRUCTURE	TYPE CON-STRUCT'N	PURPOSE OF PERMIT	TYPE OF WORK					
											CODE	NO.	CODE	NO.	CODE	NO.
Bld	23427	7-9-30	10-14-30	J. Purpice	F. Wozniak	150		Bldg	TC	Rep	BD					
Bld	35496	4-26-30	4-26-30	J. Purpice	F. Wozniak	150		Bldg	TC	Rep	BD					
Elec	50761	4-11-30	4-11-30	J. Purpice	J. Conrath	-		Bldg	TC	Rep	BD					
Elec	50475	4-22-30	4-22-30	J. Purpice	J. Conrath	-		Bldg	TC	Rep	BD					
Bldg	46050	6-1-35	-	J. Saifels	Frank Wozniak	190		Bldg	TC	Rep	BD					
Bldg	108377	10-15-35	-	J. Saifels	K. Sundquist	230		Bldg	TC	Rep	BD					

BUILDING PERMIT INDEX CARD—CITY OF ST. PAUL DEPARTMENT OF PARKS, PLAYGROUNDS AND PUBLIC BUILDINGS—DIVISION OF BUILDING INSPECTION

W. P. A. PROJECT 465-71-3-267 WP6008

STREET Free NO. 1025 TYPE OF STRUCTURE Shelter House WARD 2nd LOT 3 BLOCK 142 ADDITION Lawson +

ORIGINAL-CONSTRUCTION PERMITS OWNER City of St. Paul CENSUS TRACT Rein CENSUS TRACT BLOCK Rein

TYPE OF PERMIT	DATE ISSUED	PERMIT NUMBER	DATE LAST INSPECTION	CONTRACTOR	ESTIMATED COST		TYPE OF STRUCTURE	TYPE OF CONSTRUCTION	NO. OF STORIES					WIDTH, FEET	LENGTH, FEET	HEIGHT, FEET	FLOORSPACE			
BUILDING	1-25 35	41820	-	-	8000		BLS 9	TE 1100	1					24	50	8				
PLASTER-ING									INTERIOR LATH					EXTERIOR PLASTER		EXTERIOR LATH				
									TYPE OF WORK DONE											
									CODE	NO.	CODE	NO.	CODE	NO.	CODE	NO.	CODE	NO.		
ELECTRICAL	8-15 35	49246	-	J. B. Jorgenson	296		BLS 9	TE 1100	EWC 5		EAG 1		EB 2	29	EB 3	37	EB 4	10		
HEATING STEAMFITTING									EDT 47											
WARMAIR																				
PLUMBING									CODE	NO.	LO.	CODE	NO.	LO.	CODE	NO.	LO.	CODE	NO.	LO.
ELEVATOR									TYPE		POWER		NO. OF CARS		NO. OF LDGS.					
AGE OF BUILDING AS OF JANUARY 1, 1939				TOTAL ESTIMATED COST OF BUILDING																

RECORD OF SUB-PERMITS

[illegible]

BUILDING PERMIT INDEX CARD—CITY OF ST. PAUL DEPARTMENT OF PARKS, PLAYGROUNDS AND PUBLIC BUILDINGS—DIVISION OF BUILDING INSPECTION

STREET RICE ST NO. 1032 TYPE OF STRUCTURE Playground Shelter WARD — LOT — BLOCK 102 ADDITION Newton &

ORIGINAL-CONSTRUCTION PERMITS OWNER City of St. Paul CENSUS TRACT — CENSUS TRACT BLOCK —

TYPE OF PERMIT	DATE ISSUED	PERMIT NUMBER	DATE LAST INSPECTION	CONTRACTOR	ESTIMATED COST			TYPE OF STRUCTURE	TYPE OF CONSTRUCTION												
BUILDING	11/23/25	19058	—	—		1500		BLS 18	Tc 1100	NO. OF STORIES	WIDTH, FEET	LENGTH, FEET	HEIGHT, FEET	FLOORSPACE							
PLASTERING										INTERIOR LATH	EXTERIOR PLASTER	EXTERIOR LATH									
										TYPE OF WORK DONE											
ELECTRICAL										CODE	NO.	CODE	NO.	CODE	NO.	CODE	NO.	CODE	NO.		
HEATING																					
STEAMFITTING																					
WARMAIR																					
PLUMBING										CODE	NO.	LO.	CODE	NO.	LO.	CODE	NO.	LO.	CODE	NO.	LO.
ELEVATOR										TYPE		POWER		NO. OF CARS		NO. OF LDGS.					
AGE OF BUILDING AS OF JANUARY 1, 1939				TOTAL ESTIMATED COST OF BUILDING																	

Findings and Conclusions

1. The City of Saint Paul has owned and managed the project area for parks and recreation open space use with baseball and softballs field with turf area temporary striping for football in the fall since the 1920s. Over the years of ownership and site control, the City of Saint Paul did not determine that a Phase I Environmental Site Assessment (ESA) was necessary for completion given the low likelihood of soil or groundwater contamination from the known history of land uses.
2. PED does not believe a Phase I ESA is required based on the following conclusions:
 - a. On site investigations of existing conditions did not present any evidence or point to any likely contamination with visual inspection.
 - b. Historical Sanborn Insurance Maps indicate only known prior uses to be residential and a public park building(s) and public parks and open space. The western portion of the 5.9 +/- acre site was historically a park playground, adjacent to the George Washington High School as provided in the excerpt of the 1927 map provided in figure 3.
 - c. This historic map and records review of land use does not show us any evidence of tanks or buildings or infrastructure or encumbrances from commercial or industrial structures that may trigger a requirement for a Phase I ESA. See figures 1-4 and building permit index card copies as attachments.
 - d. The Sanborn Insurance maps do not show any land encumbrance with location of underground tanks for gasoline or notations of hazardous materials. As this is an Insurance Map, it would have illustrated, documented and note those features if they existed. This insurance map was updated through the late 1950s.
 - e. PED investigated the structures provided on these maps by pulling building construction permit index cards to very uses or observe any evidence of commercial or industrial buildings, to look for anything concerning. Nothing was found in these building permit records that lead us to believe the project area hosted any commercial or industrial businesses.
3. PED does not have concerns for any of the identified brown field sites within the 0.5 miles buffer as provided by the EPA and MPCA inventory and spatial analysis tools. Map figure 6 provides the spatial relationship between the NECC project site with MPCA regulated sites, identifying known past spill events or sites that were required to participate in investigation and cleanup programs. The existence, location, and pattern of four purple dots, three yellow and black dotted circles, and two blue squares within the immediate vicinity of the project indicate the historical or current present of hazardous waste sites along Rice Street primarily, but are also managed within school operations. With review of the MPCA records for these sites, none of these sites or business entities are a concern with recommended follow up or mitigation. The reasons include older dates of a small historical spill events with fieldwork date for remediation, older dates of MPCA program documentation, current compliance registrations and licensure within business entities on record, inactive site status listings, and consistent close-out dates for each of these records. In each case of a currently active generators of hazardous waste operation near the NECC, the nature of the industry or business is that of a limited quantity hazardous waste generator, considered acceptable. Depending on the substance or material there may have varying degree of industry standards and regulations, HAZMAT, or OSHA rules, depending on the material or substance.
4. The NEPA Assist Report in table 1 provides that there are no Superfund sites within 0.5 miles of the NECC.
5. PED concludes that the potential for gas leak, oil or gas spill with anticipated negative environmental impacts is low, as the facilities with toxic chemicals near the project site (within 1--2 blocks) are registered as low quantity generators of hazardous waste, considered acceptable by HUD. The potential risk of environmental and health impacts from these identified operations on occupants of the NECC program from sources of site contamination or nearby neighboring hazardous waste generators, is low.



To: HUD Regional Field Office

CC: City of Saint Paul Parks and Recreation Department

Re. North End Community Center project compliance with Section 7 of the Endangered Species Act.

Paul Sawyer, Management Assistant, City of Saint Paul, Parks and Recreation department, initiated consultation with the Department of Interiors Fish and Wildlife Service online for the project by utilizing the Information for Planning and Consultation (IPAC) portal to define the project, action area, and retrieve data. The project location itself is within a built-out urban core, completely surrounded by a busy street and situated to serve a school and library users as well as other residents and visitors.

The project is in compliance with the Endangered Species Act of 1973 (ESA). There are no direct or indirect takings of species or critical habitat for protected listed species. The 5.9 +/- acre park was maintained as turf grass with sand and other materials and structures for a baseball diamond and other softball fields for decades. There are no significant tree stands being removed, wetlands, or areas with significant biodiversity within the action area.

The Minnesota-Wisconsin Ecological Service Field Office concurred with these findings for the NECC for key species determinations made for the North End Community Center project to the satisfaction of Section 7(a)(2) on April 21, 2023.

Species	Listing Status	Determination
Higgins Eye (pearlymussel) (<i>Lampsilis higginsii</i>)	Endangered	No effect
Monarch Butterfly (<i>Danaus plexippus</i>)	Candidate	No effect
Rusty Patched Bumble Bee (<i>Bombus affinis</i>)	Endangered	No effect
Tricolored Bat (<i>Perimyotis subflavus</i>)	Proposed	No effect
Whooping Crane (<i>Grus americana</i>)	Endangered	No effect
	Experimental	No effect
	Population, Non-Essential	

No Effect Determination:

This project will have No Effect on listed species because there are no listed species or designated critical habitats in the defined project area of action. See the letter attached by the USFWS IPAC consultation initiated on the 'North End Community Center' project, making key determinations of no effect for 5 specified threatened and endangered species that may occur in the proposed project location, consistent with the Minnesota-Wisconsin Endangered Species Determination Key, dated April 21, 2023. This project is in compliance with the Endangered Species Act.

Mitigation Determination: There are no required strategies for the project to mitigate impacts on threatened or endangered species.

Marilyn Rosendahl, Senior Planner, Environmental Review Officer, 5/11/23

Enclosure. USFWS Minnesota-Wisconsin Ecological Field Services



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793 Fax: (952) 646-2873



In Reply Refer To:
Project code: 2023-0072615
Project Name: North End Community Center

April 21, 2023

Subject: Consistency letter for 'North End Community Center' for specified threatened and endangered species that may occur in your proposed project location consistent with the Minnesota-Wisconsin Endangered Species Determination Key (Minnesota-Wisconsin DKey).

Dear Paul Sawyer:

The U.S. Fish and Wildlife Service (Service) received on **April 21, 2023** your effect determination(s) for the 'North End Community Center' (Action) using the Minnesota-Wisconsin DKey within the Information for Planning and Consultation (IPaC) system. You have submitted this key to satisfy requirements under Section 7(a)(2). The Service developed this system in accordance of with the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 et seq.).

Based on your answers and the assistance of the Service's Minnesota-Wisconsin DKey, you made the following effect determination(s) for the proposed Action:

Species	Listing Status	Determination
Higgins Eye (pearlymussel) (<i>Lampsilis higginsii</i>)	Endangered	No effect
Monarch Butterfly (<i>Danaus plexippus</i>)	Candidate	No effect
Rusty Patched Bumble Bee (<i>Bombus affinis</i>)	Endangered	No effect
Tricolored Bat (<i>Perimyotis subflavus</i>)	Proposed	No effect
	Endangered	
Whooping Crane (<i>Grus americana</i>)	Experimental	No effect
	Population, Non-Essential	

Determination Information

Thank you for informing the Service of your "No Effect" determination(s). Your agency has met consultation requirements and no further consultation is required for the species you determined will not be affected by the Action.

Additional Information

Sufficient project details: Please provide sufficient project details on your project homepage in IPaC (Define Project, Project Description) to support your conclusions. Failure to disclose important aspects of your project that would influence the outcome of your effects determinations may negate your determinations and invalidate this letter. If you have site-specific information that leads you to believe a different determination is more appropriate for your project than what the Dkey concludes, you can and should proceed based on the best available information.

Future project changes: The Service recommends that you contact the Minnesota-Wisconsin Ecological Services Field Office or re-evaluate the project in IPaC if: 1) the scope or location of the proposed Action is changed; 2) new information reveals that the action may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the Action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project changes are final or resources committed.

For non-Federal representatives: Please note that when a project requires consultation under section 7 of the Act, the Service must consult directly with the Federal action agency unless that agency formally designates a non-Federal representative (50 CFR 402.08). Non-Federal representatives may prepare analyses or conduct informal consultations; however, the ultimate responsibility for section 7 compliance under the Act remains with the Federal agency. Please include the Federal action agency in additional correspondence regarding this project.

Species-specific information

Freshwater Mussels: Freshwater mussels are one of the most critically imperiled groups of organisms in the world. In North America, 65% of the remaining 300 species are vulnerable to extinction (Haag and Williams 2014). Implementing measures to conserve and restore freshwater mussel populations directly improves water quality in lakes, rivers, and streams throughout Minnesota and Wisconsin. An adult freshwater mussel filters anywhere from 1 to 38 gallons of water per day (Baker and Levinton 2003, Barnhart pers. comm. 2019). A 2015 survey found that in some areas, mussels can reduce the bacterial populations by more than 85% (Othman et al. 2015 in Vaughn 2017). Mussels are also considered to be ecosystem engineers by stabilizing substrate and providing habitat for other aquatic organisms (Vaughn 2017). In addition to ecosystem services, mussels play an important role in the food web, contributing critical nutrients to both terrestrial and aquatic habitats, including those that support sport fish (Vaughn 2017). Taking proactive measures to conserve and restore freshwater mussels will improve water quality, which has the potential to positively impact human health and recreation in the States of Minnesota and Wisconsin.

You have indicated that your Action will have no effect (NE) on Federally listed mussel species. However, state-listed mussels may occur in your Action area. Contact the Minnesota or Wisconsin Department of Natural Resources to determine effects to state-listed mussels.

Bald and Golden Eagles: Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (Eagle Act). The Eagle Act prohibits, except when authorized by an Eagle Act permit, the “taking” of bald

and golden eagles and defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The Eagle Act’s implementing regulations define disturb as “... to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

If you observe a bald eagle nest in the vicinity of your proposed project, you should follow the National Bald Eagle Management Guidelines (May 2007). For more information on eagles and conducting activities in the vicinity of an eagle nest, please visit our regional eagle website or contact Margaret at Margaret_Rheude@fws.gov. **If the Action may affect bald or golden eagles, additional coordination with the Service under the Eagle Act may be required.**

Coordination with the Service is not complete if additional coordination is advised above for any species.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

North End Community Center

2. Description

The following description was provided for the project 'North End Community Center':

Construction of new community center and renovation of surrounding park

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.972650400000006,-93.1078729,14z>



QUALIFICATION INTERVIEW

1. This determination key is intended to assist the user in evaluating the effects of their actions on Federally listed species in Minnesota and Wisconsin. It does not cover other prohibited activities under the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other statutes. Additionally, this key DOES NOT cover wind development, purposeful take (e.g., for research or surveys), communication towers that have guy wires or are over 450 feet in height, aerial or other large-scale application of any chemical (such as insecticide or herbicide), and approval of long-term permits or plans (e.g., FERC licenses, HCP's).

Click **YES** to acknowledge that you must consider other prohibitions of the ESA or other statutes outside of this determination key.

Yes

2. Is the action the approval of a long-term (i.e., in effect greater than 10 years) permit, plan, or other action?

No

3. Is the action being funded, authorized, or carried out by a Federal agency?

Yes

4. Are you the Federal agency or designated non-federal representative?

No

5. Does the action involve the installation or operation of wind turbines?

No

6. Does the action involve purposeful take of a listed animal?

No

7. Does the action involve a new communications tower?

No

8. Does the activity involve aerial or other large-scale application of ANY chemical, including pesticides (insecticide, herbicide, fungicide, rodenticide, etc)?

No

9. Does the action occur near a bald eagle nest?

Note: Contact the Minnesota or Wisconsin Department of Natural Resources for an up-to-date list of known bald eagle nests.

No

10. Will your action permanently affect local hydrology?

No

11. Will your action temporarily affect local hydrology?

No

12. Will your project have any direct impacts to a stream or river (e.g., Horizontal Directional Drilling (HDD), hydrostatic testing, stream/road crossings, new stormwater outfall discharge, dams, other in-stream work, etc.)?

No

13. Does your project have the potential to impact the riparian zone or indirectly impact a stream/river (e.g., cut and fill; horizontal directional drilling; construction; vegetation removal; pesticide or fertilizer application; discharge; runoff of sediment or pollutants; increase in erosion, etc.)?

Note: Consider all potential effects of the action, including those that may happen later in time and outside and downstream of the immediate area involved in the action.

Endangered Species Act regulation defines "effects of the action" to include all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (50 CFR 402.02).

No

14. Will your action disturb the ground or existing vegetation?

Note: This includes any off-road vehicle access, soil compaction (enough to collapse a rodent burrow), digging, seismic survey, directional drilling, heavy equipment, grading, trenching, placement of fill, pesticide application (herbicide, fungicide), vegetation management (including removal or maintenance using equipment or prescribed fire), cultivation, development, etc.

Yes

15. Will your action include spraying insecticides?

No

16. Does your action area occur entirely within an already developed area?

Note: Already developed areas are already paved, covered by existing structures, manicured lawns, industrial sites, or cultivated cropland, AND do not contain trees that could be roosting habitat. Be aware that listed species may occur in areas with natural, or semi-natural, vegetation immediately adjacent to existing utilities (e.g. roadways, railways) or within utility rights-of-way such as overhead transmission line corridors, and can utilize suitable trees, bridges, or culverts for roosting even in urban dominated landscapes (so these are not considered "already developed areas" for the purposes of this question). If unsure, select NO..

Yes

17. Does the action have potential indirect effects to listed species or the habitats they depend on (e.g., water discharge into adjacent habitat or waterbody, changes in groundwater elevation, introduction of an exotic plant species)?

No

18. [Hidden Semantic] Does the action area intersect the monarch butterfly species list area?

Automatically answered

Yes

19. [Hidden semantic] Does the action intersect the Tricolored bat species list area?

Automatically answered

Yes

IPAC USER CONTACT INFORMATION

Agency: St. Paul city
Name: Paul Sawyer
Address: 25 W 4th St
Address Line 2: CHA 400
City: Saint Paul
State: MN
Zip: 55102
Email: paul.sawyer@ci.stpaul.mn.us
Phone: 6512666417

LEAD AGENCY CONTACT INFORMATION

Lead Agency: National Park Service



SAINT PAUL
PLANNING & ECONOMIC
DEVELOPMENT

DEPARTMENT OF PLANNING & ECONOMIC DEVELOPMENT
NICOLLE GOODMAN, DIRECTOR

City Hall Annex, 25 West 4th Street, Suite 1300
Saint Paul, MN 55102
Tel: 651-266-6565

April 29, 2023

Environmental Assessment for the North End Community Center Explosive and Flammable Hazards Compliance 24 CFR Part 51 Subpart C

PED understands that there are inherent potential dangers associated with locating HUD-assisted projects near hazardous facilities which store, handle, or process hazardous substances of a flammable or explosive nature. Project sites located too close to facilities handling, storing or processing conventional fuels, hazardous gases or chemicals of an explosive or flammable nature may expose occupants or end-users of a project to the risk of injury in the event of a fire or an explosion. To address this risk, regulations at 24 CFR Part 51 Subpart C require HUD-assisted projects to be separated from these facilities by a distance that is based on the contents and volume of the aboveground storage tank, or to implement mitigation measures.

The following methods and findings show that the City of Saint Paul Planning and Economic Development (PED) department, Environmental Review team has concluded that the North End Community Center (NECC) is in compliance with 24 CFR Part 51 Subpart C. The findings which support this conclusion are illustrated in maps 8 (a-g) and the interpretation of MPCA data. The existence of above-ground tanks has been evaluated to make a determination of compliance, given the location and proximity of the tanks to the proposed HUD-assisted project site.

Current and future land use is a key factor with residential projects being more sensitive to risk with permanent housing bringing in new residential populations as opposed to more short-term mobile populations using the NECC that may vary by season and program offerings. Evaluation of above-ground tanks are required for both residential and commercial projects, but the methods and standards for compliance differ depending on the nature of the project.

According to the Minnesota Pollution Control Agency (MPCA) data, the City of Saint Paul has 8 properties with tanks (both above and below ground) symbolized by red triangles in Figure 8 below. These tanks are within 1-mile of the NECC project site.

Figure 8 MPCA data within 1-mile buffer of NECC site showing all known above and below ground storage tanks (red triangles)

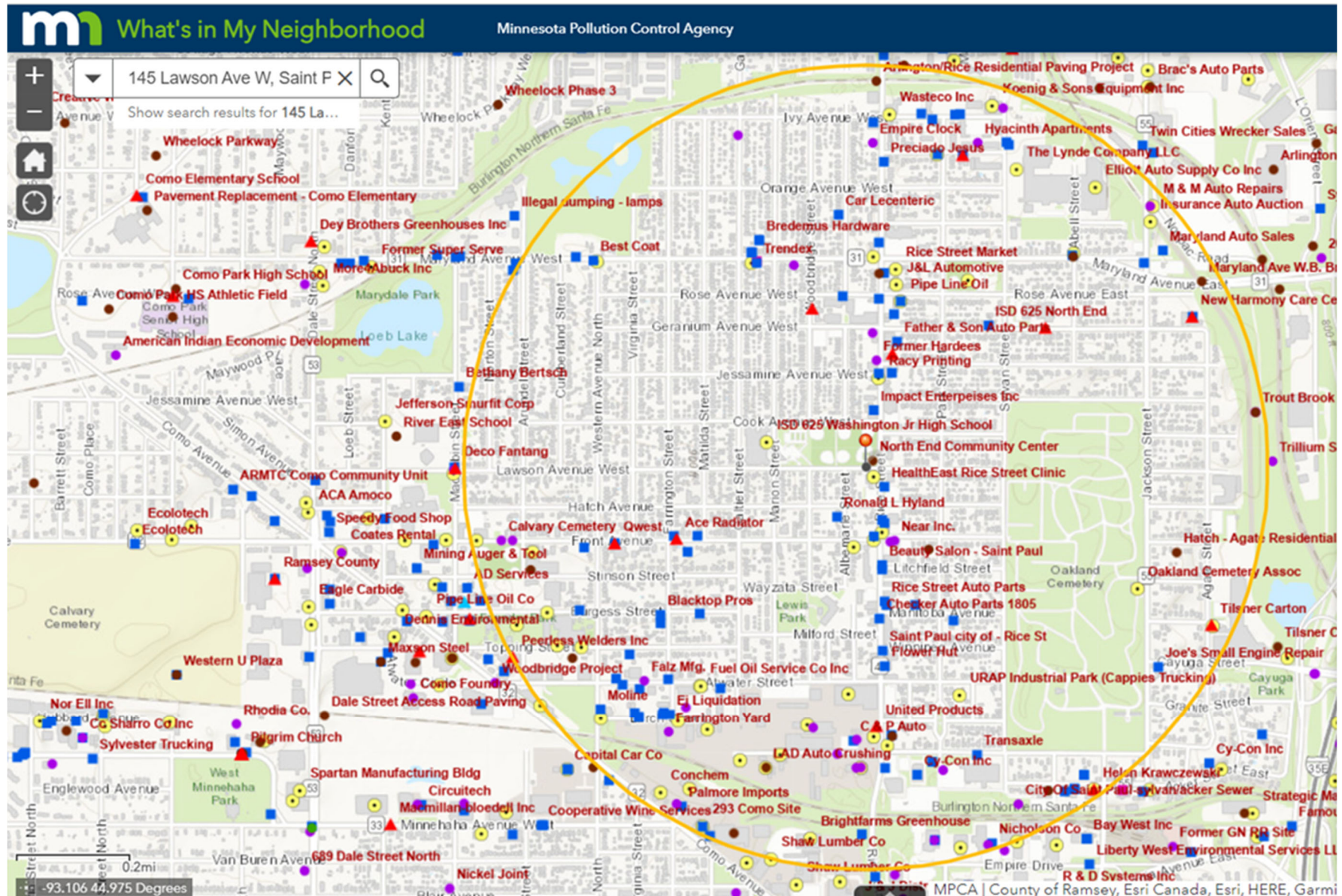
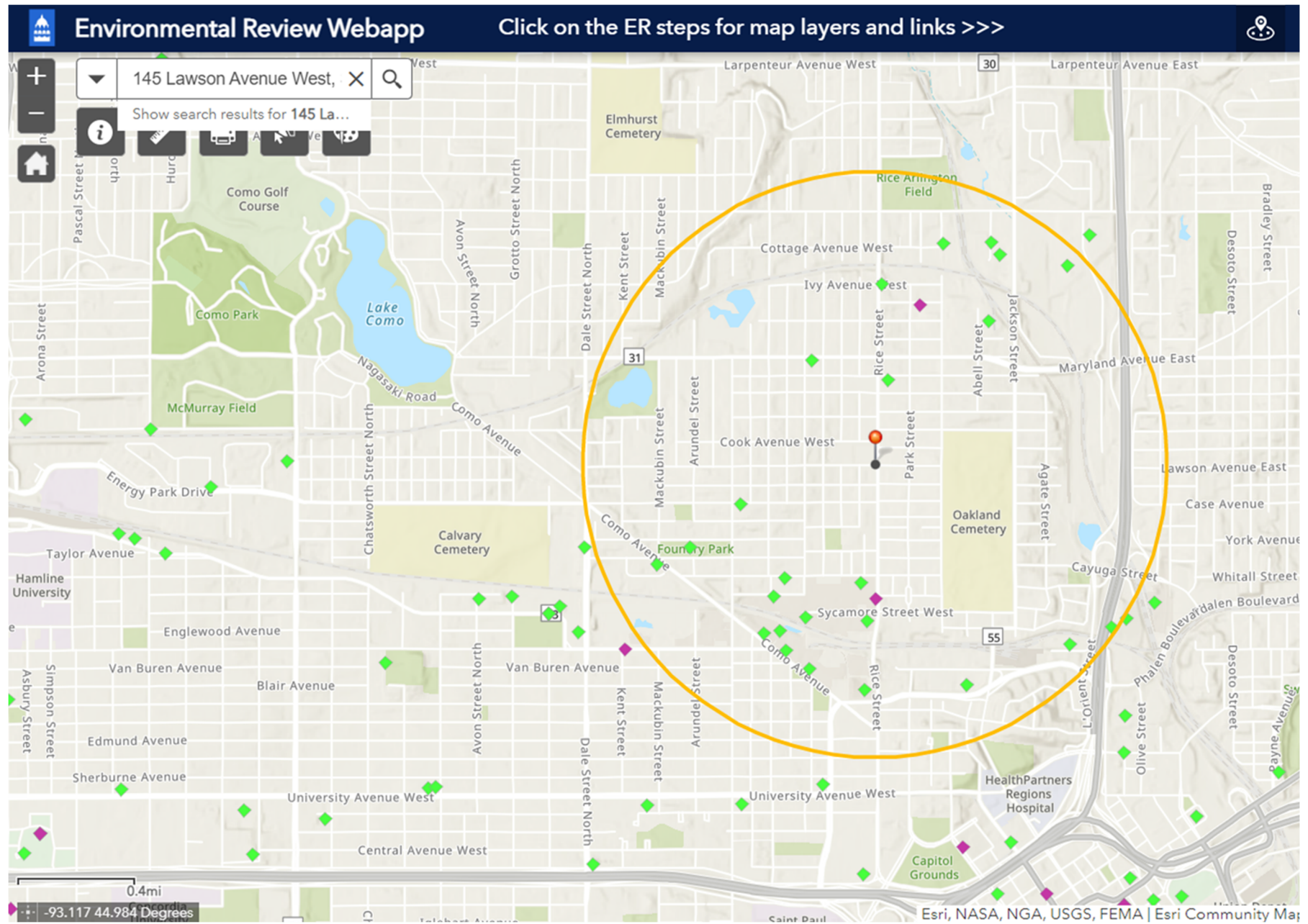


Figure 8 (a) Properties storing fuel above-ground within 1 mile of North End Community Center project, MPCA Data



Research, Mapping, Distance Calculations, and Risk Assessment Methods

Correspondence with a licensed engineer is not required for this project because the project is not in itself proposing the storage or operation of flammable, explosive, or hazardous materials. The project itself is not a hazardous waste facility.

The City of Saint Paul's Planning and Economic Development Department research, mapping and Environmental Review team can refine MPCA tank data by identifying and displaying only above-ground tanks. Our symbology provides the location of these above ground tanks with a purple dot on our Environmental Review mapping application. See the results in Figure 8 (a) with two property / business records to review further with examination and interpretation of any risk of above ground tank storing flammable or explosive materials.

According to HUD WISER training methods, given that the proposed land use is non-residential for the entire project, it is not subject to the requirement of calculation of Acceptable Separation Distance tool for the two ground tanks located within one mile. For the Environmental Assessment we are required to evaluate and document this review of compliance for flammable and explosive hazards. Figures 8(a-f) provide the research and mapping methods to document the City of Saint Paul's efforts to evaluate any risk in public safety as pertains to flammable and explosive hazards planning or mitigation.

Underground tanks do not pose the same explosive and flammable hazards impact threat to human health and are therefore not the subject of this investigation. These other toxic hazard threats to human health is managed through a number of hazardous waste, toxics contamination, petroleum-leaks or other hazard specific compliance legal requirements. See compliance factor 6 for additional information on the other MPCA data points illustrated within the mile buffer to evaluate contamination and toxic substances requirements.

Above-Ground Storage Tanks within 1 Mile of the North End Community Center

Mn Pollution Control data was evaluated for content as well as spatial distribution, facts, and relationship to the NECC, Following you will find the status of the registration of each above ground tank, the number of tanks at a business / address, product or contents stored (liquid or gas), the property location that the tanks are on, business entity name, tank registration dates, and active status updates.

-----Record 1-----

Jack Carricks Minnesota Repair Inc

Location: 70 Hyacinth Ave W

Saint Paul, MN 55117-4501

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.9800199

Longitude: -93.1029845

Coordinate collection method: Address Matching House Number

Currently active? Yes

Institutional controls: No

Aboveground Tanks - TS0055455

Status: Active

An aboveground storage tank site has at least one tank of a certain size on the premises. A tank site may have multiple tanks and these tanks may contain food products, petroleum products or other substances.

Registration Received 10/27/1997 10/27/1997

Tank Data - TS0055455:

Jack Carricks Minnesota Repair Inc

Site ID TS0055455

Location 70 Hyacinth Ave W

Saint Paul, MN 55117-4501

Ramsey County

Tank Count 1 tanks are (or were) located at this site.

Tank number	Install date	Registration date	Tank capacity	Tank status	Stored product	Above or underground
1001	06/01/1996	10/27/1997	250	Active	Used Oil	Aboveground

Figure 8(b) Location of above ground tank at 70 Hyacinth Avenue W in the North End

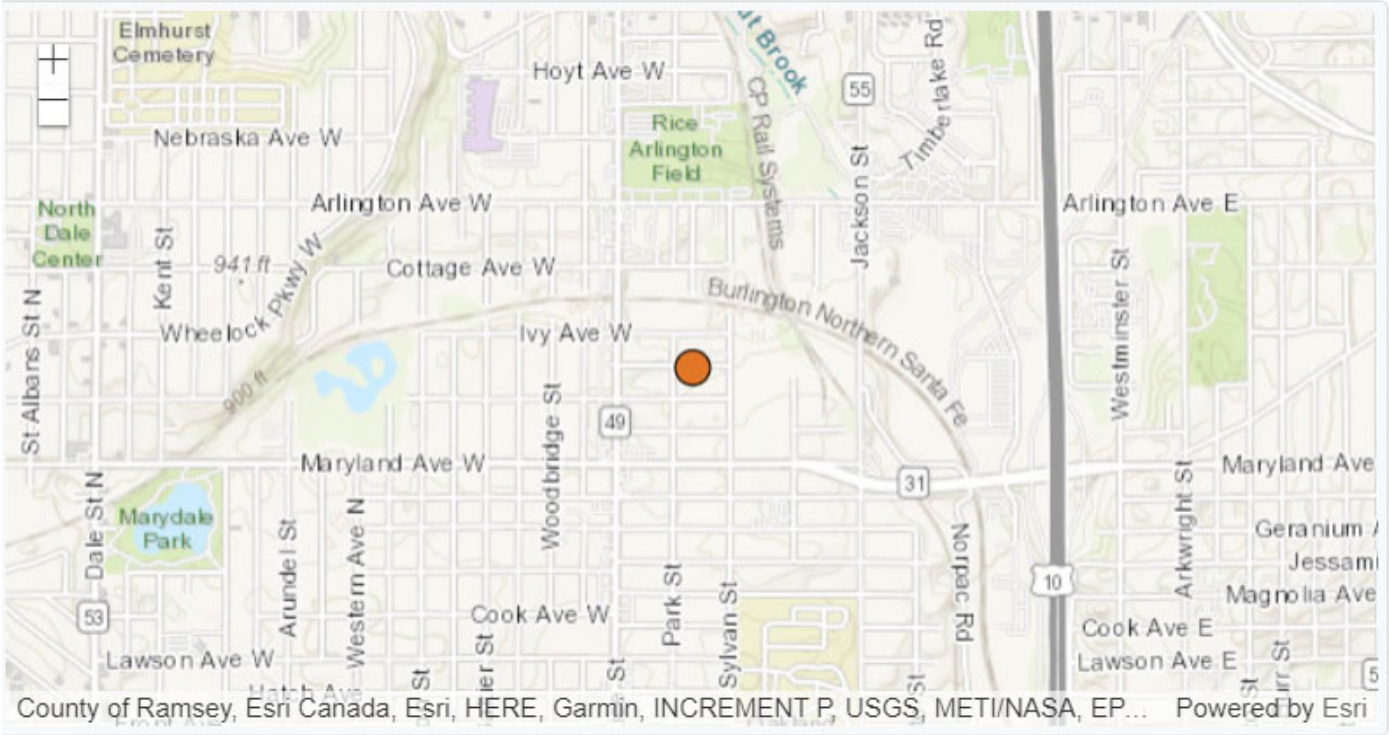
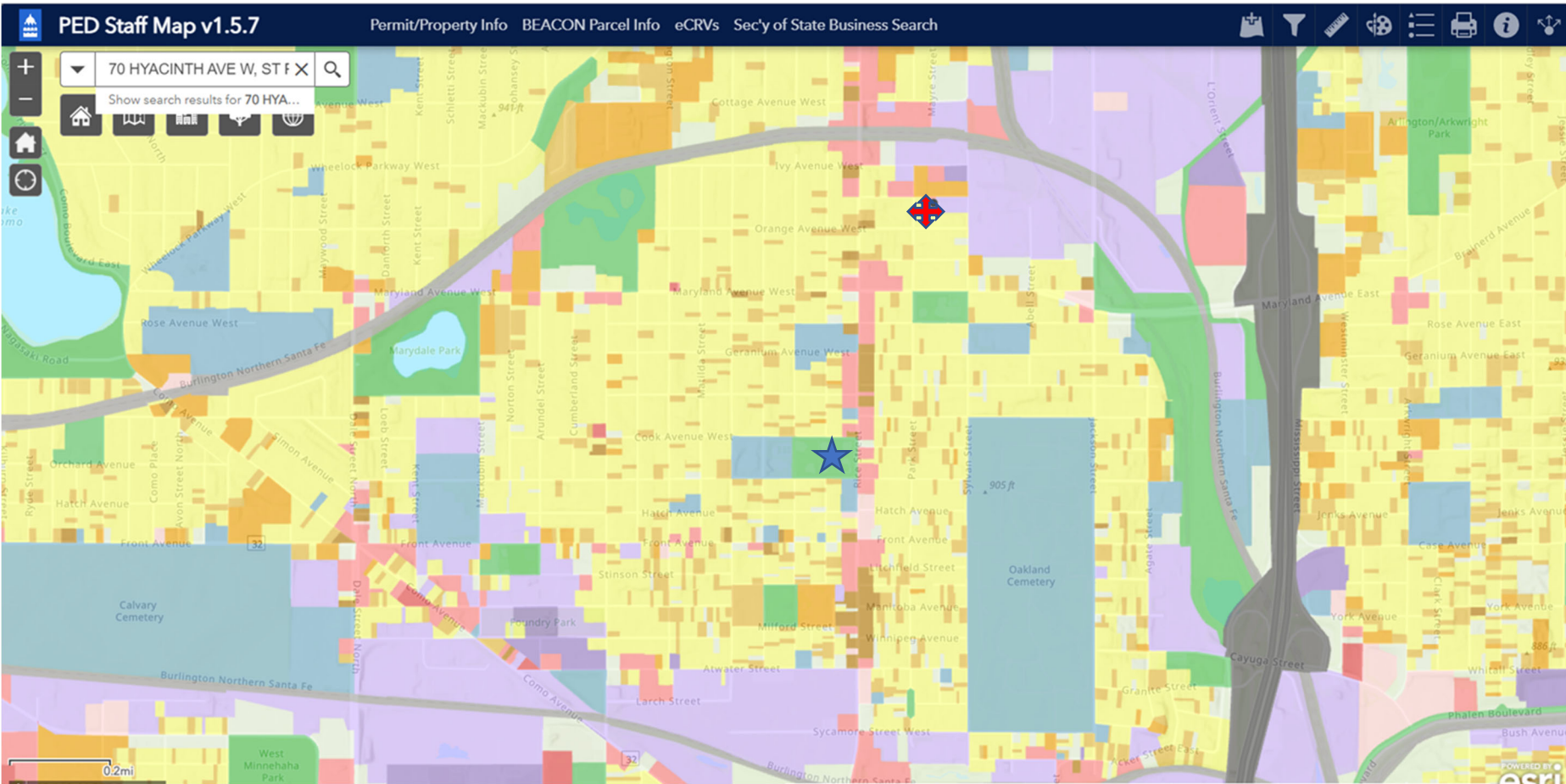


Figure 8(c) Current Land Use between the NECC (star) And the above ground used oil storage tank for Jack Carrick’s Minnesota Repair, Inc. (red cross)



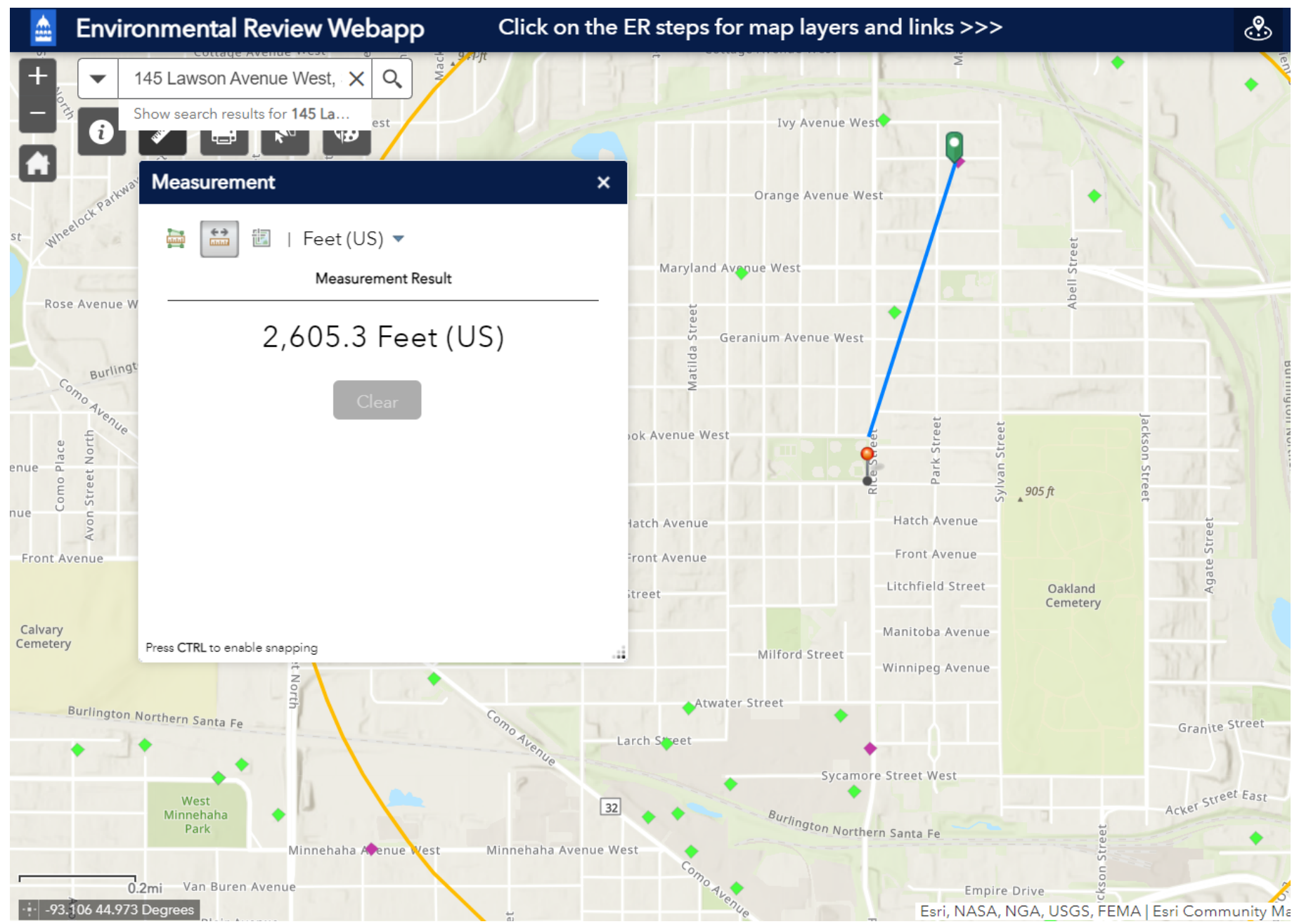
Evaluation of Distance and Current Land Use Between the NECC and Existing Above-Ground Tanks

While the ASD tool results are not required to be submitted for this project, best practices include looking at the approximate distance from the above-ground tank and the project site. In this case we find the distance to be approximately 2,605.3 feet (as the crow flies) from the tank at 70 Hyacinth Ave. W. to the NE edge of the park at the Rice and Cook intersection.

Current land uses between these two points shows ~ 7 blocks of residential, commercial, office and other land uses with associated structures erected on most lots. These structures would absorb the blast, shrapnel and heat of an explosion or fire event first, likely sheltering the public at the NECC from any major impacts. This is a much different context than if the above-ground tank were located immediately adjacent to the project site.

For the second set of tanks storing diesel fuel, to the south of the NECC, in the industrial district at 801 Rice Street, we see a slightly shorter distance of 2,413 ft. from these two points in comparison to Record 1. Within the blocks between the NECC and the two diesel tanks at United Products in the industrial district, we see existing retail, office, mixed-use residential, residential, and civic / commercial land uses with structures that would be the first physical elements to be impacted in the event of a fire or explosion near the above ground storage tank and would absorb part of the heat, energy and potential debris. With this, PED concludes that there is no immediate or eminent threat to the public for use of the park for indoor or outdoor recreation NECC project.

Figure 8(d) Distance Calculation and Analysis of Structural Obstacles Between Tanks and Project Site in Event of a Fire or Explosive Event



United Products

Location: **801 Rice St**

Saint Paul, MN 55117

Ramsey County

Watershed: Mississippi River - Twin Cities (07010206)

Latitude: 44.9654742

Longitude: -93.1060823

Coordinate collection method: Digitized - MPCA internal map

Currently active? **Yes**

Institutional controls: **No**

Aboveground Tanks - TS0125712

Status: Active

An aboveground storage tank site has at least one tank of a certain size on the premises. A tank site may have multiple tanks and these tanks may contain food products, petroleum products or other substances.

Registration Received **05/02/2012** **05/02/2012**

Tank Data - TS0125712

United Products

Site ID TS0125712

Location: 801 Rice St

Saint Paul, MN 55117

Ramsey County

Tank Count: 2 tanks are (or were) located at this site.

Tank number	Install date	Registration date	Tank capacity	Tank status	Stored product	Above or underground
1001	06/01/1999	05/02/2012	5000	Active	Diesel Fuel	Aboveground
1002	06/01/1999	05/02/2012	5000	Active	Diesel Fuel	Aboveground

Figure 8 (e) shows the location of the other above-ground storage tank in the North End, within one mile of the NECC at 801 Rice St.

Figure 8 (e) Above Ground Storage Tank at 801 Rice Street, United Products

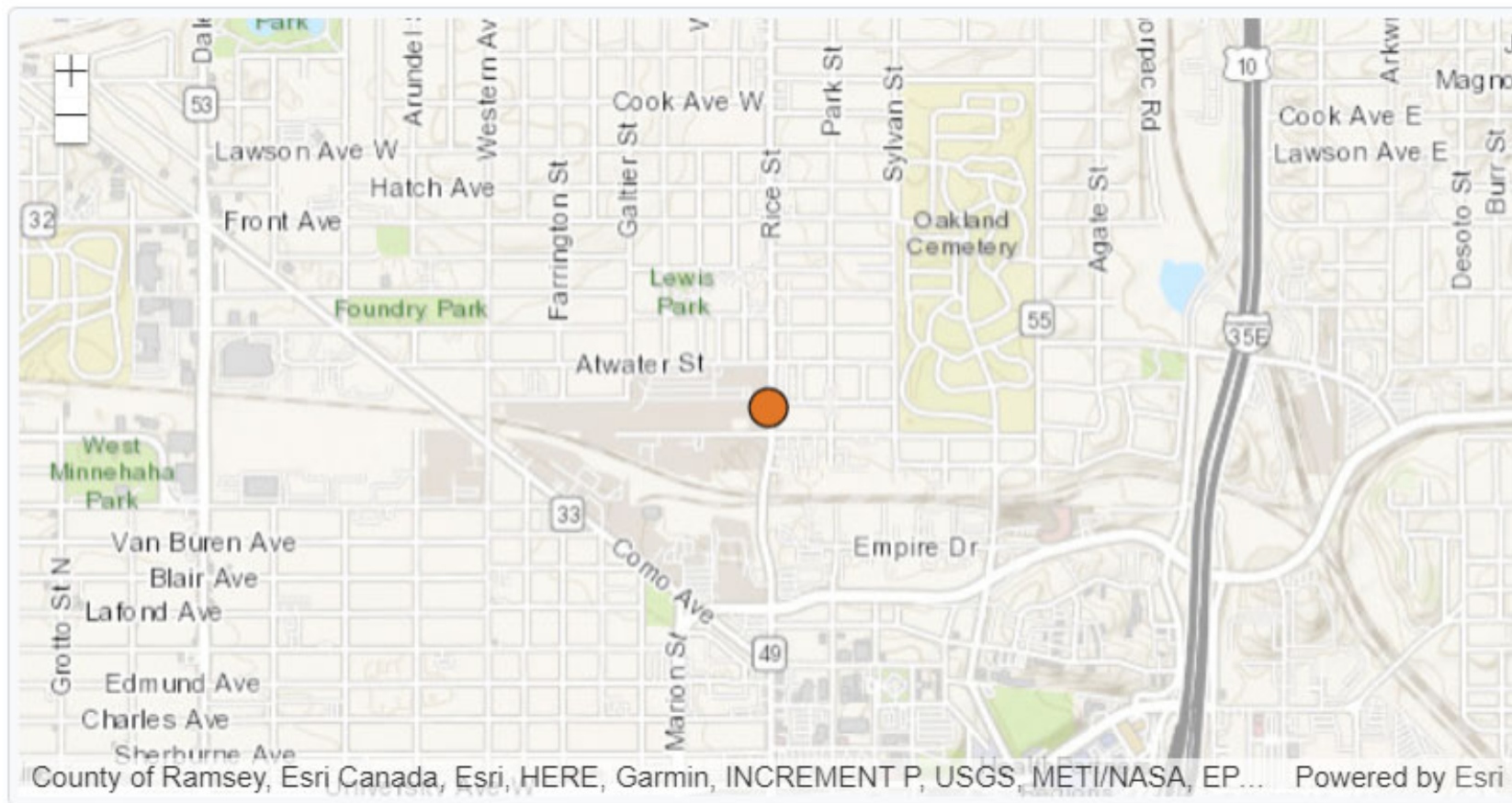
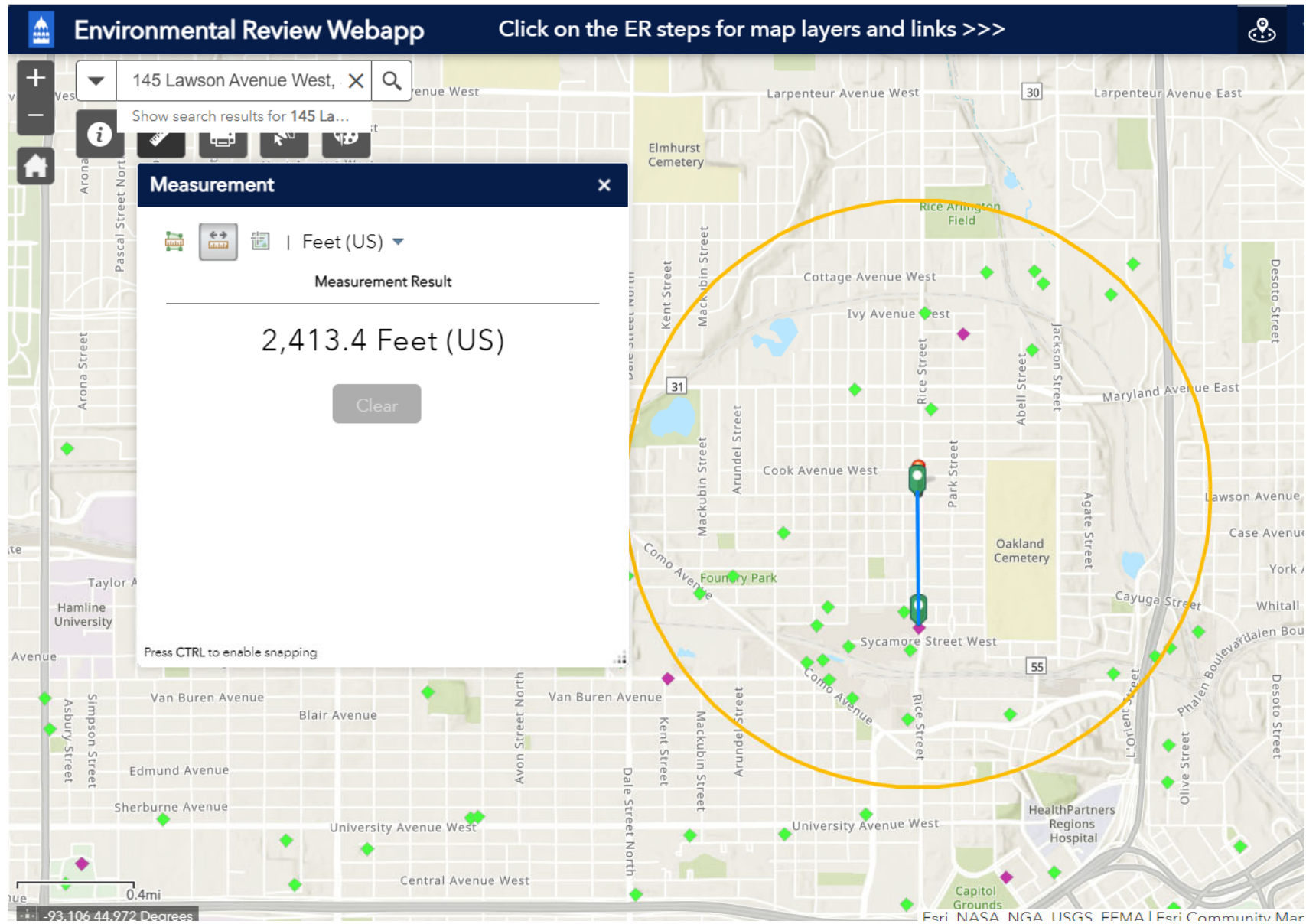


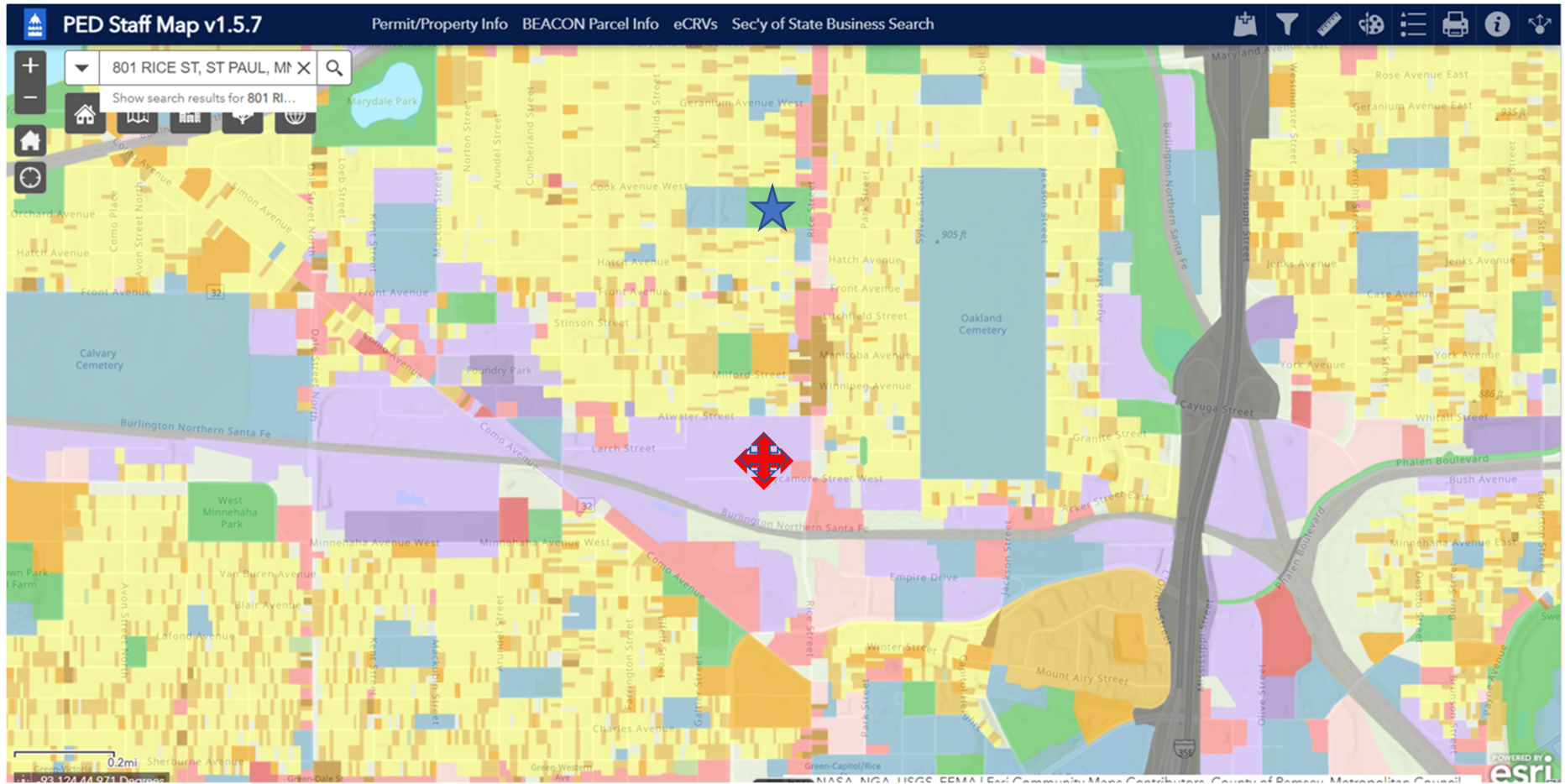
Figure 8 (f) provides the linear distance calculation for the above ground tanks at United Products. This north-south trajectory of the distance between the diesel storage tanks and the NECC is approximately 2,413 feet along Rice Street.

Figure 8(f) Distance between NECC and the United Products diesel tanks at 801 Rice Street, United Products



United Products is located in an industrial area and has two above-ground storage tanks for their operations.

Figure 8(g) Current Land Use between two above ground diesel fuel tanks for United Products (red cross) in relation to the NECC (starred)



Determination of Compliance for 24 CFR Part 51 Subpart C.

1. **The North End Community Center project is in compliance with 24 CFR Part 51 subpart C. Explosive and Flammable Hazards regulations.**
 - a. The proposed use of the land in and of itself is not a hazardous facility which will store flammable and hazardous materials.
 - b. The proposed land use for the parks project is public recreational fields, two connected community center buildings, improvement to storm water management with incorporated technology integrated into outdoor sport fields, and supporting parking and sidewalk infrastructure. While the NECC development project will cause the use of the land to intensify in terms of the number of people visiting daily, the temporary users are not subject to as great a risk as those of a permanent residential population. The current land use is a public baseball and softball park. The future planned use to increase recreational opportunities keeps the land remaining in a parks and recreational use with enhanced infrastructure and public facilities to support program expansion.
2. **Findings:** Documentation of above-ground tanks which pose a threat to health and safety for any HUD funded federal undertaking is required to be evaluated and documented for compliance in relation to the nature of the project (activities and land uses). The Planning and Environmental Review Team has documented three above ground flammable fuels tank existences and have evaluated their distances to the NECC within a land use context to describe the potential threat and our interpretation of risk. Two properties / businesses with above ground tanks approximately within one half mile of the NECC. Records 1 and 2 show these active tanks basic MPCA data records:
 - a. One above-ground tank storing used oil for Jack Carricks Minnesota Repair Inc., at 70 Hyacinth Avenue W. This is not considered a concern. The distance of 2,605 feet is sufficient in addition with the current land use analysis and reduction of threat.
 - b. Two above ground tanks currently active at 801 Rice Street for Utility Product. The distance from these tanks and the NECC has been documented to be approximately 2,413 ft.
3. **Level of Tank Research and Documentation:** HUD only requires more extensive tank research on the tank technology and contents with consideration of required mitigation in the event of residential construction project funding with HUD grant funds near an active above-ground tank.
4. **Applicability of the Acceptable Distance Calculation Tool:** As this project is not residential, in nature, HUD guidance informs us that the Acceptable Distance Calculation Tool for defining acceptable minimum distances, is not required to be completed in our research and compliance methods. Additional evaluation of these tanks beyond what is reported herein is not required.
5. **Current Land Uses and Structures Acting as Barriers:** The existing structures within the vicinity between the NECC and tanks act as a sufficient barrier, reducing the risk of any vulnerable population enjoying outdoor recreation during an unfortunate hazardous event. Figure 8 (c) and 8(g) illustrate the existing residential, mixed use, civic/institutional, retail, commercial, industrial, commercial land uses in between the starred NECC site location and the red cross symbolizing an above-ground fuel tank. The buildings within an area of impact would absorb heat and energy in the event of a fire or explosion before a user of the NECC would likely be impacted. In other words, they are not directly adjacent to the tanks, and there is a separation and barrier. The Environmental Review Team does not believe the existence of these above-ground oil and diesel tanks pose a risk to future NECC park patrons.
6. **Mitigation Determination:** PED has concluded that there are no mitigation requirements for compliance.

Prepared by:

Marilyn Rosendahl, B.A., M.S.
Senior City Planner and Environmental Review Officer

City of Saint Paul
Planning and Economic Development
25 West 4th Street, Suite 1400
Saint Paul, MN 55102

Direct Phone: 651.266.6606
Email: Marilyn.Rosendahl@ci.stpaul.mn.us

SHPO Review Information
MNDNR Local Park Grants

City of St. Paul | Rice Recreation Center, LW27-01459

Recipient's Contact

Mr. Paul Sawyer, Management Assistant III
25 W. 4th Street, 400 City Hall Annex St. Paul, MN 55102
651-266-6417, paul.sawyer@ci.stpaul.mn.us

DNR Grant Manager

Audrey Mularie, Grants Coordinator
500 Lafayette Rd, St. Paul, MN 55155-4039
651-259-5549

Project Location Information

County: Ramsey
TWN: 29
Range: 23
Section: 25
Forty: 14 SE of NE
Direction: West

Park Address

1025 Rice Street, St. Paul MN
55117-5175

Funding Source:

Federal LWCF Grant	\$2,409,625
State Grant:	\$0
<u>Local Match:</u>	<u>\$2,409,625</u>
Total:	\$4,819,250

Notes:

There is no planned construction activity beyond the pre-existing disturbance area.

Lat/Long: 44.972.91, -93.10922 **Park Acres:** 5.95

Project Description funded with this project:

The City of St. Paul will develop a multi-use artificial turf athletic field, sepak takraw courts, a new play area, increased flexible green space, a stormwater management system, and other site improvements including improved accessibility, lighting, furnishings, plantings, landscaping, onsite parking, and increased shade opportunities at North End Community Park.

Project Components funded with this project:

Demolition - Clearing, removal, disposal	\$82,000
Site Work - Earthwork, soil corrections, multi purpose athletic turf	\$1,815,000
Construction - Stormwater storage, landscaping, fencing, retaining walls, concrete curb and gutter, flexible paving, electrical, lighting.	\$2,100,250
Equipment - Play equipment, rubber surfacing, site furnishings and pads.	\$340,000
Contingencies	\$482,000
<hr/>	
Total Cost Breakdown:	\$4,819,250



PAUL AND SHEILA WELLSTONE ELEMENTARY.



CLOSE UP OF SCHOOL/RICE REC. CENTER ENTRANCE, WITH RECREATION CENTER SIGN.



VIEW FROM TOP OF STEPS BY BUILDING ENTRY. MINIMAL SIGHT LINES TO PLAY AREA.



CROSSWALK AT PARKING LOT.



STEEP GRADE EAST OF PARKING LOT ENTERING PARK SPACE SHOWING LIMITED ACCESSIBILITY.



STEEP GRADE ALONG PARKING LOT ALONG WEST SIDE OF PARK BY SAND VOLLEYBALL.



EXISTING PLAY AREA.



GRADE CHANGE BETWEEN PLAYING FIELDS.



POOR FIELD CONDITIONS.



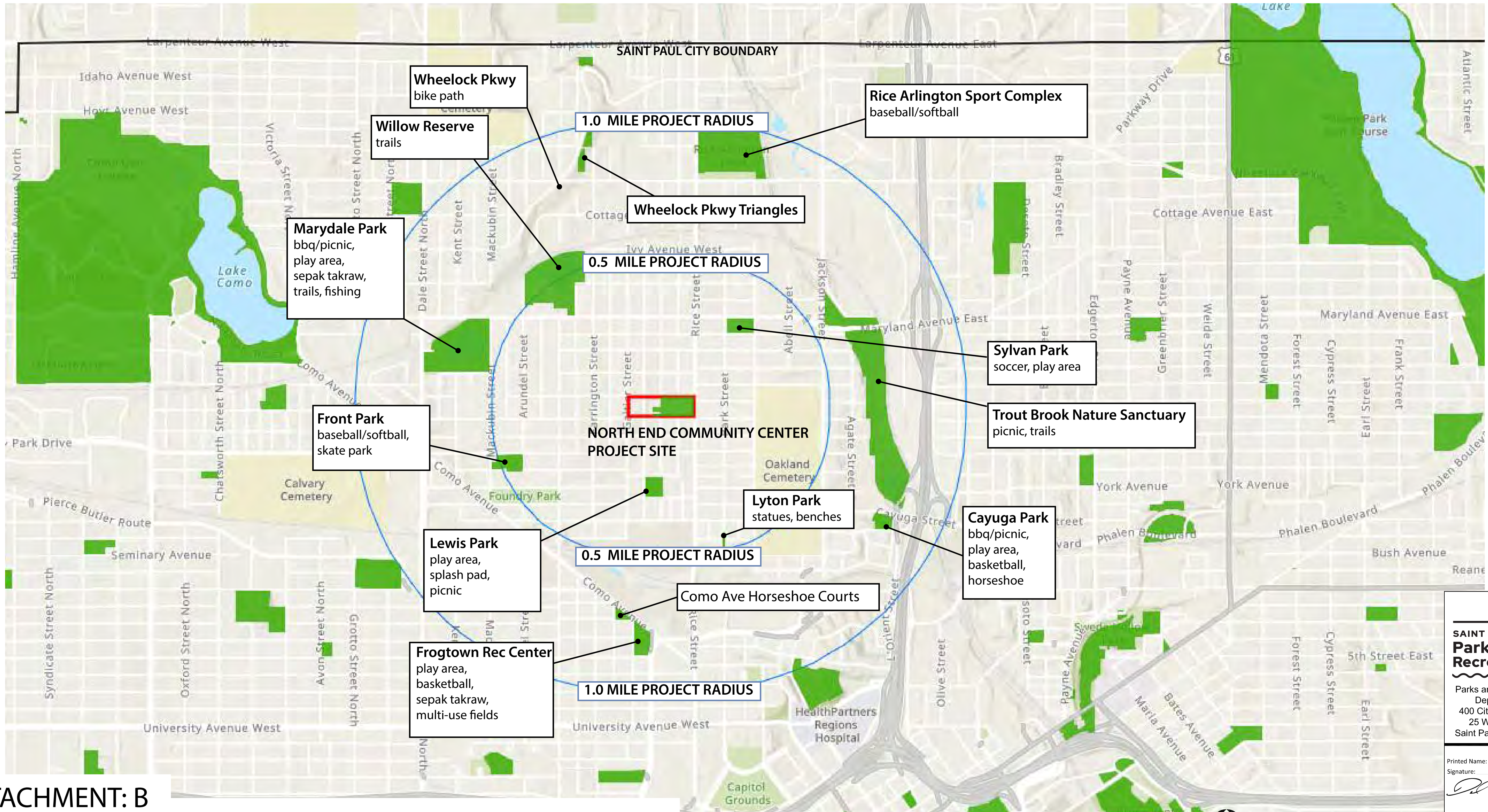
POOR FIELD CONDITIONS AND PARK GRADE CHANGE ALONG RICE STREET.



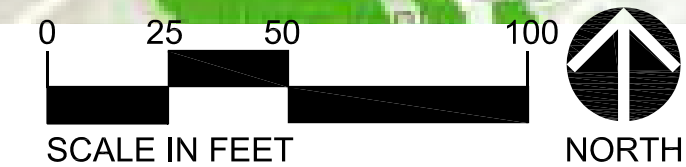
VIEW TO THE SOUTH AT THE PARK SIDE OF LAWSON/RICE STREET INTERSECTION.



VIEW TO THE NORTH FROM THE LIBRARY AT THE RICE/LAWSON INTERSECTION.



ATTACHMENT: B
RECREATION AREA MAP - NORTH END COMMUNITY CENTER



**SAINT PAUL
Parks and
Recreation**

Parks and Recreation
Department
400 City Hall Annex
25 West Street
Saint Paul, MN 55102

Printed Name: David Ronzani
Signature:

08/27/2021



COOK AVE.

SAINT PAUL PUBLIC SCHOOLS PROPERTY
- FACILITIES THAT WILL REMAIN

EXISTING PLAYING COURTS

EXISTING VOLLYBALL,
TENNIS AND
BASKETBALL

EXISTING
PARKING

EXISTING
RICE RECREATION CENTER
AT
PAUL
AND SHEILA
WELLSTONE ELEMENTARY

EXISTING
PLAY AREA

EXISTING
TEEN ZONE

SAINT PAUL PARKS PROPERTY LINE
PROPOSED PROJECT AREA

PROPOSED PROJECT AREA

PROPOSED PROJECT AREA
1025 RICE STREET, SAINT PAUL , MN 55117

EXISTING FEATURES:
5.9 ACRES
5 SOFTBALL
1 BASEBALL

PROPOSED PROJECT AREA

RICE ST.

LAWSON AVE.

MARION ST.

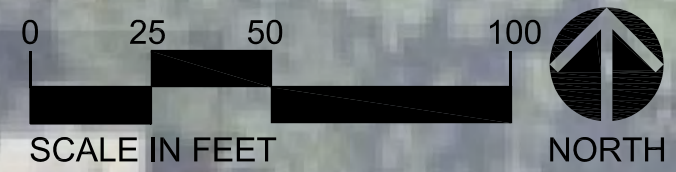
W. WOODBRIDGE ST.

ALBLEMARLE ST.



EXISTING
RICE STREET LIBRARY

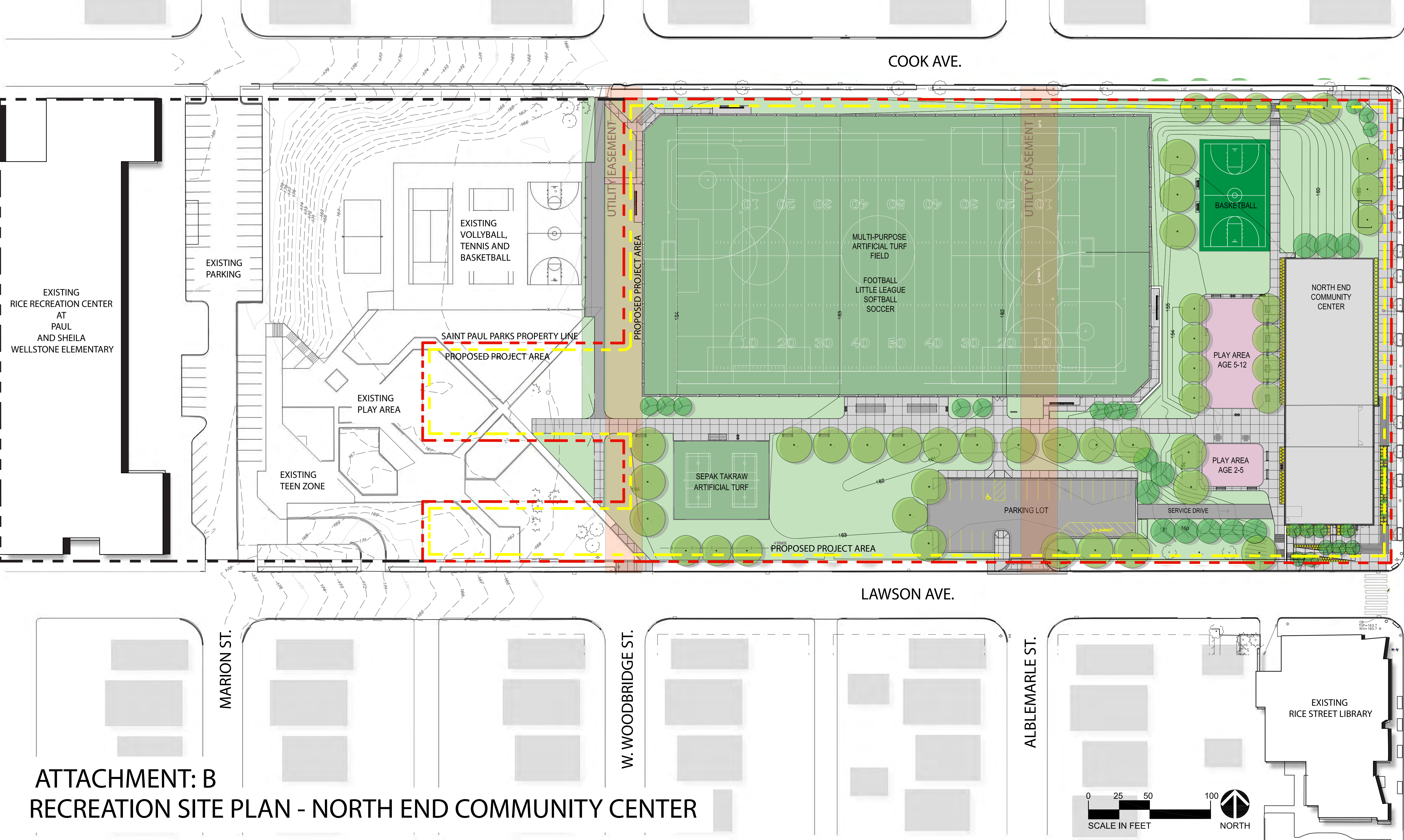
ATTACHMENT: B
EXISTING SITE LAYOUT - NORTH END COMMUNITY CENTER



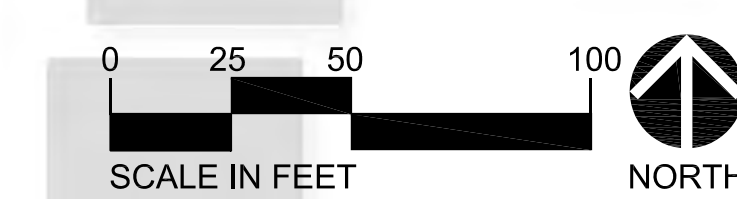
SAINT PAUL Parks and Recreation


Parks and Recreation
Department
400 City Hall Annex
25 West Street
Saint Paul, MN 55102

Printed Name: David Ronzani
Signature: *David Ronzani*
08/27/2021




ATTACHMENT: B
RECREATION SITE PLAN - NORTH END COMMUNITY CENTER





**SAINT PAUL
Parks and
Recreation**

Parks and Recreation
Department
400 City Hall Annex
25 West Street
Saint Paul, MN 55102

Printed Name: David Ronzani
Signature: 
08/27/2021

SHPO Report

COUNTY

Ramsey

CITYTWP

PROPNAME

ADDRESS

TOWNSHIP

RANGE

SECTION

QUARTER

USGS

REPORTNUM

NRH

CE

DOE

INVENTNUM

St. Paul

house

860 Albemarle St. N

29

23

25 NESE

Saint Paul East

RA-81-2H

RA-SPC-0026

house

863 Albemarle St. N

29

23

25 NESE

Saint Paul East

RA-81-2H

RA-SPC-0027

house

865 Albemarle St. N

29

23

25 NESE

Saint Paul East

RA-81-2H

RA-SPC-0028

house

879 Albemarle St. N

29

23

25 NESE

Saint Paul East

RA-81-2H

RA-SPC-0029

house

951 Albemarle St. N

29

23

25 NESE

Saint Paul East

RA-81-2H

RA-SPC-0030

house

996 Albemarle St. N

29

23

25 SENE

Saint Paul East

RA-81-2H

RA-SPC-0031

house

997 Albermarle St. N

29

23

25 SENE

Saint Paul East

RA-81-2H

RA-SPC-0032

house

1009 Albemarle St. N

29

23

25 SENE

Saint Paul East

RA-81-2H

RA-SPC-0033

Herbst House

1083 Albemarle St. N

29

23

25 NENE

Saint Paul East

RA-81-2H

RA-SPC-0034

house

1109 Albemarle St. N

29

23

25 NENE

Saint Paul East

RA-81-2H

RA-SPC-0035

apartment

1112 Albermarle St. N

29

23

25 NENE

Saint Paul East

RA-81-2H

RA-SPC-0036

Rothmeyer House

1121 Albemarle St. N

29

23

25 NENE

Saint Paul East

RA-81-2H

RA-SPC-0037

house

1126 Albemarle St. N

29

23

25 NENE

Saint Paul East

RA-81-2H

RA-SPC-0038

Frank House

1127 Albemarle St. N

29

23

25 NENE

Saint Paul East

RA-81-2H

RA-SPC-0039

A. Schroepfer House

1182 Albemarle St. N

29

23

25 NENE

Saint Paul East

RA-81-2H

RA-SPC-0040

house

1188 Albemarle St. N

29

23

25 NENE

Saint Paul East

RA-81-2H

RA-SPC-0041

G. Capeti and Company Meat Market

260 Burgess St. W

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-0397

Joseph Johnson House

270 Burgess St. W

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-0398

Andrew Nolz House

271 Burgess St. N

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-0399

house

277 Burgess St. W

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-0400

house

282 Burgess St. W

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-0401

Ramsey

St. Paul

house

292 Burgess St. W

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-0402

house

294 Burgess St. W

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-0403

Sobkoviak House

312 Burgess St. W

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-0404

apartment

325 Burgess St. W

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-0405

Como Avenue Bridge/ Bridge No. 92236

carries Western Ave over BN tracks

29

23

25 SESW

Saint Paul East

RA-81-2H

RA-SPC-0688

John A. Schmidt Hosue

360 Como Ave. W

29

23

25 SWSE

Saint Paul East

RA-81-2H

RA-SPC-0693

house

479 Como Ave. W

29

23

25 NESW

Saint Paul East

RA-81-2H

RA-SPC-0694

St. Paul Foundry Company (razed)

550 Topping St.

29

23

25 NWSW

Saint Paul East

RA-81-2H

Y

RA-SPC-0695

St. Paul Foundry Company (razed)

550 Topping St.

29

23

25 NWSW

Saint Paul East

RA-81-2H

Y

RA-SPC-0696

commercial building

503-505 Como Ave. W

29

23

25 NWSW

Saint Paul East

RA-81-2H

RA-SPC-0697

house

938 Farrington St. N

29

23

25 NWSE

Saint Paul East

RA-81-2H

RA-SPC-1272

J.A. Lindberg House

983 Farrington St. N

29

23

25 SWNE

Saint Paul East

RA-81-2H

RA-SPC-1273

Max Schueller House

1100 Farrington Ave. N

29

23

25 NWNE

Saint Paul East

RA-81-2H

RA-SPC-1274

apartment

171 Front Ave. W

29

23

25 SENE

Saint Paul East

RA-81-2H

RA-SPC-1393

Joseph Osborg House

181 Front Ave. W

29

23

25 SENE

Saint Paul East

RA-81-2H

RA-SPC-1394

apartment

203 Front Ave. W

29

23

25 SENE

Saint Paul East

RA-81-2H

RA-SPC-1395

commercial building

216 Front Ave. W

29

23

25 SENE

Saint Paul East

RA-81-2H

RA-SPC-1396

commercial building

228 Front Ave. W

29

23

Ramsey	St. Paul	J.J. Tune House	872 Galtier St. N	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-1440
		house	873 Galtier St. N	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-1441
		Gilchrist House	934 Galtier St. N	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-1442
		house	938 Galtier St. N	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-1443
		commercial building	954-956 Galtier St. N	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-1444
		house	986 Galtier St. N	29	23	25 SWNE	Saint Paul East	RA-81-2H		RA-SPC-1445
		house	991 Galtier St. N	29	23	25 SWNE	Saint Paul East	RA-81-2H		RA-SPC-1446
		house	1019 Galtier St. N	29	23	25 SWNE	Saint Paul East	RA-81-2H		RA-SPC-1447
		house	1068 Galtier St. N	29	23	25 SWNE	Saint Paul East	RA-81-2H		RA-SPC-1448
		house	1112 Galtier St. N	29	23	25 NWNE	Saint Paul East	RA-81-2H		RA-SPC-1449
		house	1157 Galtier St. N	29	23	25 NWNE	Saint Paul East	RA-81-2H		RA-SPC-1450
		house	1179 Galtier St. N	29	23	25 NWNE	Saint Paul East	RA-81-2H		RA-SPC-1451
		Charles Stich House	1189 Galtier St. N	29	23	25 NWNE	Saint Paul East	RA-81-2H		RA-SPC-1452
		Church of St. Bernard	197 Geranium Ave. W	29	23	25 NENE	Saint Paul East	RA-81-2H	Y	RA-SPC-1502
		William Aitkin House	445 Hatch Ave. W	29	23	25 SENW	Saint Paul East	RA-81-2H		RA-SPC-1727
		house	449 Hatch Ave. W	29	23	25 SENW	Saint Paul East	RA-81-2H		RA-SPC-1728
		Frank Kaar House	453 Hatch Ave. W	29	23	25 SENW	Saint Paul East	RA-81-2H		RA-SPC-1729
		commercial building	818-820 Rice St. N.	29	23	25 SESE	Saint Paul East	RA-81-2H		RA-SPC-3061
		residence	794 Rice St. N.	29	23	25 SESE	Saint Paul East	RA-81-2H		RA-SPC-3063
		Lyton Farmhouse	796 Rice St. N.	29	23	25 SESE	Saint Paul East	RA-81-2H		RA-SPC-3064
		commercial building	870 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3065
		St. Paul Gas Light Company Service Station	825 Rice St. N.	29	23	25 SESE	Saint Paul East	RA-81-2H		RA-SPC-3066
		Arvidson Block	842 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3067
		commercial building	843 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3068
		commercial building	849 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3069
		commercial building	879 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3070
		residence	880 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3071
		commercial building	884-886 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3072
		commercial building	888 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3073
		Hoffman Block	900 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3074
		commercial building	919-920 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3075
		commercial building	924-926 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3076
		commercial building	934-936 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3077
		residence	939 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3078
		commercial building	940 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3079
		residence	941 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3080
		commercial building	954 Rice St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-3081
		commercial building	961-965 Rice St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-3082
		residence	973 Rice St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-3083
		residence	977 Rice St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-3084
		commercial building	984 Rice St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-3085
		residence	985 Rice St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-3086
		St. Paul Public Library-Rice St. Branch	995 Rice St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-3087
		commercial building	1061 Rice St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-3088
		North End Improvement Club	1079 Rice St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-3089
Ramsey	St. Paul	commercial building	1086 Rice St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-3090
		commercial building	1096 Rice. St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-3091
		commercial building	1108 Rice St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-3092
		commercial building	1110-1114 Rice St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-3093

Ramsey	St. Paul	commercial building	1116-1118 Rice St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-3094
		residence	1120 Rice St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-3095
		commercial building	1122 Rice St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-3096
		commercial building	1138-1140 Rice St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-3097
		residence and barn	266 Stinson St. W.	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-3541
		Frost House	274 Stinson St. W.	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-3542
		Engholm House	289 Stinson St. W.	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-3543
		residence	291 Stinson St. W.	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-3544
		Ribock House	292 Stinson St. W.	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-3545
		residence	ca. 299 Stinson St. W.	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-3546
		Zalesky House	333 Stinson St. W.	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-3547
		residence	285 Topping St. W.	29	23	25 NWSE	Saint Paul East	RA-81-2H		RA-SPC-3843
		John Foster House	477 Topping St. W.	29	23	25 NESW	Saint Paul East	RA-81-2H		RA-SPC-3844
		Northwestern Twine & Cordage Co. (razed)	980 Kent St. N	29	23	25 SWNW	Saint Paul East	RA-81-2H		RA-SPC-4073
		house	841 Marion St. N	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-4410
		house	925 Marion St. N	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-4412
		house	928 Marion St. N	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-4413
		Frank Hollanitsch House	947 Marion St. N	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-4414
		Charles Schlader House	951 Marion St. N	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-4415
		house	973 Marion St. N	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-4416
		house	1002 Marion St. N	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-4417
		house	1011 Marion St. N	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-4418
		George Washington High School	1041 Marion St. N	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-4419
		commercial building	1144 Marion St. N	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-4420
		duplex	1181 Marion St. N	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-4421
		Northwestern Twine & Cordage Co.	980 Kent St. N	29	23	25 SWNW	Saint Paul East	RA-81-2H		RA-SPC-4539
		James Hogan House	1164 Matilda St. N	29	23	25 NWNE	Saint Paul East	RA-81-2H		RA-SPC-4552
		Woodland Park Historic District	vicinity of Dale and Arundel Sts., Marshall and Dayton Aves.	29	23	25		RA-81-2H	Y	RA-SPC-4579
		bridge	Western Ave. Bridge at Como Ave.	29	23	25 SESW	Saint Paul East	RA-81-2H		RA-SPC-5022
		C. P. Peterson House	899 Western Ave. N.	29	23	25 NESW	Saint Paul East	RA-81-2H		RA-SPC-5039
		St. Mary's Romanian Orthodox Church	854 Woodbridge St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-5144
		residence	863 Woodbridge St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-5145
		residence	865 Woodbridge St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-5146
		Jacobsen House	ca. 926 Woodbridge St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-5147
		Paul Jacobs House	928 Woodbridge St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-5148
		residence	939 Woodbridge St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-5149
		residence	945 Woodbridge St. N.	29	23	25 NESE	Saint Paul East	RA-81-2H		RA-SPC-5150
		residence	1002 Woodbridge St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-5151
		residence	1006 Woodbridge St. N.	29	23	25 SENE	Saint Paul East	RA-81-2H		RA-SPC-5152
		Hilgert House	1182 Woodbridge St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-5153
		Helgert House	1186 Woodbridge St. N.	29	23	25 NENE	Saint Paul East	RA-81-2H		RA-SPC-5154
Ramsey	St. Paul	Bridge No. 5560	carries tracks over CSAH 53 (Dale St) south of Maryland Ave	29	23	25	Saint Paul West			RA-SPC-7102
		62523		29	23	25 SW-SW	St. Paul West			RA-SPC-8064

Community Engagement Process

This project's community involvement strategy maintains a goal of improving access to outdoor recreation space and enhancing a sense of ownership, belonging, connection, and pride for the users it serves. To meet to this need, the improvements must respond to existing site challenges and programmatic goals in one of the most culturally diverse neighborhoods in the city of Saint Paul. Properly understanding the possibilities means implementing and continuing a community engagement approach at all stages of planning, design, and construction. This has occurred through formal and informal meetings with neighborhood residents, through collaboration and direct communication with neighborhood nonprofits, and through collaboration with other governmental agencies.

Although the project has been a high priority for Saint Paul Parks and Recreation for many years, a formal community engagement process began when initial design funding was received for the project in the summer of 2019. Among the initial phases of engagement included conversations with park users at neighborhood events, such as the Saint Paul's Marydale Festival and Rice Street Festival that summer. Each of these events was attended by over 200 people and included surveys of visitors and sticker-voting to help understand how existing park space is used, identify where it does not currently meet community needs, and learn what priorities should be for future improvements. Results of these surveys were shared on the project website with contact information for the design team's project managers for follow-up and continued communication.

Additionally, these results were presented more formally to the community for additional feedback at various community events in late 2019 and early 2020. This includes multiple open house meetings at the site-adjacent Rice Street Library and the Rice Recreation Center "Teen Zone." The Teen Zone is a safe gathering place for teens in the community, where they can connect with others, get homework help, or practice a skill such as music or cooking under supervision of mentors. These events were led by design staff from Saint Paul Parks and Recreation and the project's design consultants. They were excellent opportunities to receive comments on initial design strategies and responses from future users with diverse interests, ages, and backgrounds.

Other events have been focused on collaboration with specific neighborhood groups including the North End Neighborhood Organization (NENO) and the Saint Paul Youth Commission (SPYC). NENO is the official neighborhood organization for the North End and is an independent non-profit organization whose board is comprised of volunteer members who "share a mutual love of their neighborhood and a desire to see it improve in any manner possible." Their knowledge of the neighborhood and connections to the community help provide valuable feedback on design decisions and direction. Their support of this project is documented in the attached letter.

The SPYC is a City Commission made up of high school-aged residents to advise on and advocate for local issues impacting young people. Every year, the Commission adopts priority projects and initiatives. City design staff first presented the project to the SPYC in January 2020, and the SPYC made seeking completion of the NECC one of the priorities established for the 2020-2021 year. The SPYC has been a helpful project partner in communicating the needs of young residents and has expanded on youth feedback received from the Teen Zone open

house. As part of their efforts on the project, the youth commissioners met with state legislators throughout the 2020 legislative session seeking state bonding to partially fund the project in collaboration with the city council member representing the North End. This work included Youth Commissioner Chikamso Chijioke testifying at a House Capital Investment Committee hearing on the proposal. Speaking during the virtual event, she said the following in support of this project: “I’ve lived in the North End for almost all my life so I know this has been something the community has really been needing and asking for, for a long time. We need a place like this to encourage families and young people. To encourage their fitness and health, to encourage an exploration of new hobbies and activities. A place where kids can truly be kids in a safe, healthy, and nurturing environment.”

Specific to the project’s emphasis on young women’s sports, she also testified: “I am a public high school student so I’ve seen how women’s sports don’t get enough attention. I always remember when I played badminton, our team never got fresh new uniforms or equipment like the other boys’ sports did. Having a space like this for girls’ sports is really important. It is important to show young girls that their activities are treated like they matter—we don’t get enough of that.”

The office of City Council President Amy Brendmoen who represents the North End has been deeply engaged in community outreach for the project as well and has met with numerous neighborhood groups. Among them is the Karen Organization of Minnesota (KOM). The role of the KOM is to help Karen refugees from Burma who have settled in the area transition to their new life in Saint Paul and achieve their goals. The discussions with the KOM demonstrate some of the culturally specific engagement to connect directly with those who may not typically attend government meetings.

Just as communication with community groups has been influential and beneficial to the project design, connection with other public entities has been ongoing and vital to the project. This includes the work of the city council office on the Community Safety Action Plan with the Saint Paul Police Department which has a goal of healing streets by providing spaces for constructive activities and limiting potential for destructive behavior. Other public entities involved in the project include Saint Paul Public Libraries and Saint Paul Public Schools. As neighbors to the North End project, and part of the goal of creating a new “community campus” connected by this future outdoor recreation space, their design input and partnership is critical. Design presentations have been made at milestone stages for feedback from both agencies in 2020 and virtually in 2021. Programming partnerships for park spaces are anticipated with both.

For the NECC project to have its most significant impact, it must be designed to meet today’s needs and adaptable to meet the future needs of the North End neighborhood. This has led to a variety of approaches and outreach strategies used to engage the community to create spaces designed for multicultural and multigenerational opportunities.

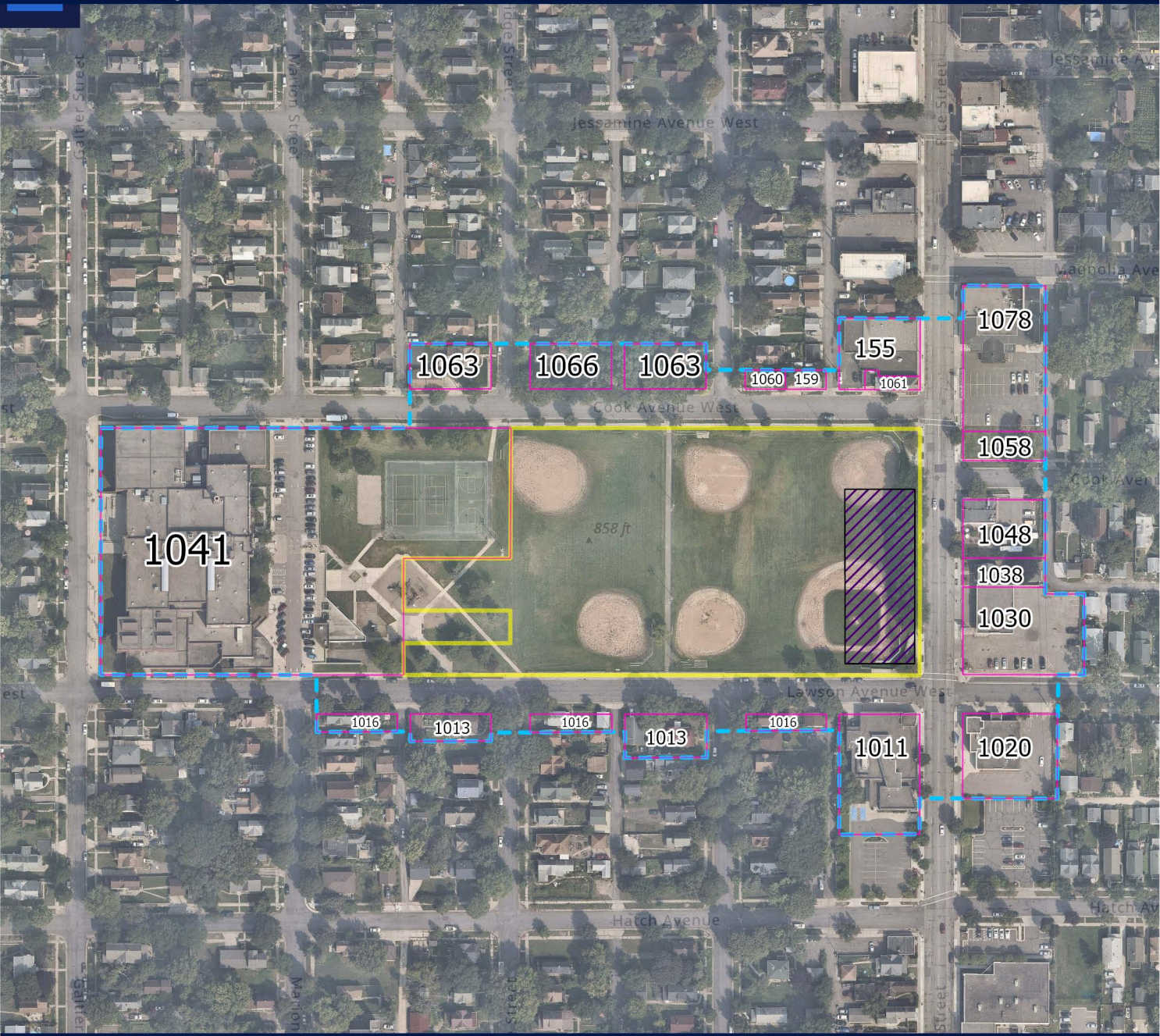
Alongside engagement on the NECC project, the project team has had the opportunity to collaborate with Ramsey County’s Rice Street Visualization Team, a group charged with redesigning the Rice Street corridor from Wheelock Parkway to Pennsylvania Avenue. Early in the process, each team recognized that the complexities of crossing four lanes of traffic on Rice Street, and potential safety concerns when the new NECC project attracts more young people to that intersection. The teams have been working together to discuss potential traffic calming

measures to provide a safer intersection at Rice Street and Lawson Avenue. The groups are also working through the details to determine the feasibility of adding an off-street bicycle facility to Rice Street, effectively connecting the NECC project to the city's Grand Round at Wheelock Parkway. This connection would effectively extend the reach of the new project and make the space safer and more accessible to those who do not own a vehicle or are less mobile.

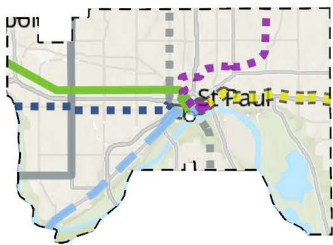


Section 106 Consultation - 145 Lawson Ave W A.P.E

Area of Potential Effect
January 31st, 2023



Date: 1/31/2023 4:58 PM Document Path: C:\Users\jwhitaker\OneDrive - City of Saint Paul\Documents - PTD Research & Mapping\Projects\Area of Potential Effect\Map Template\GIS\Area of Potential Effect map_106map.aprx



- Area of Potential Effect (APE)
- 145 Lawson Ave W (Subject Property)
- Properties Within APE
- North End Community Center - Building Location



October 27, 2022

Lucas Bulger, Bolton and Menk
lucas.bulger@bolton-menk.com

Re: S.P. 062-649-055, Rice Street (CSAH 49) Reconstruction, St. Paul, Ramsey County

Dear Lucas:

Minnesota Department of Transportation Cultural Resources Unit (MnDOT CRU) staff meeting the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-44739) in archaeology, history, and architectural history have reviewed the above-referenced project pursuant to our Federal Highway Administration (FHWA)-delegated responsibilities for compliance with Section 106 of the National Historic Preservation Act (54 USC 300108) and its implementing regulations, 36 CFR 800, and under the terms of the *Programmatic Agreement Among the Federal Highway Administration, the Minnesota State Historic Preservation Office, the Advisory Council on Historic Preservation; the Department of the Army, Corps of Engineers, St. Paul District; and the Minnesota Department of Transportation; Regarding Implementation of the Federal-Aid Highway Program in Minnesota* (Statewide PA). The project will receive funding from the FHWA.

We also reviewed the above-referenced project to determine whether MnDOT has responsibilities under Minnesota Statute regarding cultural resources. Compliance with Minnesota Statute is the responsibility of the entity doing, funding, or licensing the work under the Minnesota Historic Sites Act (Minn. Stat. 138.661-138.669); or the agency controlling any public lands that may be affected by proposed work (e.g., right-of-way or through temporary or permanent easements) for the Minnesota Field Archaeology Act (Minn. Stat. 138.31-138.42) and the Private Cemeteries Act (Minn. Stat. 307.08). MnDOT and Ramsey County are responsible for compliance with the Minnesota Historic Sites Act for this project since they are funding or permitting the project. Ramsey County is responsible for compliance with the Minnesota Field Archaeology Act and the Private Cemeteries Act on this project since it controls the land on which the project will occur. Although our review was limited to MnDOT's duties and responsibilities under the Statewide PA and Minnesota Statute, this letter will facilitate the County's ability to meet their responsibilities under Minnesota Statute.

Project Description

This project, as described in the CN and T&E Review Request form dated August 29, 2022 (Review Request), constitutes the final design and reconstruction of Rice Street from Pennsylvania Avenue to Wheelock Parkway in St. Paul. It will provide upgrades for pedestrians, bicyclists, and transit users throughout the corridor. Aside from sidewalk reconstruction and the installation of landscaping/green

infrastructure, this project will be completed within the existing right of way with no horizontal or vertical changes to the road alignment. The following additional elements are anticipated: resurfacing, ADA upgrades, curb extensions, signing modifications, traffic signal revisions, sanitary service line relocation, watermain relocation, improved storm water infrastructure, and rehabilitation of Bridge Nos. 62627 and 62008. The project will be coordinated with Metro Transit's proposed G-line Bus Rapid Transit project, which is a separate project.

Area of Potential Effects (APE)

Based on the project's Review Request and pursuant to 36 CFR 800.4 and Stipulation 3.C of the Statewide PA, the MnDOT CRU has determined that in addition to physical alteration and ground-disturbing activities, the proposed project includes one or more of the following: areas of right-of-way acquisition; access changes; and the potential for visual, audible, and atmospheric changes during and after construction. The project, however, includes work limited to the existing right of way, in-kind sidewalk replacement, and landscaping within a corridor which is already substantially planted in trees and other vegetation. The APE therefore was determined to encompass the proposed horizontal and vertical construction limits, which were developed off of the map (attached) and description provided with the submittal of the ENM.

Consultation & Public Involvement

On September 15, 2022, MnDOT CRU reviewed the undertaking's proposed activities for exemptions in existing consultation protocol agreements between FHWA and certain tribes. After initial review of these agreements, MnDOT CRU notified the following Tribal Nations about the undertaking, pursuant to 36 CFR 800 and Minn. Stat. 10.65: Fort Peck Tribes, Lower Sioux Indian Community, Prairie Island Indian Community, Santee Sioux Nation, Shakopee Mdewakanton Sioux Community, Sisseton-Wahpeton Oyate Community, Turtle Mountain Band of Chippewa, and Upper Sioux Community. We specifically requested input into the process of identifying historic properties of religious or cultural significance and sought the Tribal Nation's interest in becoming a consulting party. The Fort Peck Tribes responded with no concerns. We did not receive a response from any other tribes within the allotted time.

Identification of Properties

On September 15, 2022, MnDOT CRU staff reviewed information on state-designated and listed properties, significant archaeological and historic sites, burials/cemeteries, and other previously inventoried properties in databases maintained by the Minnesota State Historic Preservation Office (MnSHPO), the Office of the State Archaeologist (OSA), and the Minnesota Indian Affairs Council (MIAC), including the unrecorded historical cemeteries database. In addition to the consultation with Tribal Nations described above, we also sent an information request to the OSA and MIAC on September 15, 2022, asking if they had additional information on sites we had identified or if they were aware of any additional sites beyond what we identified in our searches. The OSA identified no additional sites. We did not receive a response from MIAC within the allotted time.

Because all work will occur within areas previously disturbed by road and associated construction and urban development, it is unlikely that the area of ground-disturbing activities contains intact, significant archaeological resources.

Based on the identification efforts described above and pursuant to 36 CFR 800.4 and Stipulations 3.D and 3.E of the Statewide PA, the MnDOT CRU has determined no historic properties are within the APE. Further, based on the identification efforts described above, the MnDOT CRU has determined no properties subject to review under the above-referenced Minnesota statutes are within the project APE.

Conclusion

Pursuant to 800.4(d)(1) and Stipulation 3.F of the Statewide PA, the MnDOT CRU finds there will be **No Historic Properties Affected** by the federal undertaking, as currently proposed. Under the terms of the Statewide PA, consultation with MnSHPO is not required on this finding.

This letter also documents MnDOT's responsibilities under the Minnesota Historic Sites Act, Minnesota Field Archaeology Act, and Private Cemeteries Act have been met since no properties in the APE meet the requirements for MnSHPO, OSA, or MIAC review under those acts.

It is the responsibility of Ramsey County to notify the MnDOT CRU of any plan changes, including development of utility plans, so we can determine if an additional review under Section 106 and/or Minnesota Statute is required. If your project requires a permit from the Army Corps of Engineers, please attach this findings letter to your permit as proof that the Section 106 process has been completed on their behalf through the terms of the Statewide PA.

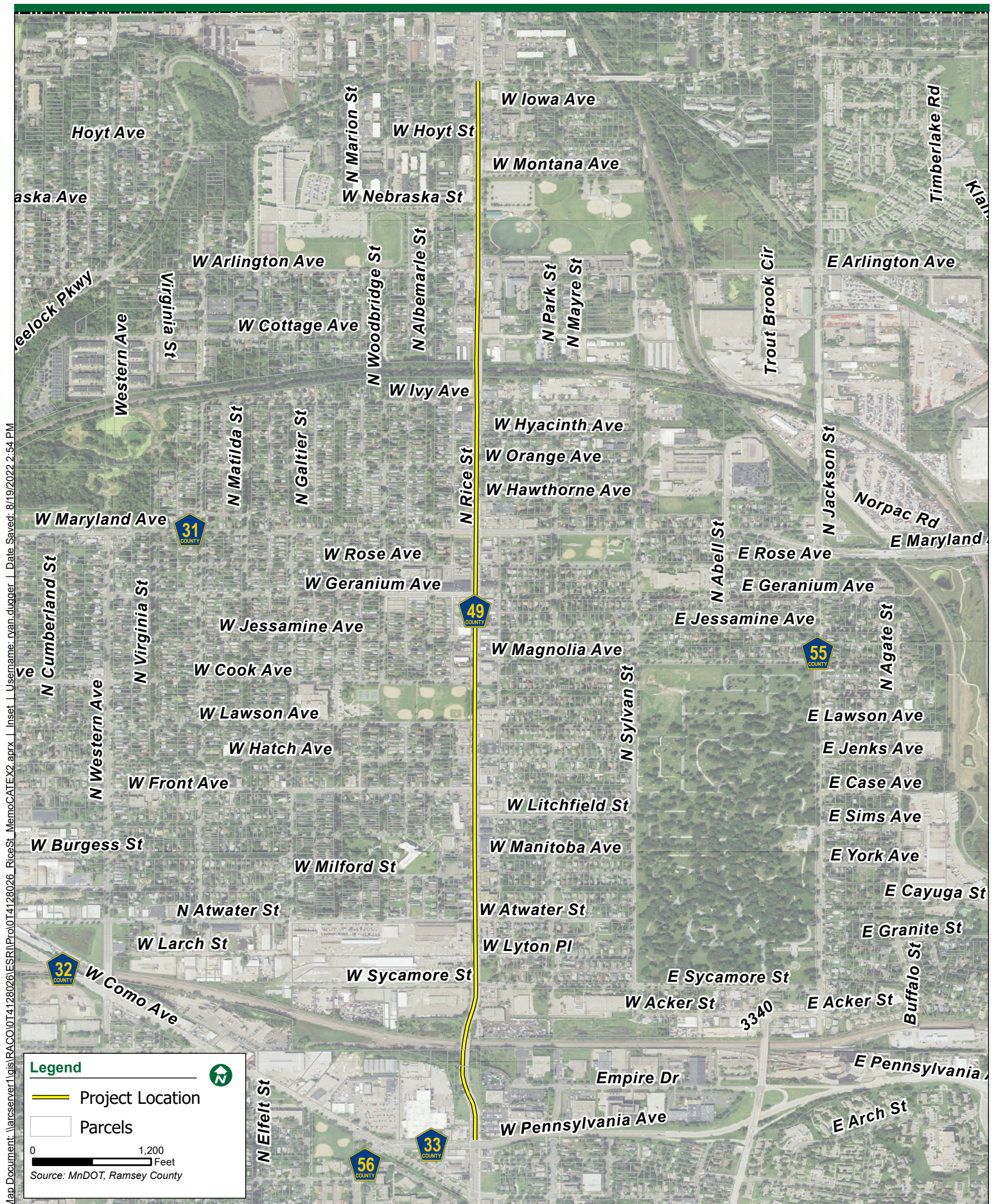
Please do not hesitate to contact me if you have any questions.

Sincerely,



Andrew Kurth (he/him/his)
Archaeologist
Telephone: 612-263-5188
Email: Andrew.kurth@state.mn.us

cc: Nick Fischer, Ramsey County (nicklaus.fischer@co.ramsey.mn.us)
SaltEnvironmental.dot@state.mn.us
CRIS (Administrative Record)





Identification of Properties Within APE (Photos and Inventory Number Included)

1041 Marion St, Saint Paul, MN 55117 (RA-SPC-4419) George Washington High School (former)



1063 Woodbridge St, Saint Paul, MN 55117



1066 Woodbridge St, Saint Paul, MN 55117



1063 Albemarle St, Saint Paul, MN 55117



1060 Albemarle St, Saint Paul, MN 55117



159 Cook Ave W, Saint Paul, MN 55117



155 Cook Ave W, Saint Paul, MN 55117



1061 Rice St, Saint Paul, MN 55117 (RA-SPC-3088)



1078 Rice St, Saint Paul, MN 55117



1058 Rice St, Saint Paul, MN 55117 (Vacant Lot)



1048 Rice St, Saint Paul, MN 55117



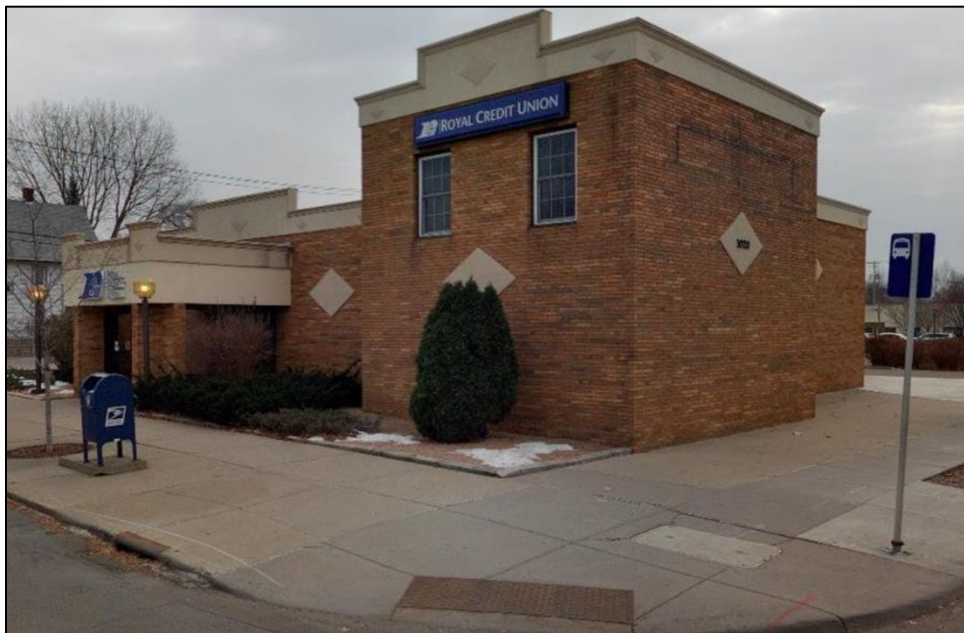
1038 Rice St, Saint Paul, MN 55117



1030 Rice St, Saint Paul, MN 55117



1020 Rice St, Saint Paul, MN 55117



1011 Rice St, Saint Paul, MN 55117



1016 Albemarle St, Saint Paul, MN 55117



1013 Albemarle St, Saint Paul, MN 55117



1016 Woodbridge St, Saint Paul, MN 55117



1013 Woodbridge St, Saint Paul, MN 55117



1016 Marion St, Saint Paul, MN 55117



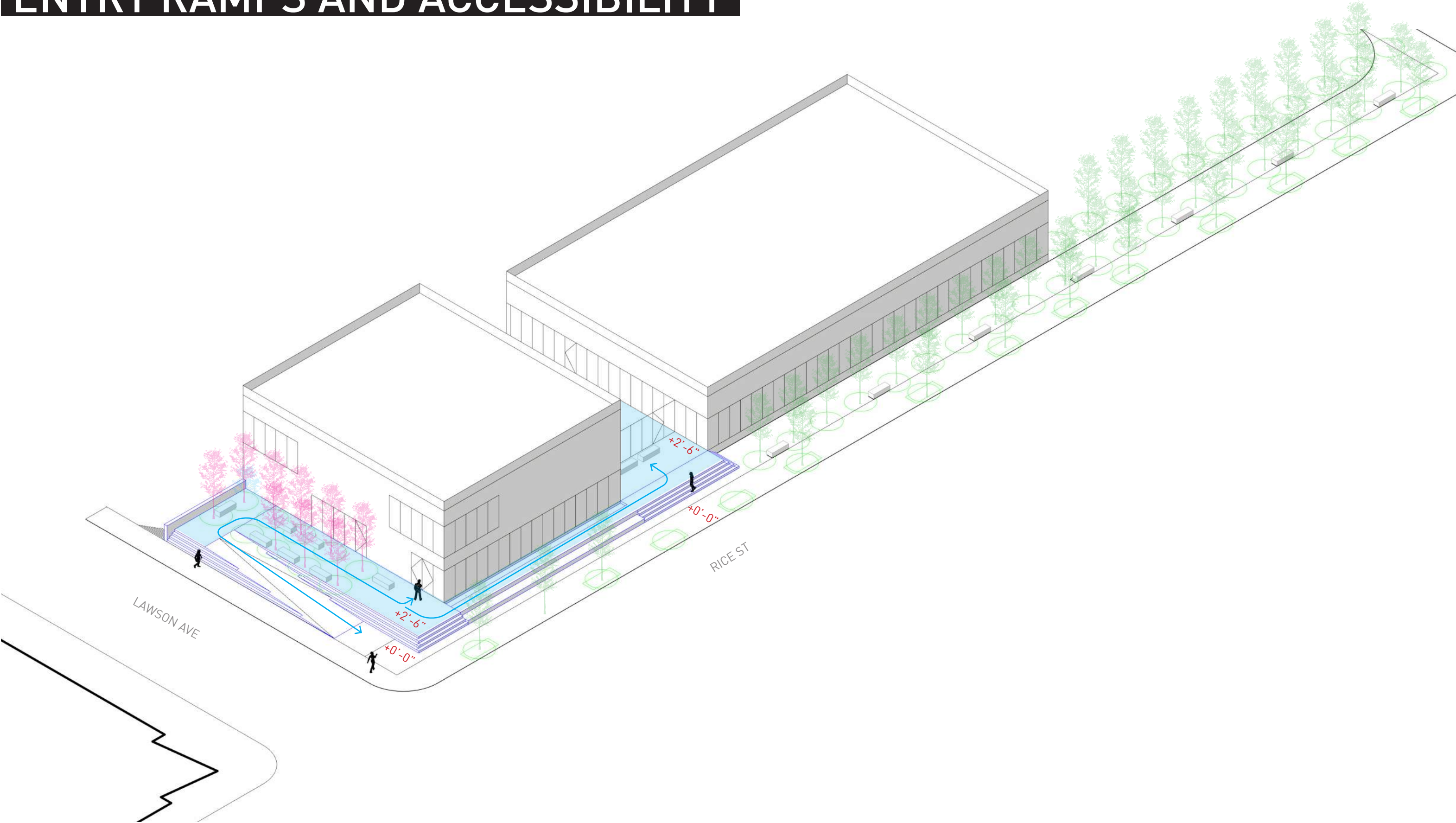
North End Community Center

2022 Project Update

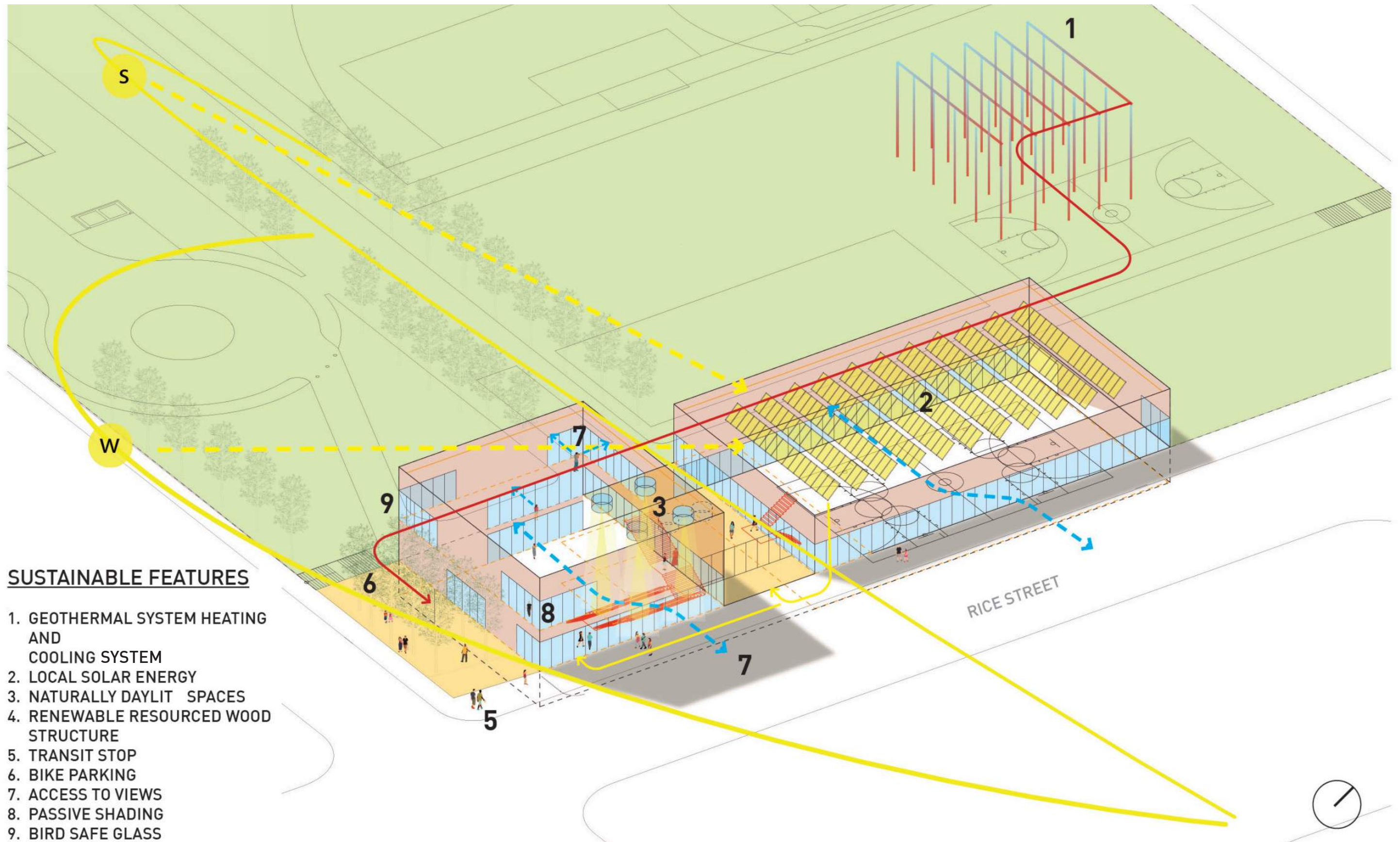


SNOW
KREILICH
ARCHITECTS

ENTRY RAMPS AND ACCESSIBILITY



SUSTAINABLE FEATURES



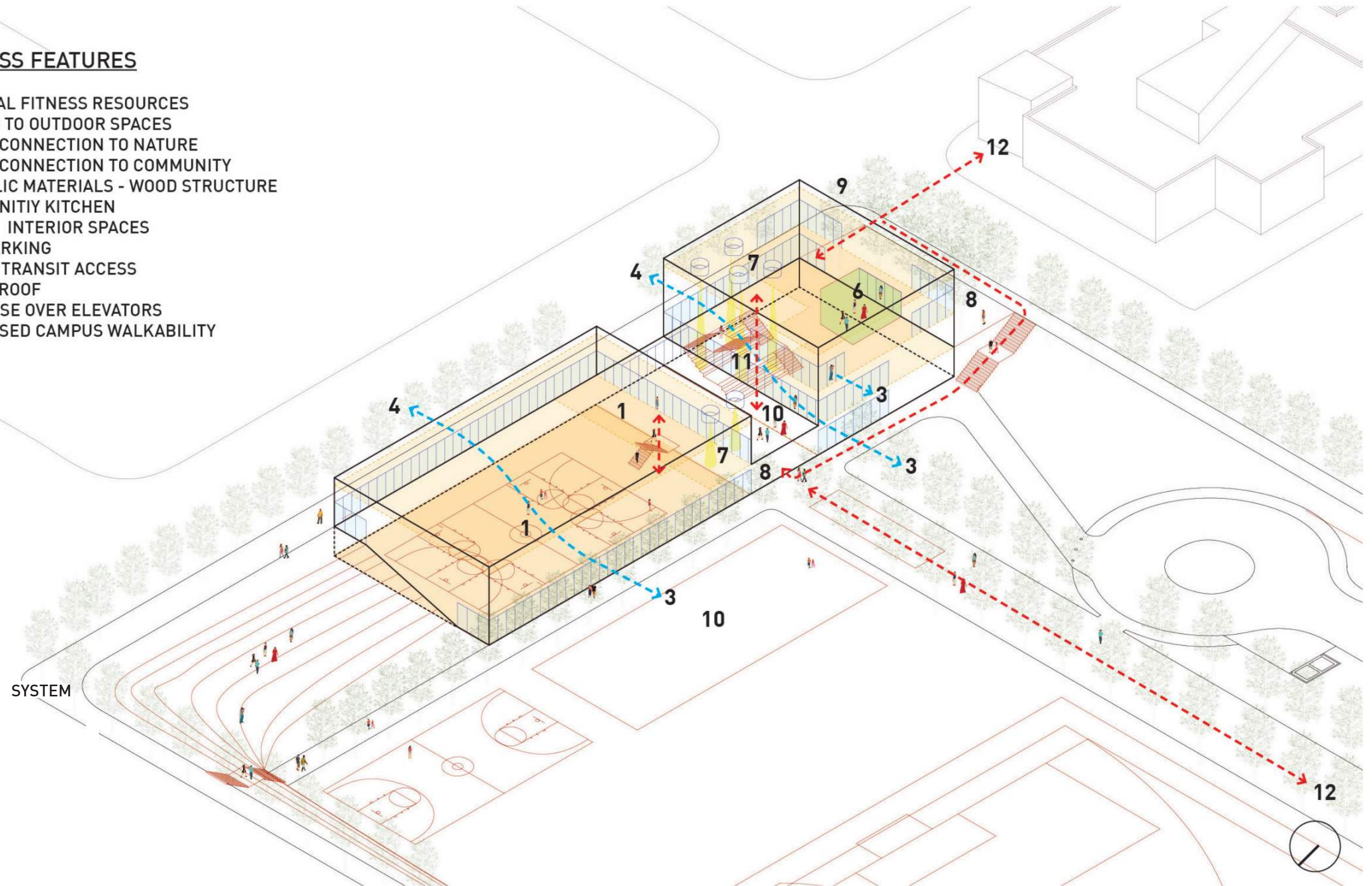
SUSTAINABLE FEATURES

1. GEOTHERMAL SYSTEM HEATING AND COOLING SYSTEM
2. LOCAL SOLAR ENERGY
3. NATURALLY DAYLIT SPACES
4. RENEWABLE RESOURCED WOOD STRUCTURE
5. TRANSIT STOP
6. BIKE PARKING
7. ACCESS TO VIEWS
8. PASSIVE SHADING
9. BIRD SAFE GLASS

SUSTAINABLE FEATURES

WELLNESS FEATURES

1. PHYSICAL FITNESS RESOURCES
2. ACCESS TO OUTDOOR SPACES
3. VISUAL CONNECTION TO NATURE
4. VISUAL CONNECTION TO COMMUNITY
5. BIOPHILIC MATERIALS - WOOD STRUCTURE
6. COMMUNITY KITCHEN
7. DAYLIT INTERIOR SPACES
8. BIKE PARKING
9. PUBLIC TRANSIT ACCESS
10. GREEN ROOF
11. STAIR USE OVER ELEVATORS
12. INCREASED CAMPUS WALKABILITY



LAWSON PLAZA



COURTYARD



COURTYARD



COURTYARD



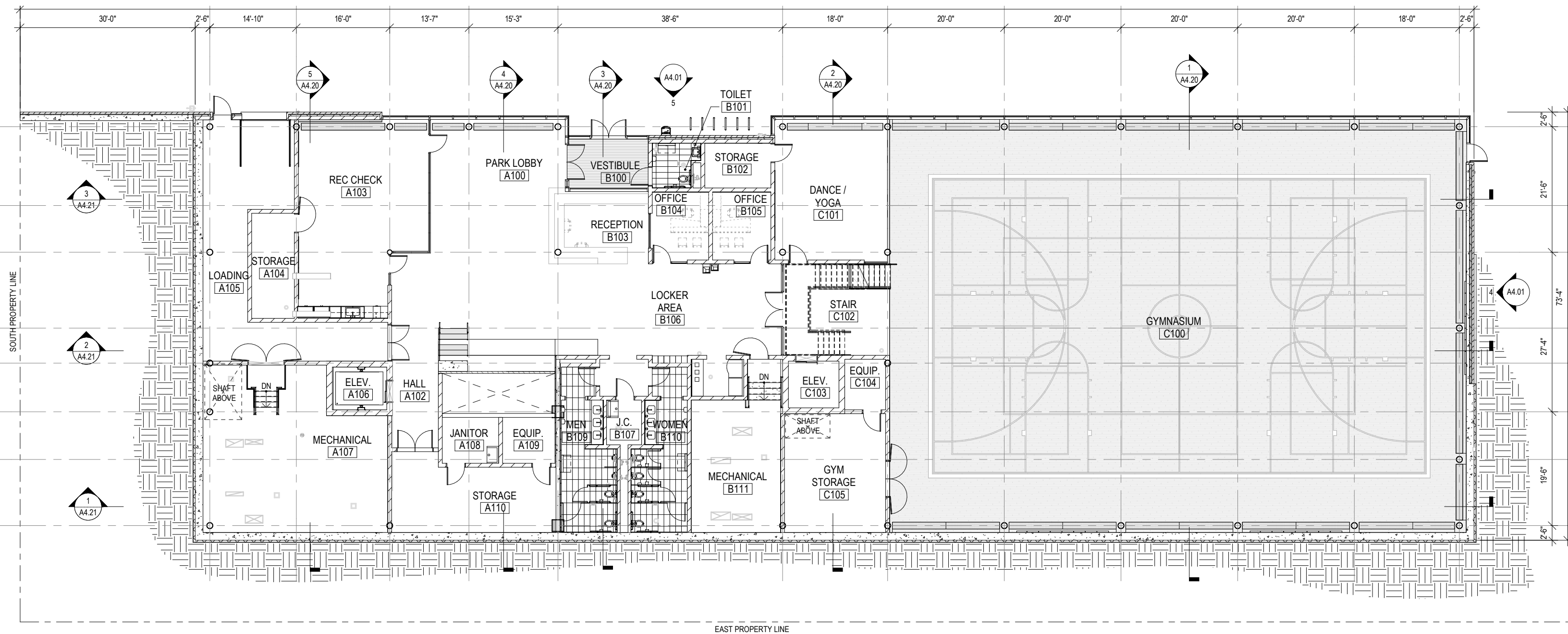
RICE STREET (EVENING)



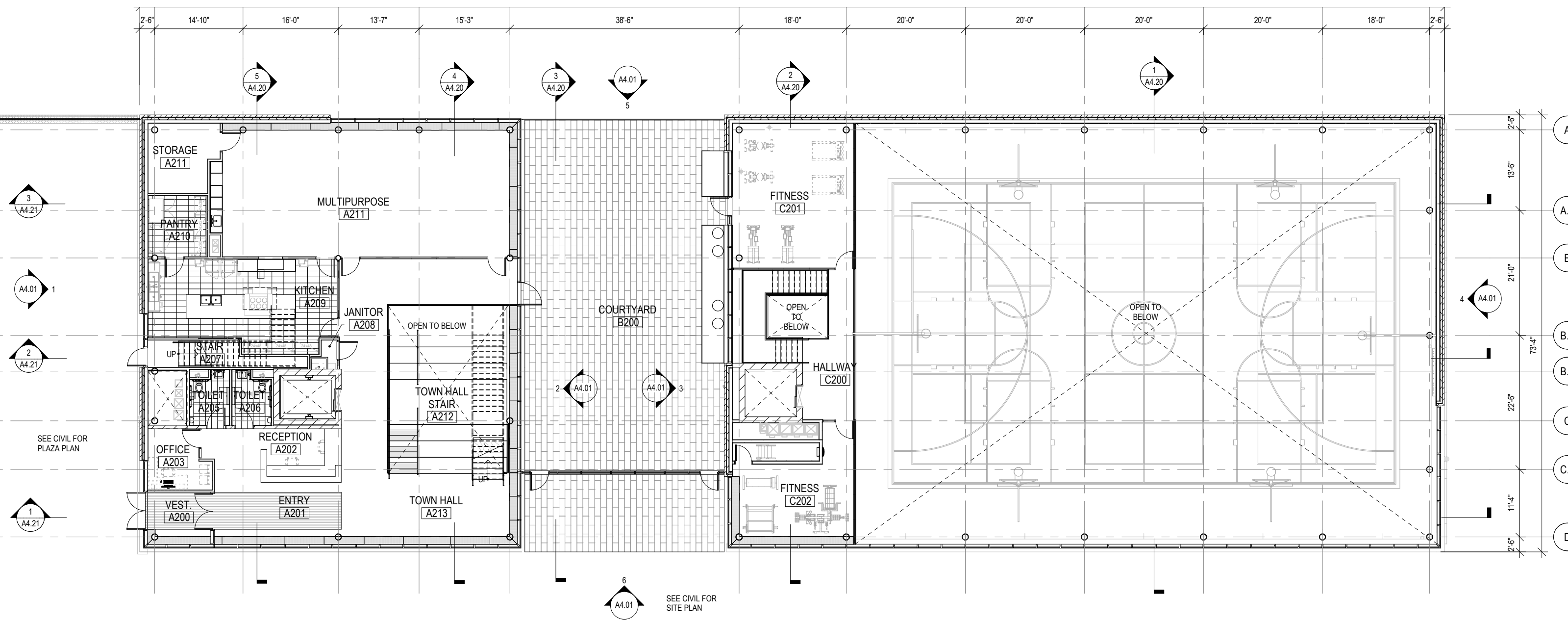
PARK ENTRY



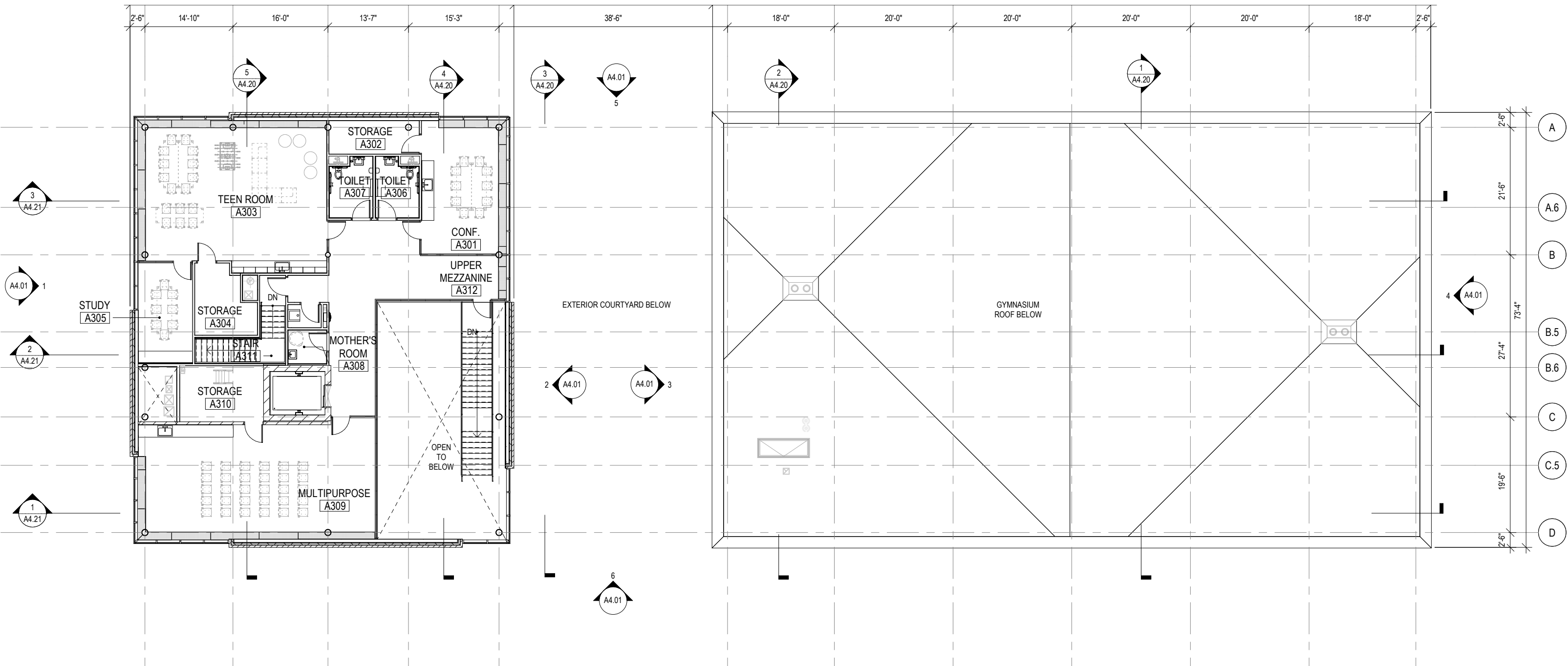
LOWER LEVEL FLOOR



MAIN LEVEL FLOOR



UPPER LEVEL FLOOR



TOWN HALL



TEEN ROOM



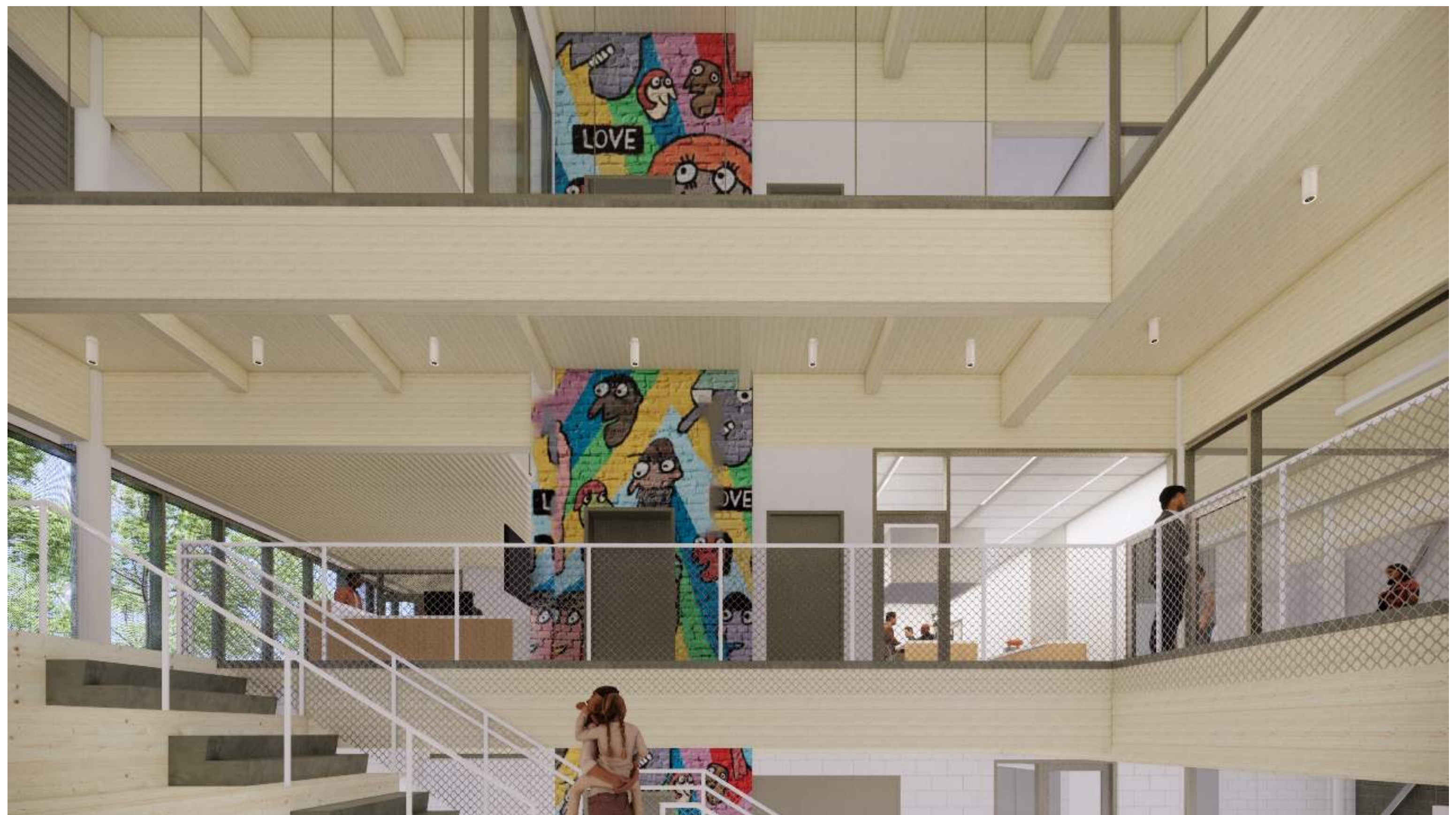
TOWN HALL



KITCHEN



TOWN HALL ART



TOWN HALL



GYMNASIUM



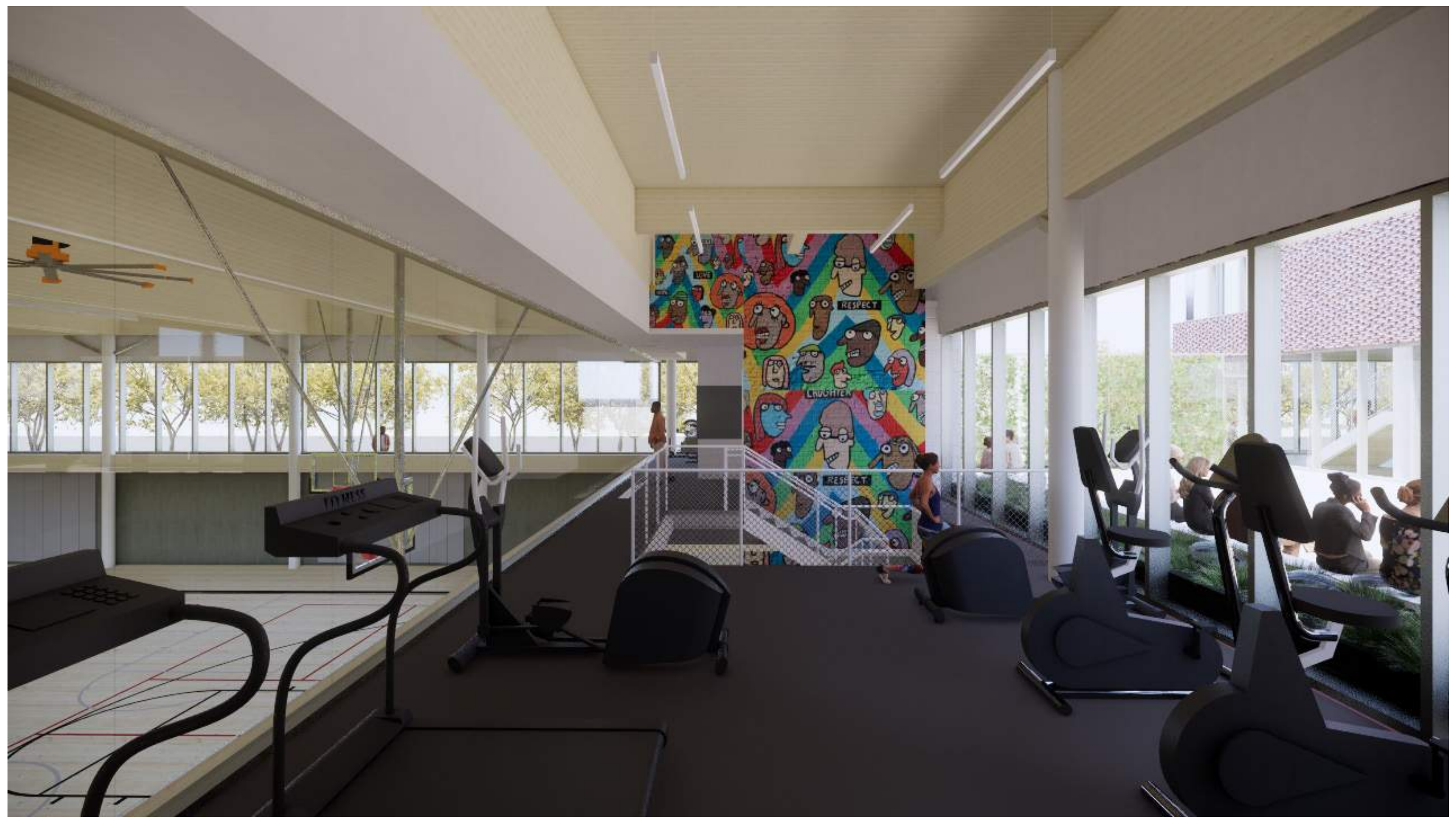
GYMNASIUM



GYMNASIUM



FITNESS



2.0 PROJECT ANALYSIS

2.0 PROJECT ANALYSIS

A. SITE HISTORY AND CONTEXT

One of Saint Paul's largest residential areas, the North End houses a number of businesses, schools, churches and parks. The neighborhood was developed in the 1870s and 1880s south of Maryland Avenue, where Victorian-era homes were built on narrow lots. The neighborhood's northern half was developed in the 1920s or later; the area along Wheelock Parkway was developed in the 1950s. The main commercial corridor is Rice Street (named after the famous Minnesota politician Henry M. Rice), which became a commercial corridor in the late 1890s with the arrival of streetcars.

The North End is home to MaryDale Park, Lewis Park, Sylvan Park, Lyton Park and the Front Avenue Skate Park. The North End houses numerous schools. Some of the state's more prominent politicians, such as Henry Sibley, William Marshall and Alexander Ramsey, are laid to rest at Oakland Cemetery. The North End also marks the start of the Gateway Trail, and the Trout Brook Nature Sanctuary and Reserve is found at its eastern border. The Willow Reserve, a bird sanctuary, is a 5.5-acre wetland and home to many species of birds. The North End is rich in history and traditions dating back to the 1800s as well as embracing customs from newer arrivals, being home to the largest population of Karen and Karenni immigrants from Burma.

- The North End and Rice Street historically have been a working-class neighborhood.
- The first residents of the late 19th century were British, Irish, German, and Scandinavian immigrants
- Later into the 20th century Polish and Italians started to settle the North End
- Many residents were of the working class – occupation laborers, tradesmen, shopekeepers, etc.
- The railroad and milling industries created the first jobs that brought people to the North End.

2.0 PROJECT ANALYSIS



Rice street / North End : circa1923

2.0 PROJECT ANALYSIS

- Rice Street was the main commercial artery for the north end, including grocers, barbers, cleaners, cobblers, undertakers, taverns, and a few professional offices.
- Rice Street was a streetcar route – horsecars from 1880 – 1891, electric cars from 1892 – 1953.
- In 1930, there 24 grocers, butchers, confectioners, and bakers along Rice Street between Sycamore St. and Maryland Ave.
- The buildings of the neighborhood were noted to be without frills and very utilitarian in their design

2.0 PROJECT ANALYSIS



Rice street / North End : circa1945

2.0 PROJECT ANALYSIS

1. Historic Site Photographs



Rice street paint store : circa1925



Rice street nursery school : circa1940



Rice street carnival : circa1910



Rice street : Tschida Bakery



Rice street : horse drawn street car



Rice street streetcar track fire : circa1952



Rice street & University : circa 1932



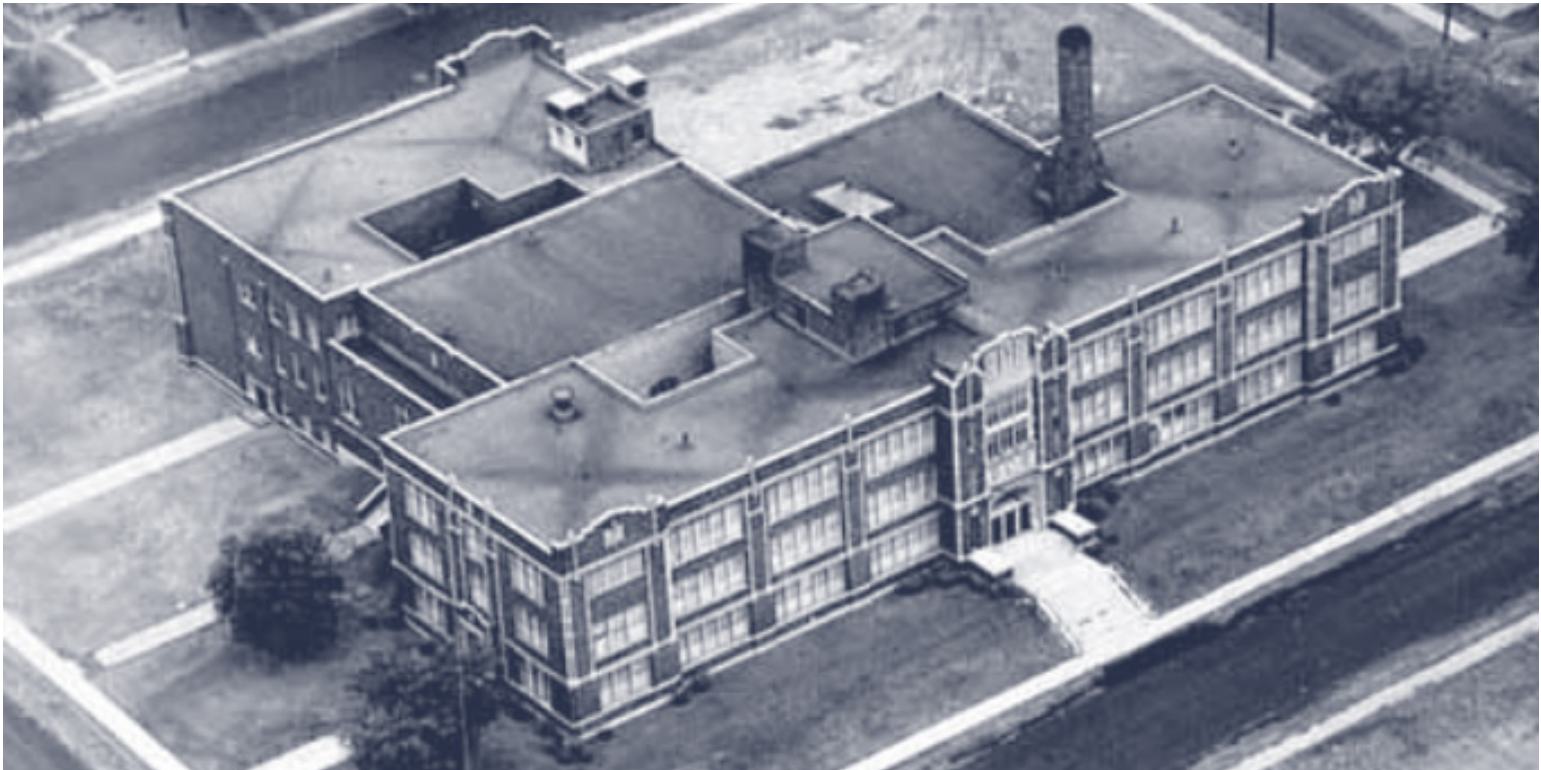
Rice street & Como : circa1959

2.0 PROJECT ANALYSIS

2. Historic Washington High School
(now Paul & Sheila Wellstone Elementary)

- Opened in 1929, and was the only public high school in the North End.
- The high school served as a community center and anchor for the neighborhood.
- Designed by William Illing, and Clarence Wigginton also collaborated on the design.
- The lot is 3 total blocks that terrace down to Rice Street. Woodbridge Street and Albemarle Street were vacated sometime after 1950.

2.0 PROJECT ANALYSIS



Historic Washington High School : circa 1929



Clarence Wigginton : Architect



Historic Washington High School : circa 1944



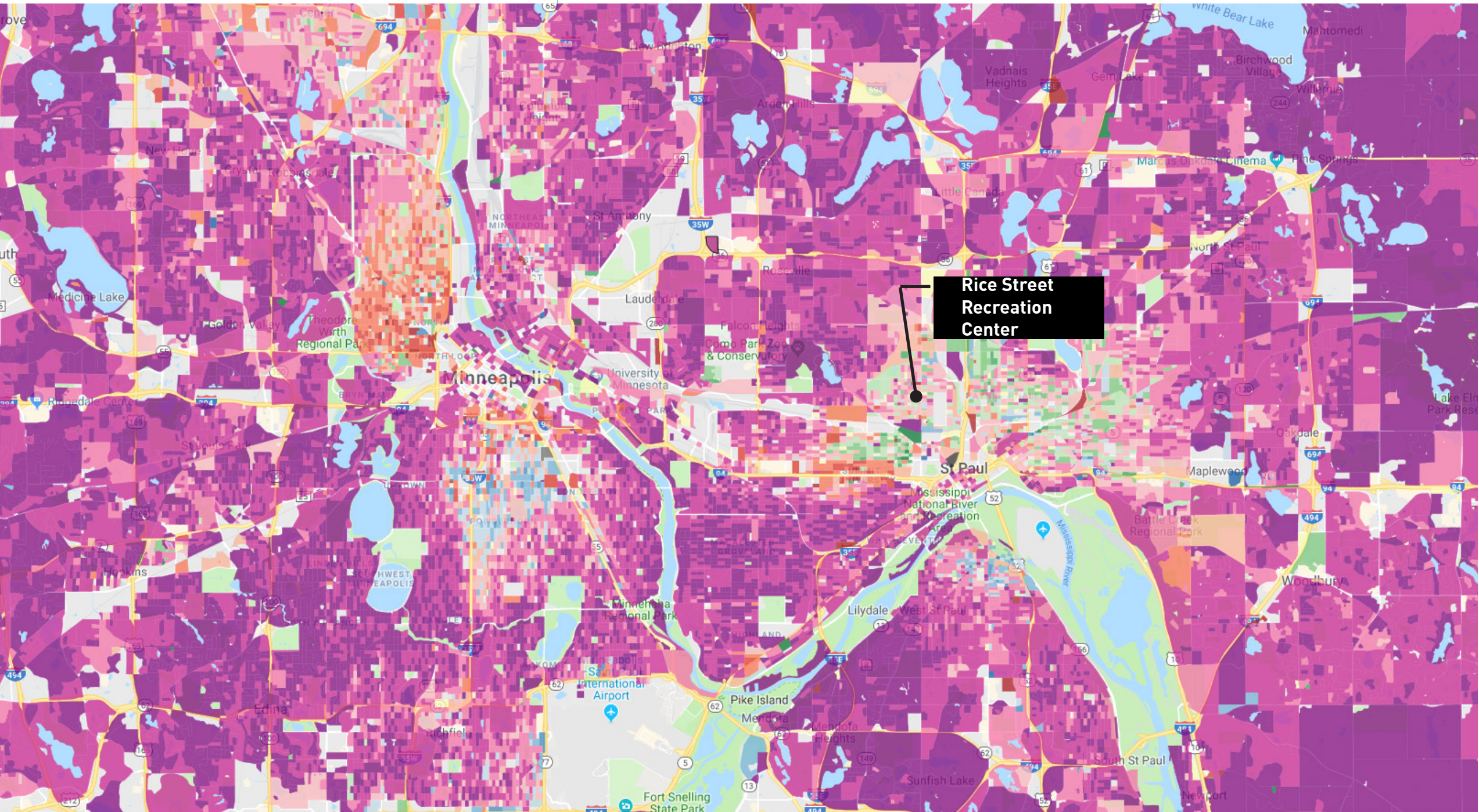
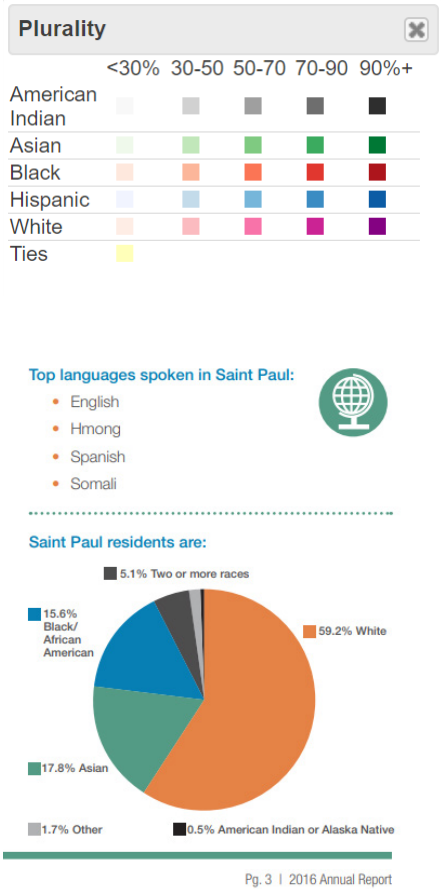
Historic Washington High School Neighborhood Aerial Photo: circa 1929

2.0 PROJECT ANALYSIS

B. COMMUNITY DEMOGRAPHIC ANALYSIS

1. Twin Cities Metro Area Demographic Analysis

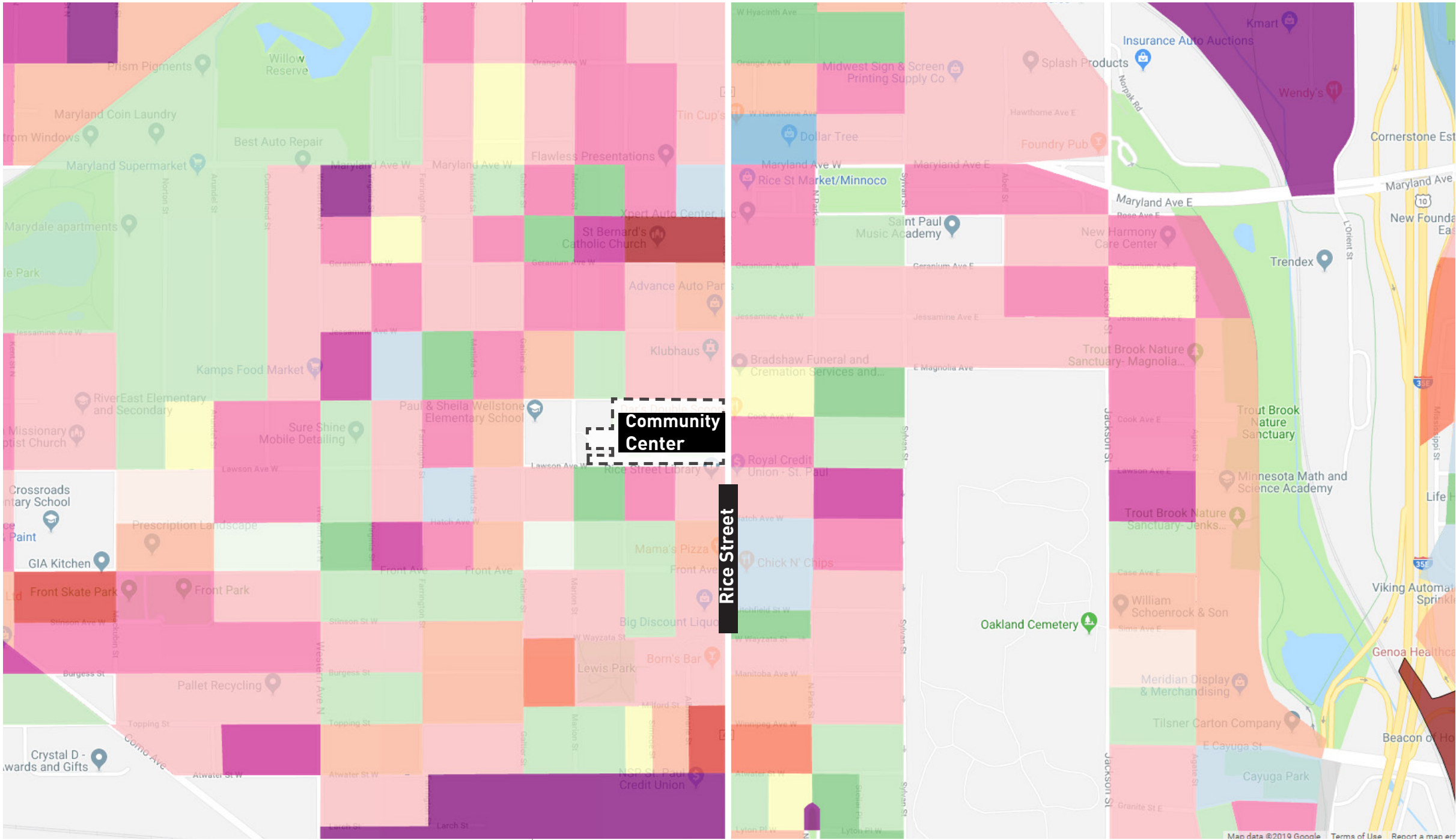
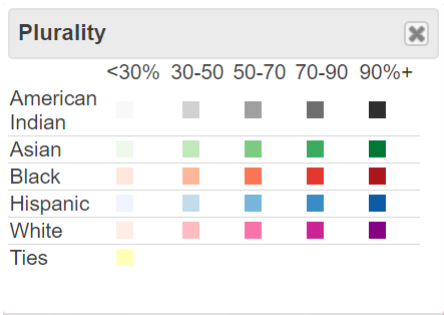
2.0 PROJECT ANALYSIS



2.0 PROJECT ANALYSIS

2. North End Neighborhood Demographic Analysis

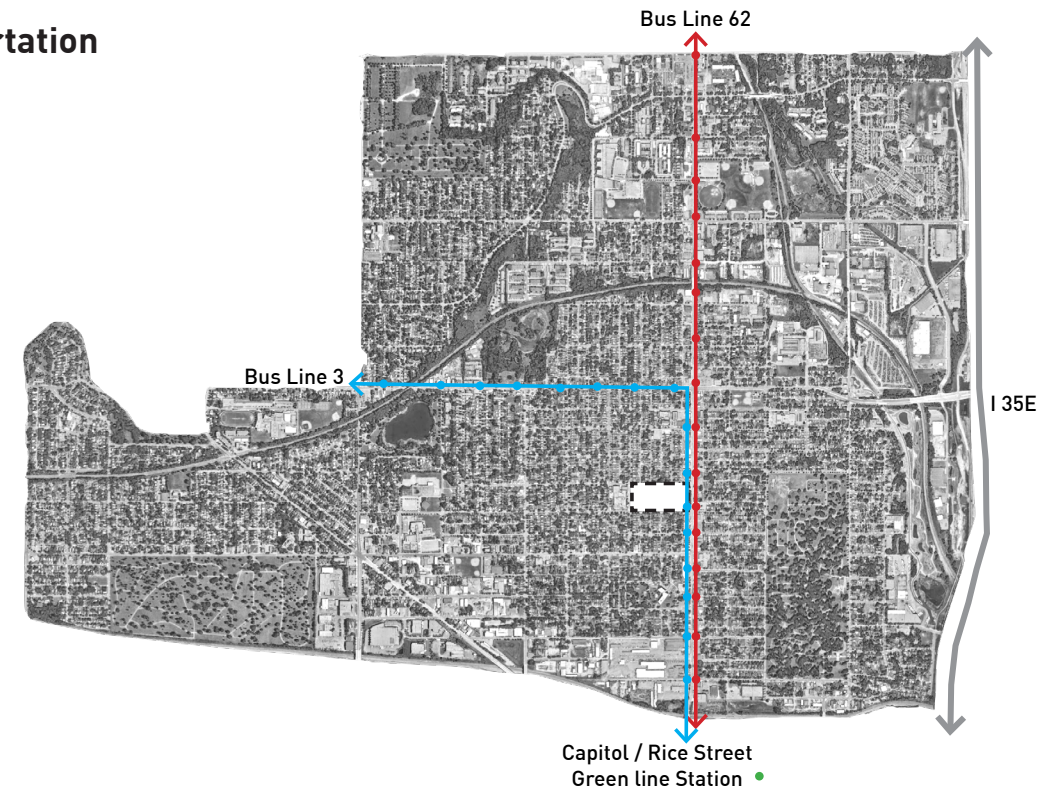
2.0 PROJECT ANALYSIS



2.0 PROJECT ANALYSIS

C. NORTH END CONTEXT SITE DIAGRAMS

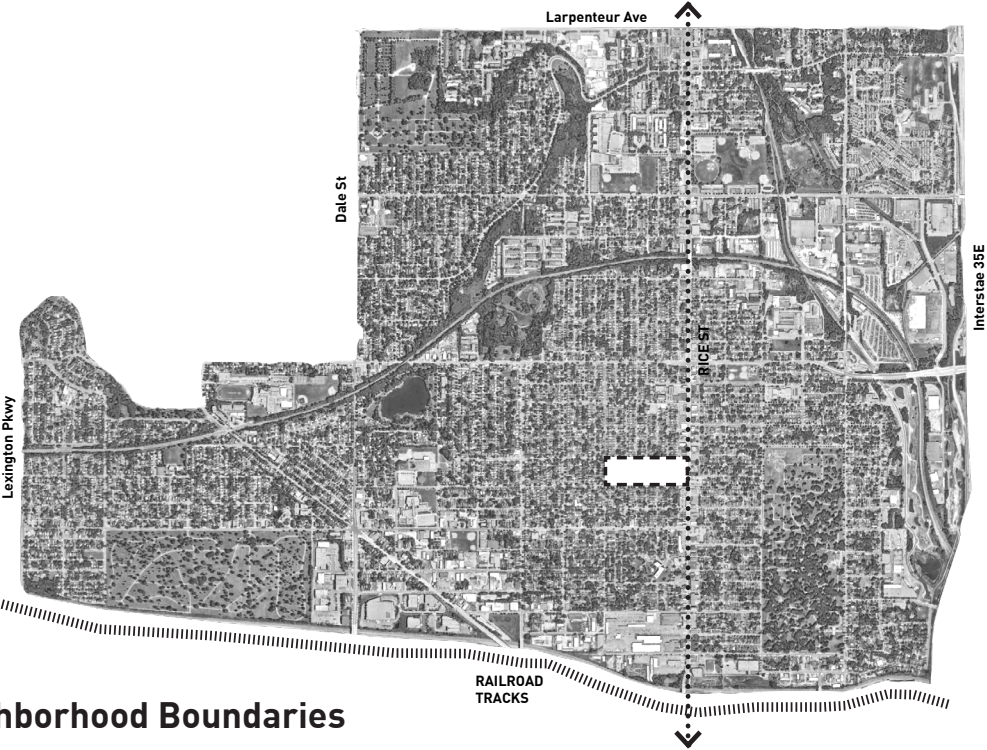
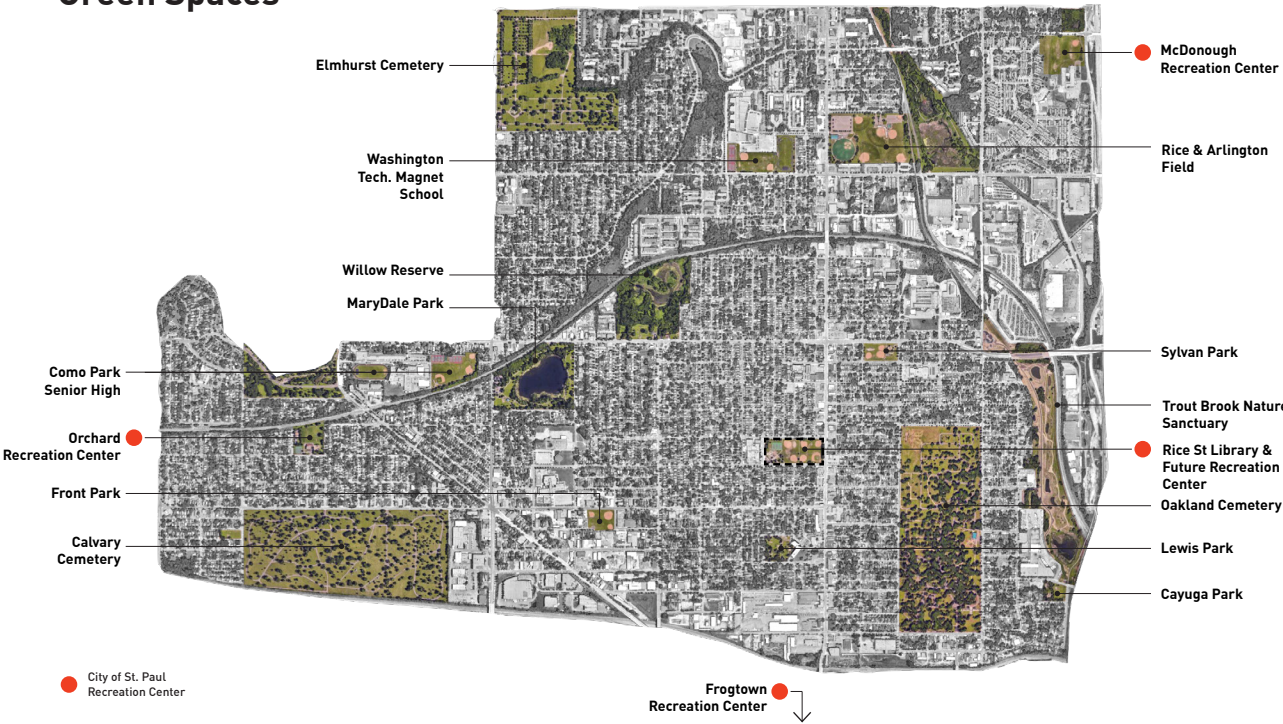
Transportation



Traffic

2.0 PROJECT ANALYSIS

Green Spaces



Neighborhood Boundaries

2.0 PROJECT ANALYSIS

D. ZONING ANALYSIS

Preliminary zoning information is based on currently published City of St. Paul zoning requirements available at:
<https://www.stpaul.gov/departments/safety-inspections/zoning>

1. Recreation Center Zoning Code Analysis
(Zoning code review is preliminary and subject to change)

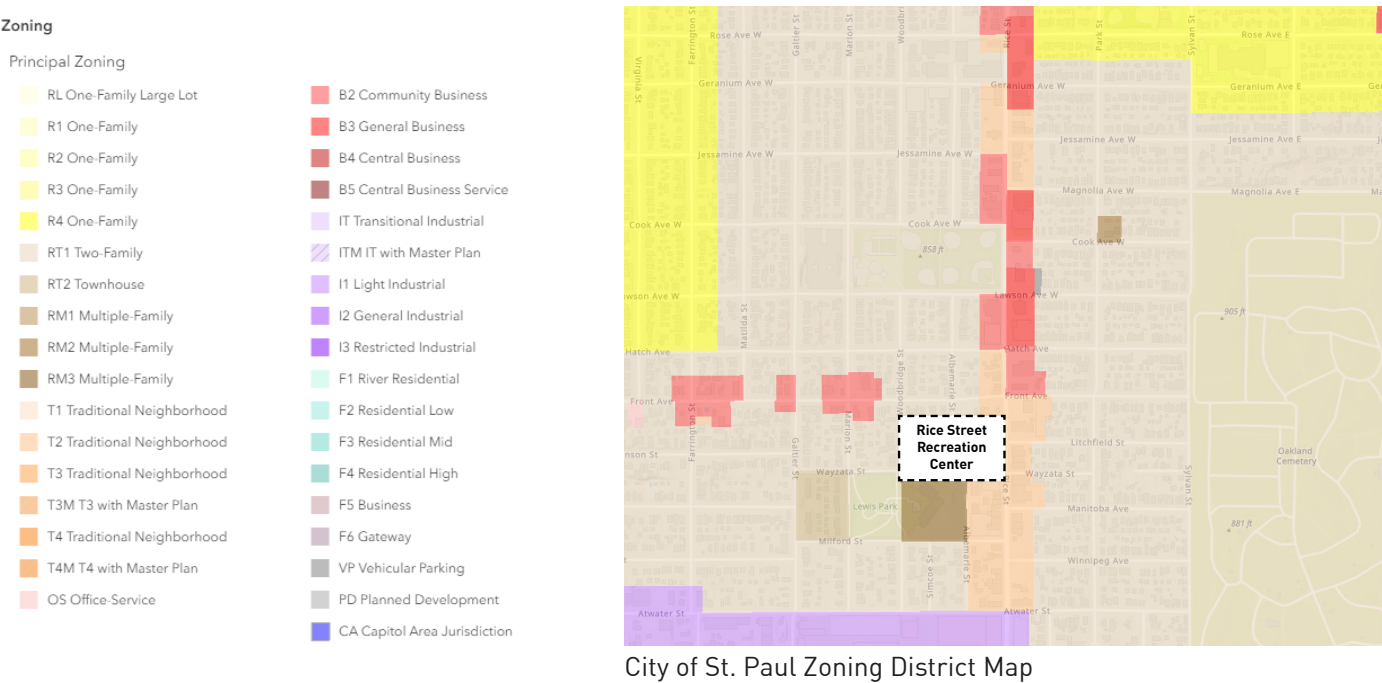
- 1.1 General Requirements
- **Proposed site current zoning** = RT-1 “Two Family Residential District”
 - **Proposed Use** = Recreation Center
 - Allowed (as a conditional use)
 - **63.231 - Residential District Dimensional Standards**
 - RT-1 Height Limit = 40’
 - Front Setback = 25’
 - Side Setback = 9’
 - Rear Setback = 25’
 - **63.110 - Building Design Standards**
 - (c) In pedestrian-oriented commercial districts characterized by storefront commercial buildings built up to the public sidewalk, new principal structures shall have a maximum setback of fifteen feet from a commercial front lot line. At intersections, buildings shall “hold the corner,” that is, have street facades within fifteen (15) feet of the lot line along both streets, or the site plan shall have vertical structural elements that “hold the corner.” A primary entrance shall face a primary abutting public street.
 - (d) Building materials and architectural treatments used on sides of buildings facing an abutting public street should be similar to those used on principal facades.
 - (e) The visual impact of rooftop equipment shall be reduced through such meas as location, materials, or integration into the roof design. Screening shall be of durable, permanent materials that are compatible with the primary building materials. Exterior mechanical equipment such as ductowrk shall not be located on primary building facades.

2.0 PROJECT ANALYSIS

- **63.207 - Parking Requirements (min. by use)**
 - Community Center = 1 space per 1,000 sq. ft. GFA
- **63.210 - Bicycle Parking**
 - (a) Bicycle Parking Required
 - (1) Off-street parking facilities shall provide a minimum of one (1) secure bicycle parking space for every twenty (20) motor vehicle parking spaces.
- **63.313 - Visual Screening**
 - For off-street parking facilities that adjoin a residential use or zoning district, a visual screen shall be provided and maintained as required in section 63.114.

2. Library Zoning Code Analysis

- 2.1 General Requirements
- **Current zoning** = B2 “Community Business”
 - **Current Use** = Library (a permitted use in B2 district)
 - **63.207 - Parking Requirements (min. by use)**
 - Public Library = 1 space per 500 sq. ft. GFA
 - Current Parking Provided = 34 stalls (2 handicap stalls)
 - Min. Parking required = 26 stalls (based on existing GFA)



2.0 PROJECT ANALYSIS

E. NEIGHBORHOOD CONTEXT / SCALE



1



2



3



4



5



6



7



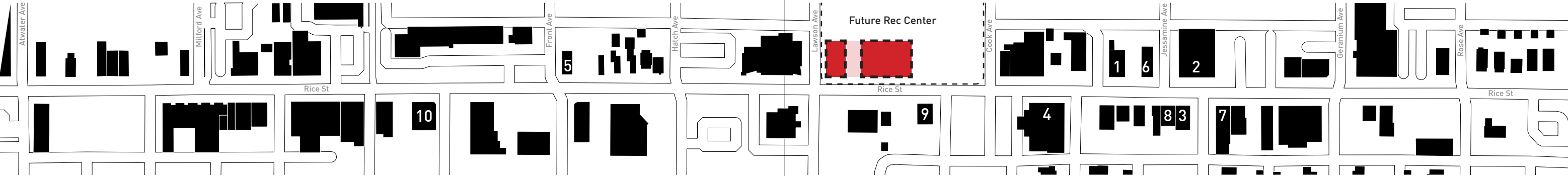
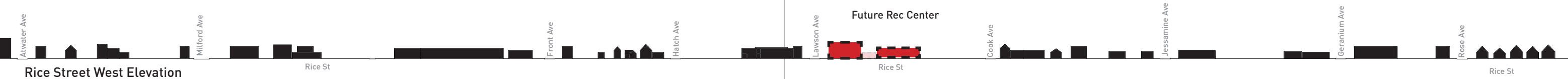
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9

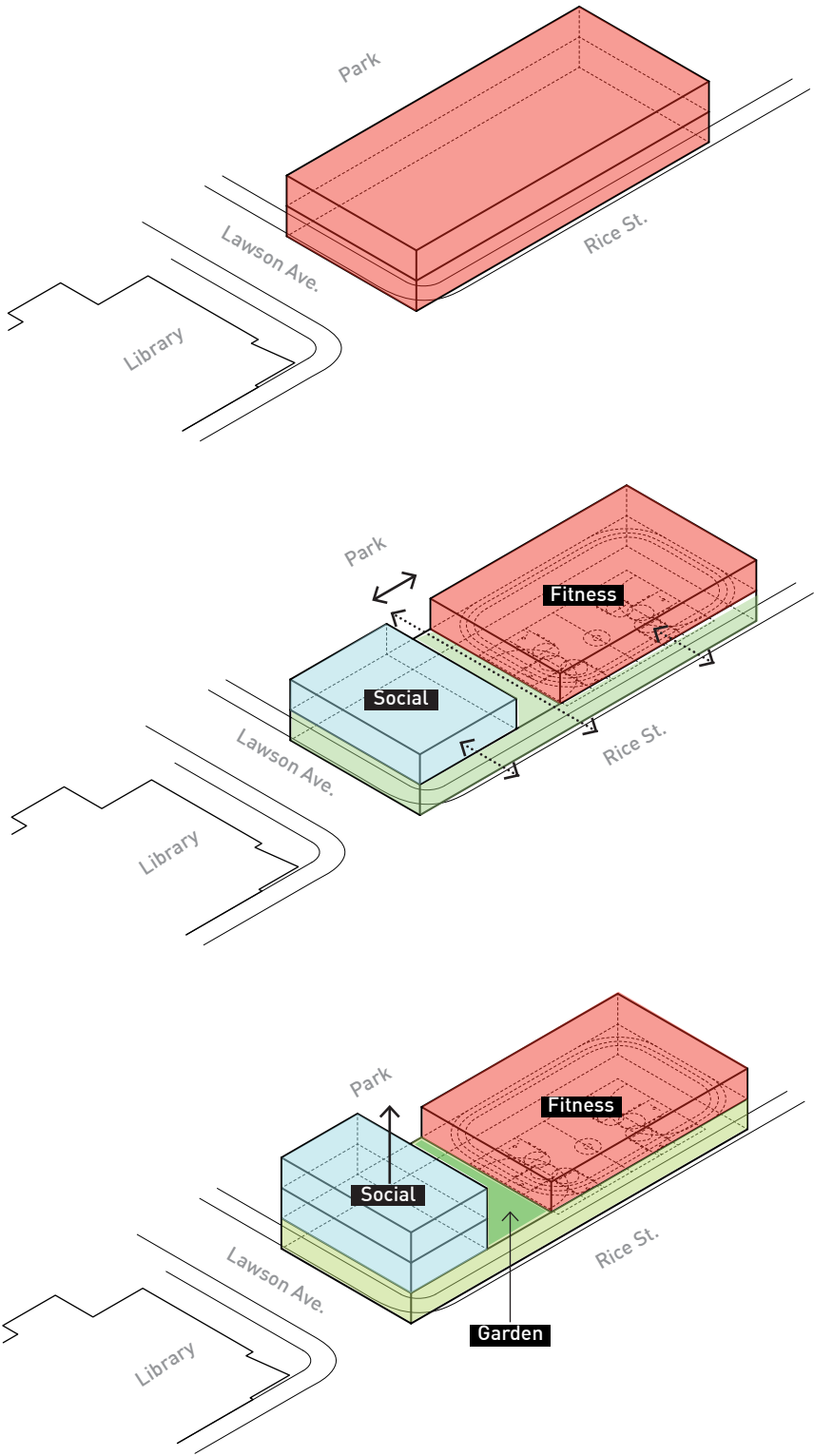


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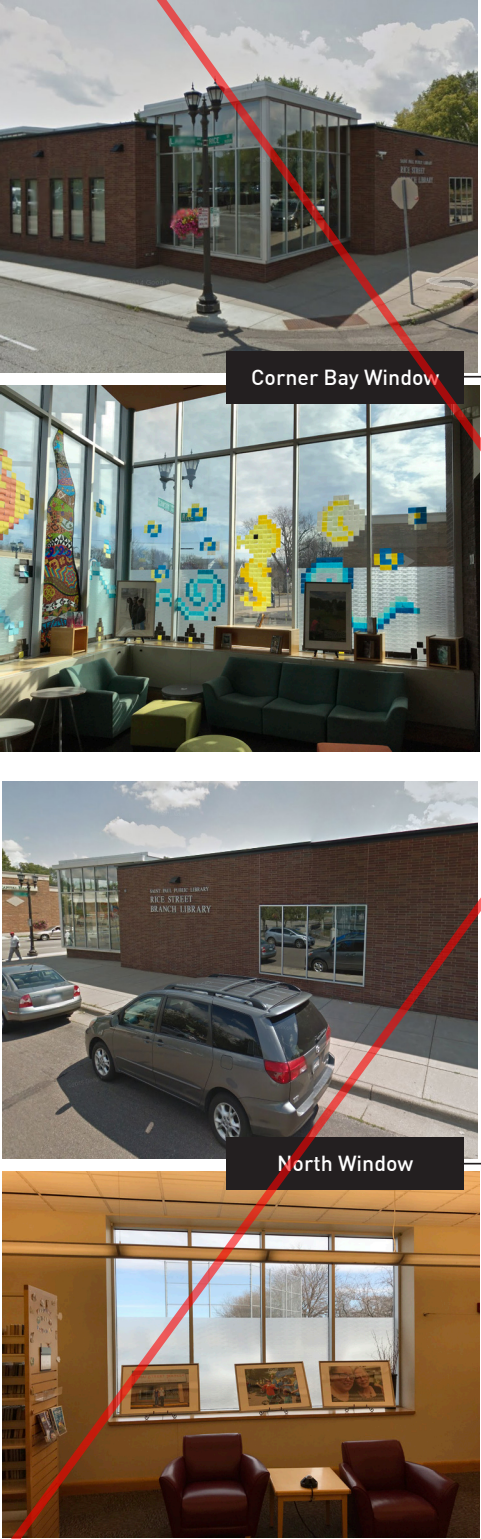


2.0 PROJECT ANALYSIS

- 1. A single massing representing the program as a 2 level block. Creates a wall that blocks visibility of the park from Rice St.
- 2. The massing is broken into two smaller volumes to better fit the scale of Rice Street, and maintain a visual connection to the park. This also helps organize the building into a fitness side, and a social side. The upper blocks are connected via the lower park level which provides direct access to the park.
- 3. The social block is raised to a second level above Rice St to help hold the corner and give it prominence from the street level. This reduces the overall footprint, and creates more space for a secure garden. The second level also provides views over the park, and to the capitol building.



2.0 PROJECT ANALYSIS



New Library Entrance Options to Create Stronger Connection to Recreation Center Entrance

- 1. Existing Teen area corner bay window
- 2. Existing reading area north window



April 14, 2023

VIA EMAIL ONLY

George Gause, Supervisor
Heritage Preservation
Planning and Economic Development
1400 City Hall Annex
25 Fourth Street West
Saint Paul MN 55102

RE: Proposed North End Community Center
145 Lawson Avenue West
Saint Paul, Ramsey County
SHPO Number: 2023-1051

Dear Mr. Gause,

Thank you for initiating consultation with our office regarding the above project. Information received in our office via e-mail submission on February 9, 2023 and via hard copy submission on April 12, 2023 has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by Section 106 of the National Historic Preservation Act of 1966, as amended, and implementing federal regulations at 36 CFR Part 800.

We have completed a review of your initial submission dated February 9, 2023 which included the following documentation in support of your agency's "No Adverse Effect" Section 106 finding for the federal undertaking:

- "PED HUD Section 106 – Consultation Form" (Consultation Form);
- Attachment A: Location Map, Project Area, Existing Conditions (photographs), Proposed Site Plan;
- Attachment B: Proposed Area of Potential Effect for North End Community Center;
- Attachment C: Section 106 Consultation Materials for National Park Service Outdoor Recreation Legacy Partnership (ORLP) Grant Program adjacent project; and
- Attachment D: MnDOT Cultural Resources Unit, Rice Street Reconstruction Project Section 106 Determination Letter (dated 10/27/2022).

Subsequently, on April 12, 2023, in response to a request from our office for documentation referenced in your 2/9 submission which was missing, we received hard copies of the following:

- Attachment E: Identification of Historic Properties within the APE (current property photographs); and
- Attachment F: Site History, Context, and Project Analysis (document titled "North End Community Center 2022 Project Update", Snow Kreilich Architects, 25 pages).

Our comments and recommendations are provided below.

Define Federal Undertaking and Determine the Area of Potential Effect

We understand by the City's February 9th Consultation Form that the proposed federal undertaking involves assistance through the U.S. Department of Housing and Urban Development's (HUD) Community Development Block Grant (CDBG) and Community Development Funding to facilitate the construction of a new 25,000 square foot community/recreation center, the scope of which includes two (2) new buildings with connecting courtyard, a surface parking lot, and other site/landscaping amenities within the existing Fitz Klark Recreation Field.

We appreciate the additional clarification the City has provided regarding the proximity and relationship that this federal undertaking has with the adjacent Rice Recreation Center Facilities undertaking funded by the National Park Service's ORLP Grant Program (SHPO# 2022-2073). We understand that these two federal undertakings have independent utility and are not considered connected actions under Section 106.

Based upon our understanding of the scope and nature of the North End Community Center federal undertaking, we agree that the City's Area of Potential Effect (APE) definition, as described in narrative in the Consultation Form and documented on Attachment B, is generally appropriate to take into account potential direct and indirect effects.

Identification of Historic Properties

Archaeology

Our records confirm that there are no recorded archaeological sites within the APE or immediate surrounding area. Our analysis of the existing and historic site conditions indicate that the likelihood of intact archaeological sites is low within the APE. Therefore, based upon our understanding of the likely extent of ground disturbance associated with the building construction, it is our opinion that an archaeological field survey is not warranted for the undertaking as it is currently proposed.

Historic/Architectural

As acknowledged in the Consultation Form, the proposed federal undertaking will be constructed within the boundaries (school grounds) of the property historically known as the **George Washington High School** (RA-SPC-4419). The George Washington High School, including the school building and surrounding site, was determined **ineligible** for listing in the National Register of Historic Places (NRHP) as part of an earlier Section 106 review. Although this property evaluation was completed over ten (10) years ago, we agree that this earlier determination remains valid.

Also, as acknowledged in the Consultation Form, the City has identified within the APE a **Commercial Building** (RA-SPC-3088) at 1061 North Rice Street, a property identified as part of the 1983 city-wide historic sites survey. Building permit records indicate that this building was originally constructed in 1895, with several major alterations to its interior and exterior occurring since that time. Although the 1983 reconnaissance survey is considered outdated and incomplete by today's standards, based upon information provided to our office at this time, we agree that the property doesn't appear to have historic significance and therefore **further intensive level survey and evaluation is not warranted** for 1061 North Rice Street.

The City's Consultation Form indicates the presence of eighteen (18) single-family residential and commercial properties within the APE, which either face or are directly adjacent to the community center project site. We assume that most, if not all, of these properties meet the minimum threshold for listing in the NRHP which is 50 years.

The City has included current, street view photographic images and addresses of these 18 residential and commercial properties. While our records search does not indicate that any of the 18 properties on these blocks have been subject to previous survey, either individually or as a potential historic district, it is the City's responsibility, as the federal agency, to provide documentation in support of any determinations that there are no additional historic properties within the APE. We assume that the City finds that the level of effort to identify historic properties within the APE, as documented, has been reasonable and carried out in good faith in accordance with 36 CFR 800.4(d). Based upon our review of the 18 property photographs and our understanding of the history of this Saint Paul neighborhood, it is our opinion that **further survey and evaluation of these 18 properties is not warranted** at this time.

In summary, we concur with the City's historic property identification results which conclude that there are no historic properties identified within the APE for the currently proposed undertaking.

Finding of Effect

Because no historic properties were identified within the APE, consistent with 36 CFR 800.4(d)(1), our office finds that **no historic properties will be affected** by the undertaking, as it is currently proposed.

Implementation of the undertaking in accordance with this finding, as documented, fulfills the City's responsibilities under Section 106. If the City receives written objection to the No Historic Properties Affected finding from an interested party or the public following issuance of this comment letter, then the City will need to notify our office of the disagreement. If the City does not carry out the undertaking as proposed, including, but not limited to, a situation where design changes to the currently proposed project diverts substantially from what was presented at the time of this review, or design changes involving undisturbed ground are made for the undertaking following completion of this review, then the City will need to reopen Section 106 consultation with our office.

Please feel free to contact me if you have any questions regarding our review. I can be reached at (651) 201-3290 or by e-mail at sarah.beimers@state.mn.us.

Sincerely,



Sarah J. Beimers
Environmental Review Program Manager

Cc via email:

Victor White, Chief Environmental Review Officer, City of Saint Paul
Christine Boulware, Historic Preservation Specialist, City of Saint Paul



328 West Kellogg Blvd St Paul, MN 55102

OSA.Project.Reviews.adm@state.mn.us

Date: 04/13/2023

George Gause
City of Saint Paul Department of Planning and Economic Development
651-266-6714
George.Gause@ci.stpaul.mn.us

Project Name: North End Community Center

Notes/Comments
Thank you for consulting with the Office of the State Archaeologist (OSA) about this project. A review of our files indicates there are no previously recorded archaeological sites, archaeological site leads or burials in the proposed project area. The location of the proposed development also has a low potential to contain previously unidentified archeological sites or features, therefore, the OSA has no concerns with the project at this time.
Recommendations
<input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> No Concerns <input type="checkbox"/> Monitoring <input type="checkbox"/> Phase Ia – Literature Review <input type="checkbox"/> Phase I – Reconnaissance survey <input type="checkbox"/> Phase II – Evaluation <input type="checkbox"/> Phase III – Data Recovery

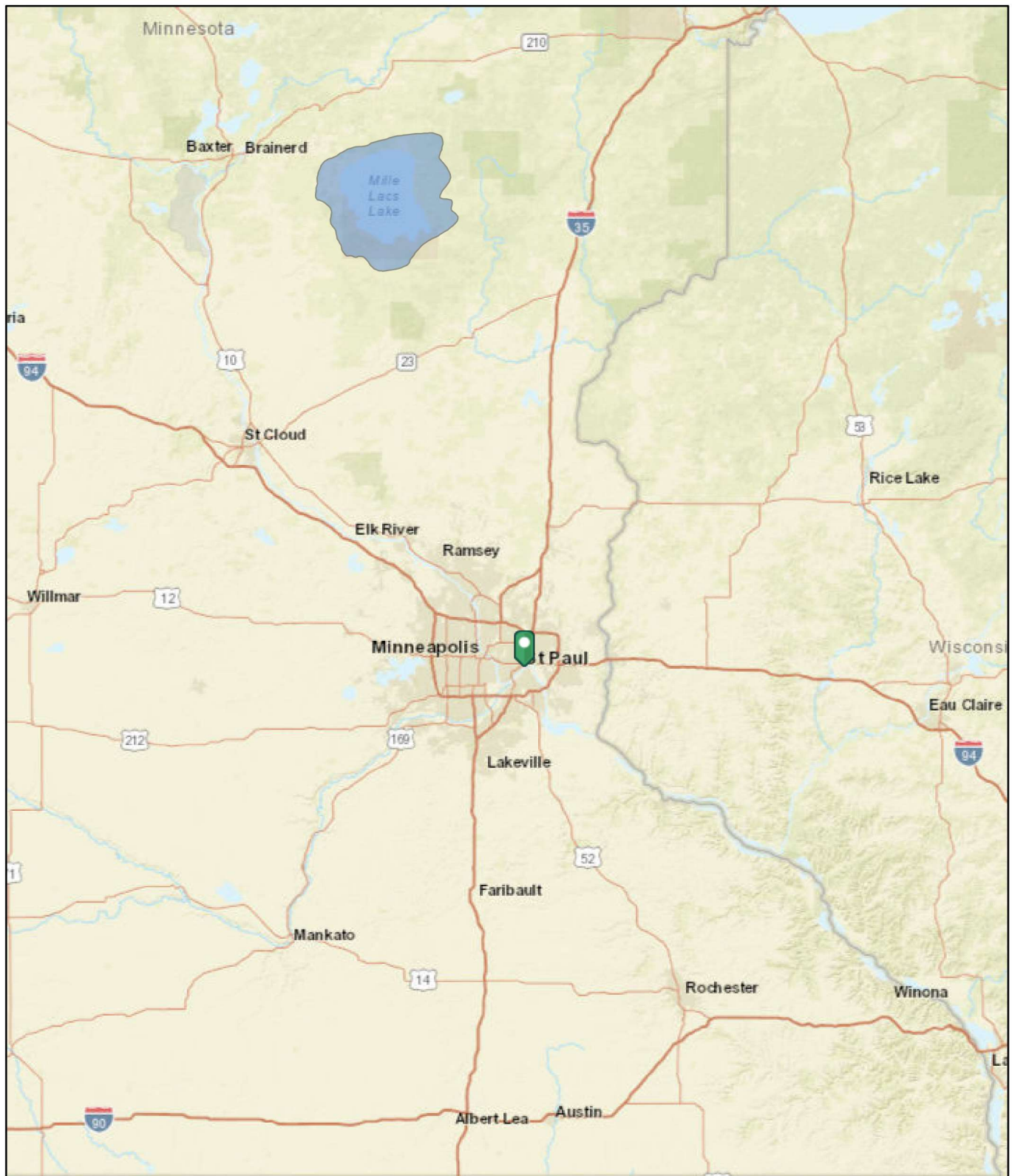
If you require additional information or have questions, comments, or concerns please contact our office.

Sincerely,


A handwritten signature in dark ink, reading "Amanda Gronhovd". The signature is fluid and cursive, with the first name "Amanda" being more legible than the last name "Gronhovd".

Amanda Gronhovd
State Archaeologist
OSA
Kellogg Center 328 Kellogg Blvd W
St Paul MN 55102
651.201.2263
amanda.gronhovd@state.mn.us

City of Saint Paul's Location Relative to Mille Lacs SSA



6/2/2022, 3:31:25 PM

 Sole_Source_Aquifers

1:2,311,162
0 12.5 25 50 mi
0 20 40 80 km

Esri, HERE, Garmin, NGA, USGS, NPS



U.S. Fish and Wildlife Service

National Wetlands Inventory



Figure 14 NWI surface water and wetlands



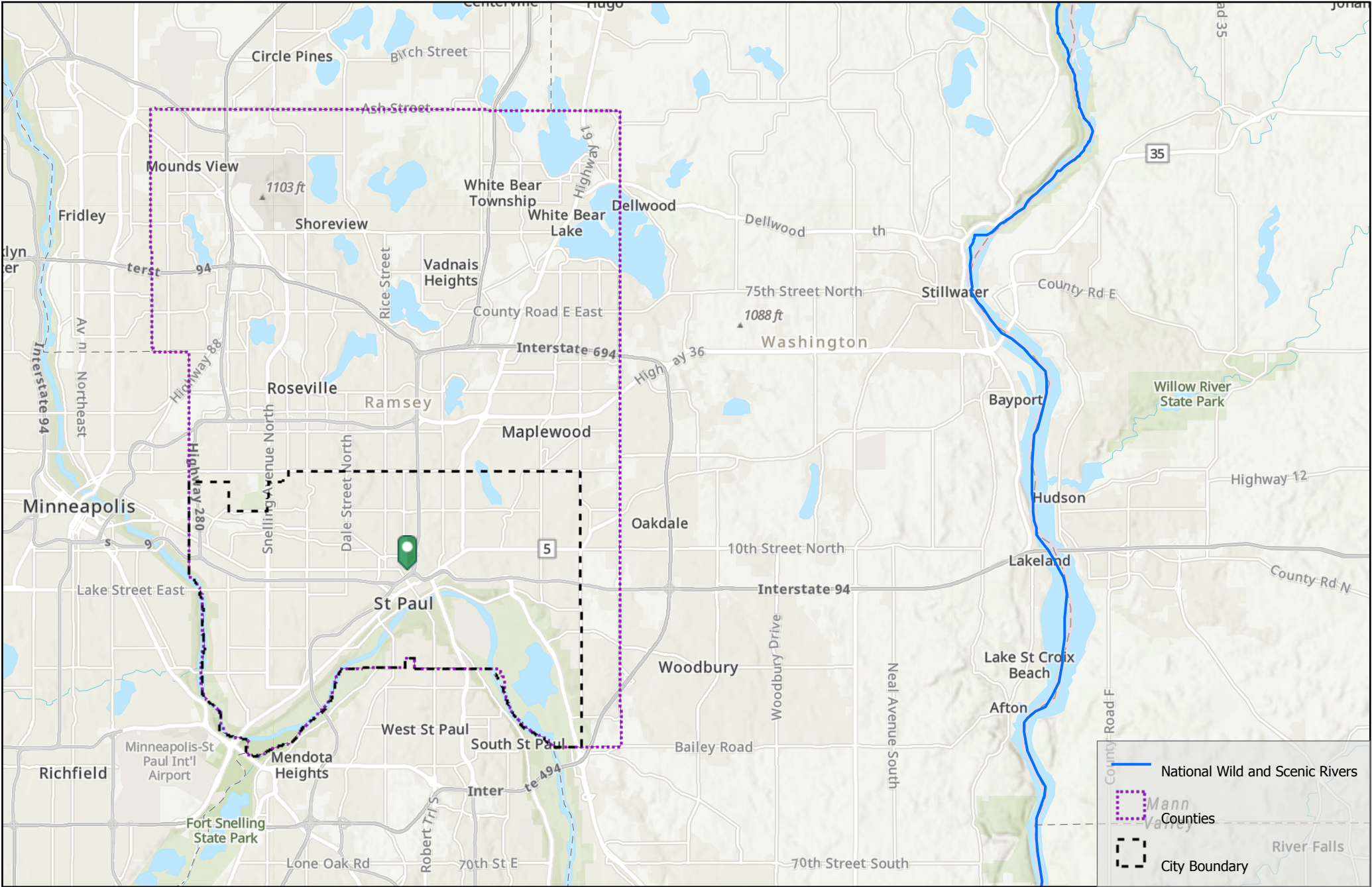
U.S. Fish and Wildlife Service, National Standards and Support Team,
wetlands_team@fws.gov

April 24, 2023

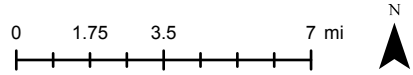
Wetlands

	Estuarine and Marine Deepwater		Freshwater Emergent Wetland		Lake
	Estuarine and Marine Wetland		Freshwater Forested/Shrub Wetland		Other
			Freshwater Pond		Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community



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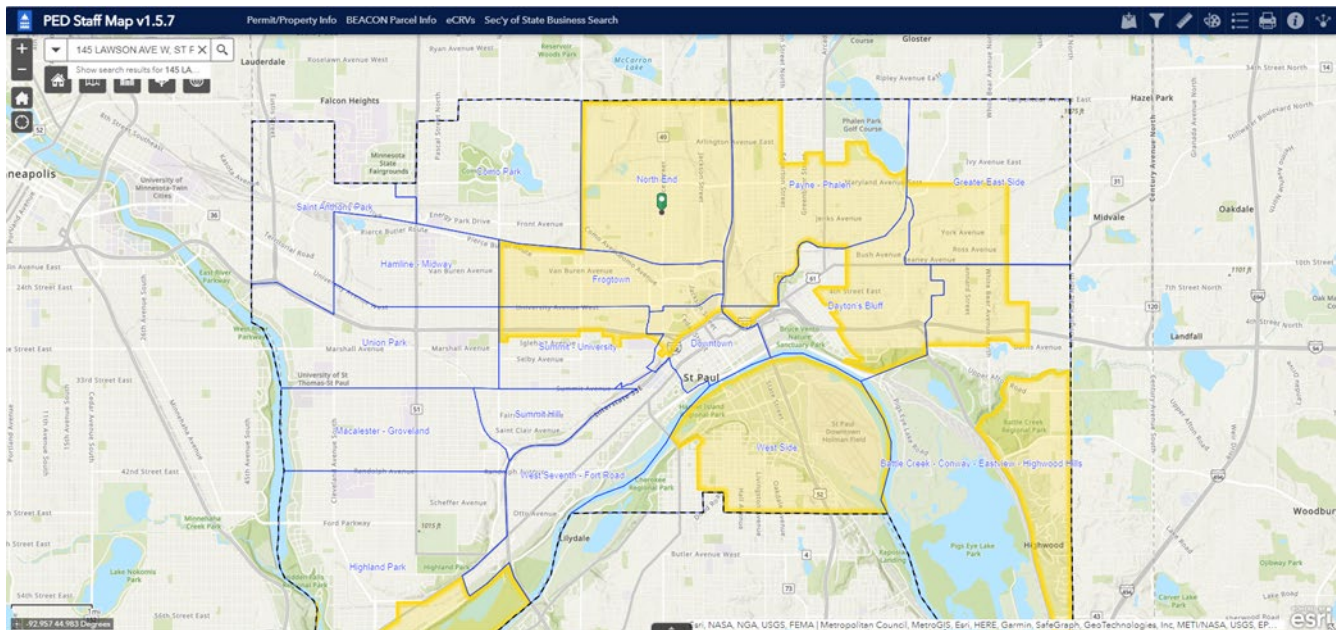
North End Community Center Environmental Justice Statement

Compliance with Executive Order 12898

North End Community

The North End, Planning District 6, is approximately 3.5 square miles bound by Larpenteur Avenue to the north, Interstate 35-E to the east, Dale Street to the west, and a Burlington Northern Santa Fe Railroad to the south. The residential population in D6 is estimated to be 23,752 persons as of the 2020 Census. The community is diverse and low-income.

Figure 1 – North End Community Center in Relation to Areas of Concentrated Poverty (ACP)50 Areas



Yellow highlighted areas in figure 1 are census tracts where the US Census Bureau identified the income and demographic characteristics as collected and evaluated by the 2020 Census. The location marked with a green symbol is the North End Community Center Project (NECC) shown within an Area of Concentrated Poverty (ACP)50 area where 50% or more of residence are people of color.

The North End ranks 17 of 17 districts with the highest percent of people with a monthly standard income within 200% of Federal Poverty Guidelines (FPG). Approximately 42% of the population is estimated to make less than \$35,000 or less a year. The MN Compass Project, made possible by the Wilder Foundation, shows us that 61.5% of the households are estimated to be cost-burdened rental households. Approximately 12.8% of the population is known to have a registered disability.

Of all 17 Planning Districts in the City of Saint Paul, the North End (D6) ranks highest in the percentage of the population under 18 years old. Creating recreational opportunities to advance youth programming is a central focus of the project.

An important context for our understanding is that 48% of the population in the North End speaks a primary language other than English. Residents with English as a second language face barriers in communications for access to resources. Opportunity to address this challenge were surveyed and taken into consideration during the design phase and long-term program management. A comprehensive and ongoing community engagement plan with strategies and outcomes is available within the Environmental Review Record (ERR).

Meeting Community Development Needs

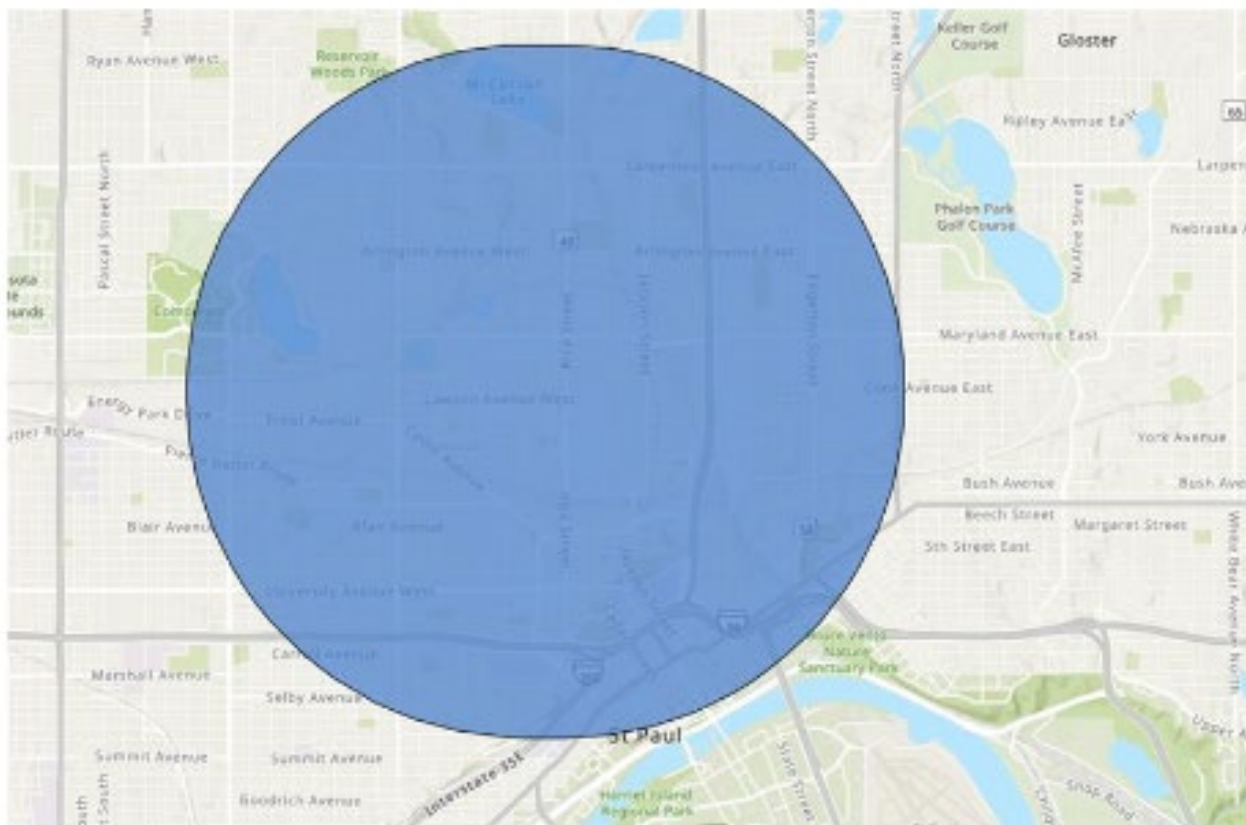
The North End is underserved in the amount and location of outdoor and indoor recreational facilities that allow for healthy physical activity and social interaction for community development within a reasonable walking, biking, or transit distance for residents. The North End needs investment and more opportunities for multigenerational programming that provides access to recreation for all ages and levels of ability. See purpose statements in earlier attachments in this ERR which defined existing conditions and trends, along with expected or anticipated outcomes of the project.

The project is particularly necessary as the City of Saint Paul, our nation, and international community heals from the impacts of the viral pandemic. The isolation of individuals and groups was a strategic response to stop the spread of the virus as everyone responded to the health threat. Now, in 2023 we are in a time of recovery and reconnection. The program opportunities afforded by this project are a critical component in this effort to re-connect individuals and populations in a safe and healthy manner.

NECC Park Service Area

The service area defined in Figure 2 is ½ mile buffer surrounding the NECC. This service area is defined for the NECC based location or proximity to the site. It is a different geographic unit of analysis than the statistics reported for the geography of the North End Planning District 6.

Figure 2 - NECC Service Area, Active Lifestyle Center, City of Saint Paul __Systems Plan



The population residing within this defined park service-area is estimated to be larger in total persons and number of households in comparison to the estimate for the North End Planning District community alone, with approximately 36,000 households and a total population of 95,360. Similar to data available for the North End Planning District, the population in this service area is also seen to be young and diverse where 67.6% of residents are people of color, including 24.4% Black and 28.8% Asian. It is estimated that 23.6% of this population in the service area live below the poverty level.

No Adverse Environmental Impacts | Low Risk of Environmental Hazards

The environmental justice lens considers both whether the project itself creates impacts to the environment from a change and increases in land use and intensity (NECC as causal agent) given characteristics of proposed site design and improvements and sufficiency in access and capacity to required infrastructure and public safety services. Conversely, the environmental justice lens also considers whether the larger environmental context within which the NECC project is situated, poses any environmental threats to the health and safety of the NECC future user population.

To evaluate risk and potential exposure, the department of Planning and Economic Development (PED) executed a thorough review of data provided by Environmental Protection Agency (EPA), MN Pollution Control Agency, and others federal and local sources to identify and address any brownfield or hazardous waste site that would be a concern for adjacency to the project. See findings in site contamination and hazardous waste documentation for compliance with Resource Conservation and Recovery Act (RCRA) of 1976 and Comprehensive Environmental Response Compensation and Liability Act (CERCLA) passed in 1980 commonly known as Superfund.

PED reviewed the location and distance relationship of above-ground fuel storage tanks and the NECC project site for risk of explosive or flammable hazards. See the documentation on our evaluation and findings for compliance with explosive and flammable hazards within the ERR. There is no concern regarding vulnerability of park visitors to explosive, flammable, toxic, radioactive, or other hazardous materials.

There are no known negative environmental externalities from the development of the community center itself or on the project from conditions in the greater environment. No adverse impacts have been identified which would disproportionately impact the diverse low-income residents or business owners in the North End or expanded park service-area. Review of sixteen environmental laws and authorities required by Housing and Urban Development (HUD) for compliance with the National Environmental Policy Act (NEPA) provides the basis for these conclusions along with EA factor impact scores. The City of Saint Paul has not identified any potential negative impacts from the project or existing environmental conditions with unacceptable risk level to hazards for future park patrons.

Positive Impacts | Community Development Benefits

Comparative analysis across environmental, social and economic factors clearly shows a higher weight for positive impacts, which are cumulative. Positive impacts expected are provided in the ERR with supporting documentation. Our analysis shows that 9 of the 19 factors are considered to have beneficial impacts. The remaining 10 other factor evaluations, show no anticipated negative impacts to natural resources or biological communities.

With the increase in passive and active, indoor and outdoor, recreational programs, cumulative positive benefits to the community are expected from significant improvements made to the park and a new community center facility. The designed changes to the park will result in substantial programmatic improvements to outdoor fields, courts, green space, and play areas. Using artificial turf for the field's surface will reduce maintenance needs, improve surface quality across the field of play, extend the playing season in fall and spring, and allow for the striping of multiple sports' boundaries.

Each benefit allows the entirety of the project to better meet the community's needs and recreational interests. In addition to football and baseball that can be played on site today, the multipurpose field will have permanent athletic field striping for lacrosse and multiple levels of youth soccer. New shared courts will also be constructed for badminton and Sepak Takraw (sports that are popular in the community), and basketball.

There will be new play areas designed for 2-5-year-old and 5-12-year-old children. In this community many of the residents are renters of their homes without private green space. Improving the quality, access, and usefulness of shared spaces is an investment in the health of North End Residents.

The community center building will provide improved access to new state-of-the-art amenities to encourage new social connections and increased physical activity, especially when Minnesota's climate does not allow for outdoor recreation. Shared community spaces include multipurpose rooms, a teaching kitchen, youth and teen rooms, a gymnasium, dance room, fitness room, and a secure outdoor courtyard.

Disadvantaged populations in the community will have increases in accessibility across the site which includes new ADA accessible public facilities, services and programs that are easy to approach, enter, operate, participate in, and/or use safely and with dignity by a person with a disability, language barrier, or other challenge.

Equity in Planning Process | Culturally Specific Community Engagement

The project has been a high priority for Saint Paul Parks and Recreation for many years. Formal community engagement began when initial design funding was received for the project in the summer of 2019.

Planning and Economic Development Department observe that the Parks and Recreation Department embedded equity in this project's planning processes. See the Rice Campus Community Engagement Plan attached within the Environmental Review Record (ERR). Description of formal and informal meetings with neighborhood residents, direct communications with neighborhood nonprofits, cross-sectoral collaboration, and inter and intra governmental review processes (local, state and federal agencies).

Understanding realities and possibilities means implementing and continuing a community engagement approach at all stages of planning, design, construction, and long-term management. This project's community involvement strategy maintains a goal of improving access to outdoor recreation space and enhancing a sense of ownership, belonging, connection, and pride for the users it serves. Improvements are designed to meet existing site challenges and programmatic goals in one of the most culturally diverse neighborhoods in the city of Saint Paul.

The City of Saint Paul, Parks and Recreation Department and team of consultants underwent a comprehensive engagement process, which is ongoing. The guiding purposes, target audiences, potential barriers, focus on impacts, and strategies defined early on informed and involved the community served in design and programming decisions.

Among the initial phases of engagement included conversations with park users at neighborhood events, such as the Saint Paul's Marydale Festival and Rice Street Festival that summer. A full list of formal and informal meetings is available within the ERR and the Rice Campus Community Engagement plan.

For the NECC project to have its most significant impact, site and facilities are designed to meet today's needs and stay adaptable to meet future needs of populations served over time. This leads to a variety of approaches and outreach strategies used to engage the community to create spaces designed for multicultural and multigenerational program opportunities.

Outcomes of Engagement

Primary engagement kick-off events executed for the project were attended by over 200 people and included surveys of visitors and sticker-voting to help understand how existing park space is used, identify where it does not currently meet community needs, and learn what priorities should be for future improvements. Results of these surveys were shared on the project website with contact information for the design team's project managers for follow-up and continued communication. Additionally, these results were presented more formally to the community for additional feedback at various community events in late 2019 and early 2020.

The North End Neighborhood Organization (NENO) was engaged and will continually be engaged with the project. NENO is the local grass-roots neighborhood organization for the North End Planning District. The independent non-profit organization has a board comprised of volunteer members who "share a mutual love of their neighborhood and a desire to see it improve in any manner possible." Their knowledge of the neighborhood and connections to the community help provide valuable feedback on design decisions and direction for the project team.

Youth Focus

The Parks and Recreation Department engaged the Saint Paul Youth Commission (SPYC). The SPYC is a City Commission made up of high school-aged residents to advise on and advocate for local issues impacting young people. Every year, the Commission adopts priority projects and initiatives. Events held included multiple open house meetings at the site-adjacent Rice Street Library and the Rice Recreation Center "Teen Zone."

City design staff first presented the project to the SPYC in January 2020, and the SPYC made seeking completion of the NECC one of the priorities established for the 2020-2021 year. The SPYC has been a helpful project partner in communicating the needs of young residents and has expanded on youth feedback received from the Teen Zone open house.

The Teen Zone will be a safe gathering place for teens in the community, where they can connect with others, get homework help, or practice a skill such as music or cooking under supervision of mentors. These events were led by design staff from Saint Paul Parks and Recreation and the project's design consultants. Outcomes and results of this engagement received lead to initial design strategies and responses from futures users of diverse interests, ages, and backgrounds.

As part of their efforts on the project, the youth commissioners met with state legislators throughout the 2020 legislative session seeking state bonding to partially fund the project in collaboration with the City Council Member Brendmoen representing the North End. Youth Commissioner Chikamso Chijioke testified at a House Capital Investment Committee hearing on the proposal. Speaking during the virtual event, she said the following in support of this project: "I've lived in the North End for almost all my life, so I know this has been something the community has really been needing and asking for a long time. We need a place like this to encourage families and young people. To encourage their fitness and health, to encourage an exploration of new hobbies and activities. A place where kids can truly be kids in a safe, healthy, and nurturing environment."

Women's Sports Emphasis

Specific to the project's emphasis on young women's sports, Ms. Chijioke also testified: "I am a public high school student, so I've seen how women's sports don't get enough attention. I always remember when I played badminton, our team never got fresh new uniforms or equipment like the other boys' sports did. Having a space like this for girls' sports is really important. It is important to show young girls that their activities are treated like they matter, we don't get enough of that."

The office of City Council President Amy Brendmoen who represents the North End has been deeply engaged in community outreach for the project as well and has met with numerous neighborhood groups. Among them is the Karen Organization of Minnesota (KOM). The role of the KOM is to help Karen refugees from Burma who have settled in the area transition to their new life in Saint Paul and achieve their goals.

The discussions with the KOM demonstrate some of the culturally specific engagement to connect directly with those who may not typically attend government meetings. Just as communication with community groups has been influential and beneficial to the project design, connection with other public entities has been ongoing and vital to the project. This includes the work of the city council office on the Community Safety Action Plan with the Saint Paul Police Department which has a goal of healing streets by providing spaces for constructive activities and limiting potential for destructive behavior.

Community Campus with Saint Paul Public School and Libraries

Other public entities involved in the project include Saint Paul Public Libraries and Saint Paul Public Schools. As neighbors to the North End project, the goal of creating a new “community campus” connected by this future outdoor recreation space and pathways required their design input and partnership. Design presentations have been made at milestone stages for feedback from both agencies in 2020 and virtually in 2021. Programming partnerships for park spaces are anticipated with both institutions and will continue over time.

Equity in Multimodal Transportation Planning

The NECC is intentionally designed to accommodate trip modes for user populations of all ages, levels and abilities. This is especially important for a low-income population where 61.5% of the North End population is cost-burdened rental households which may not have private green space while living in apartment communities, nor a vehicle to drive to a park.

The North End ranks #3 of 17 in the City of Saint Paul for households with no vehicles (17% of all households). The efforts of multiple departments in the City of Saint Paul, Ramsey County, and the Metropolitan Council, is evident in the planning for safety improvements for Rice Street corridor with planning unfolding for future Bus Rapid Transit (BRT) G line to serve the community with faster transit and a wide shared-use pathway along the west side of Rice Street throughout the corridor.

Alongside engagement on the NECC project with the private sector, the project team has had the opportunity to collaborate with Ramsey County’s Rice Street Visualization Team, a group charged with redesigning the Rice Street corridor from Wheelock Parkway to Pennsylvania Avenue. Early in the process, each team recognized that the complexities of crossing four lanes of traffic on Rice Street, and potential safety concerns when the new NECC project attracts more young people to that intersection.

Saint Paul Public Works concurred with Planning and Economic Development setting the potential impact score to no anticipated impact. Ramsey County is undertaking the multi-modal reconstruction of Rice Street including the portion of Rice Street adjacent to the North End Community Center. Ramsey County is currently in the design phase of this project and is determining the appropriate pedestrian safety features that will be incorporated with the project.

Study and Management of Anticipated Traffic and Parking Impacts

Transportation Collaborative and Consultants, LLC performed a study in June 2002. The development once completed will generate approximately 48 a.m. peak hour vehicular trips, 63 p.m. peak hour vehicular trips, and 720 daily vehicular trips. Based on the results of this analysis against existing and proposed transportation networks, Public Works concurs that there are no anticipated existing network and traffic support the proposed North End Community Center development.

Off-street parking will be possible with 22 parking stalls including one (1) ADA space. Strategic positioning of this parking lot was considered to allow for the maximum programmatic use of park space, needed space for stormwater retention and consideration to the existing grading slopes of the site to allow personal vehicles convenient access to the site.

New Pathways and Sidewalks | Pedestrian, Bicycle and Transit Modes

The project team intentionally and strategically included multi-modal considerations systematically, evident in the location of ingress and egress, placement of the building, design of sidewalks, and inclusion of pedestrian and bicycle facilities. The creation of a campus changes the relationship of existing public facilities, connecting youth and their teachers and mentors to the school, library and other surrounding property.

A planned pedestrian-only path will connect Wellstone Elementary School to the proposed community center that will run through the 900-foot-long Fritz Klark Recreational Field that exists between the two facilities. Existing directly across the proposed community center is the Rice Street Library. It is highly anticipated that a strong partnership through activity programming will exist between the library and the North End Community Center. As a result, there will be an increase in pedestrian crossings of Lawson Avenue between these two facilities. As proposed, pedestrian sidewalks will continue to bound the subject site.

About 25 percent of users are estimated to arrive/depart via other modes of transportation such as walking, biking, skateboarding, scooters, and those using transit. The resultant impact to the adjacent transportation system is expected to be relatively minimal, considering the facility currently operates within the adjacent Wellstone Elementary School and the site will be well served by multimodal facilities and transit service.

The City of Saint Paul is currently updating its Bicycle Plan to include an expanded bicycle network of additional separated bike lanes and shared use paths. It is proposed that bicyclists will access the North End Community Center via a proposed shared use path along the west side of Rice Street. The proposed community center will provide bicycle parking.

Transit access and facilities portions of Route 3 and Route 62 have been identified as candidates for bus rapid transit (BRT) implementation between 2025 – 2030 through Network Next, a 20-year plan that will expand and improve the bus network. Per Table 2, a corridor ridership forecast was developed that resulted in Route 3 and Route 62 increasing ridership compared to 2040 build versus no build conditions, which are shown in Table 2.

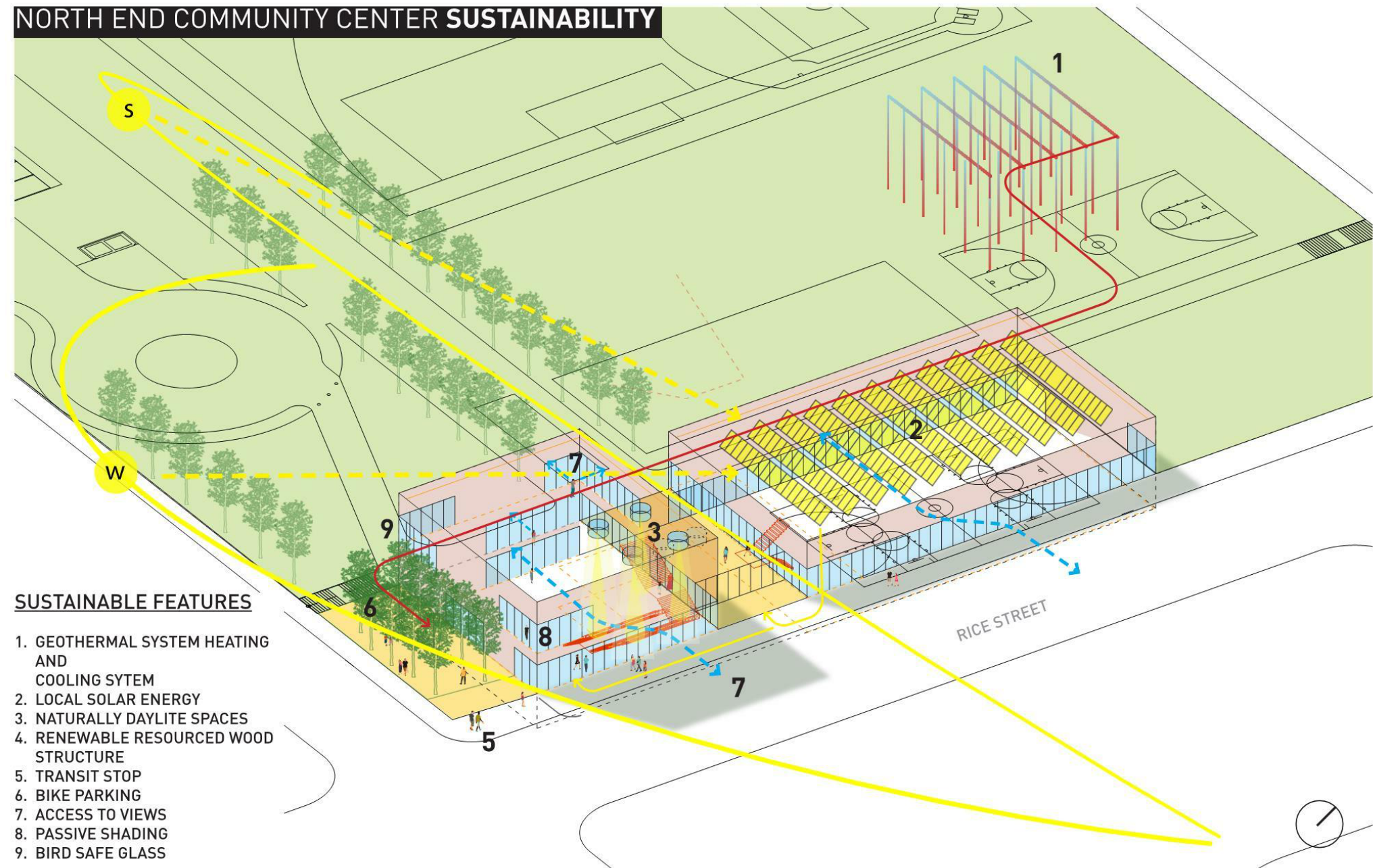
Sustainable Development Strategies

The NECC development project is in compliance with the City of Saint Paul Sustainable Building Ordinance. This project will be a regional leader in environmentally responsible design for the well-being of the community and preservation of natural resources. In addition to using renewable construction materials, this project has stormwater management improvements to capture and slow the rate of flow during high volume events. Further, the NECC project includes energy saving measures including geothermal energy and roof-top solar array for on-site energy production. These and other green building strategies mitigate for the project's ecological footprint from anthropogenic contribution to global warming and related climate change.

Finding of Compliance with Executive Order 12898

The project is in compliance with Executive Order 12898 given the above finding of no adverse impacts to the ACP50 service-area population, equitable planning process, and our findings within the Environmental Review Record (ERR) as a whole. There are no known or anticipated negative externalities which would disproportionately impact the ACP50 resident population in the North End. There are no known environmental hazards or risks from the project as a causal agent impacting the North End community. Likewise, review of existing conditions within the vicinity of the project site shows no concerns for potential harm for future park patrons. Supporting documentation for this finding is the entirety of the ERR for the Environmental Assessment, including all attachments contained herein.

PROJECT INFORMATION
USE TYPE: Community and Recreation Center CLIMATE ZONE: 6 AREA (GSF): 26,000 WEEKLY OPERATING HOURS: 84 TARGET CERTIFICATION AND RATING SYSTEM: MN B3 Version 3.1 / SB 2030 Energy Standard ADDITIONAL INFORMATION:
SUSTAINABLE GOALS AND KEY OPPORTUNITIES
<p>The City of Saint Paul requires all projects to comply with their published "Sustainable Building Policy, and this new community center will be an example project, showcasing sustainable design for other city facilities going forward. The project is designed to comply with Minnesota's B3 sustainability program, which includes compliance with Minnesota's SB 2030 Energy Standard. Based on the current design schedule a compliant design will consume 70% less energy than the baseline building. The target EUI is based on B3's SB 2030 model. Per the "SB 2030 Energy Standard" this project's Schematic Design Phase began before Jan 1, 2020 and is required to meet SB 2030 2015-2019, which is a 70% improvement over baseline.</p> <p>The building uses multiple on site renewable energy sources, including a geothermal well field for ground source heating and cooling, and solar energy harvested through a photovoltaic array located on the gymnasium roof. A large portion of the building's structure is wood which is a renewable resource. Wood Cross Laminated Timber (CLT) decking and glue laminated timber (Glulam) beams make up a majority of building's primary structure.</p>
<div><div>1.</div><div>PHOTOVOLTAIC ARRAY GENERATES 2% OF BUILDING'S ENERGY.</div></div> <div><div>2.</div><div>GEOTHERMAL WELL FIELD PROVIDES GROUND SOURCE HEATING AND COOLING ENERGY.</div></div> <div><div>3.</div><div>ACCESS TO PUBLIC TRANSIT AND BICYCLE PARKING.</div></div> <div><div>4.</div><div>HIGH PERFORMANCE GLAZING WITH EXTENDED VERTICAL MULLIONS USED AS SHADING DEVICES, CERAMIC FRIT PATTERNS FOR SOLAR CONTROL, AND INTERIOR SHADES TO FILTER SUNLIGHT AND GLARE.</div></div> <div><div>5.</div><div>PERMEABLE SITE PAVING AND PLAYING SURFACES ON MULTIPURPOSE FIELD AND PLAYGROUND REDUCE LOAD ON STORMWATER SYSTEM.</div></div> <div><div>6.</div><div>CROSS LAMINATED TIMBER DECKING AND GLULAM BEAMS ARE RENEWABLE RESOURCES AND LOW CARBON MATERIALS.</div></div>

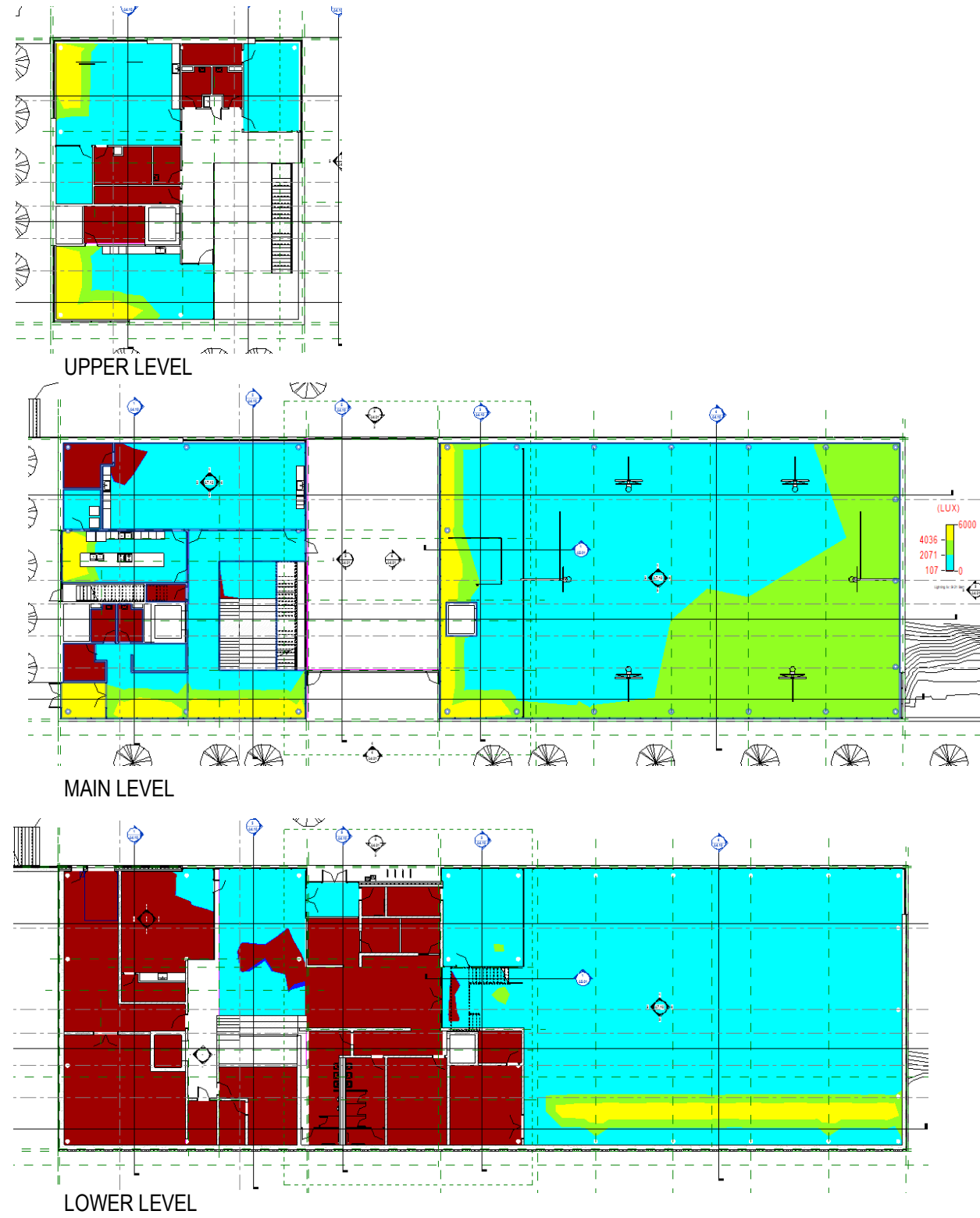


ENERGY

PREDICTED VALUES	
<ul style="list-style-type: none">• PREDICTED CONSUMED ENERGY USE INTENSITY (SITE EUI): (kBtu/sf/yr)• ENERGY MODEL REPORT: (kBtu/sf/yr)• PREDICTED NET EUI: 29 (kBtu/sf/yr) (39 SB2030 TARGET)• PREDICTED NET CARBON EMISSIONS: (lb/sf/yr) (12 SB2030 TARGET)• PREDICTED PERCENT REDUCTION FROM NATIONAL AVERAGE EUI FOR BUILDING TYPE: 70%• IDENTIFY WHICH SIMULATION TOOL WAS USED: TRANE TRACE ENERGY MODEL	
GLAZING CRITERIA PERFORMANCE	PREDICTED VALUES
U-FACTOR: 0.24 SHGC: 0.28 VLT: 67%	TARGET LPD: 0.75 WATTS / SF

WALL - NORTH	GLAZED OPAQUE	1,302 (SF) 2,982 (SF)	30% 70%	N/A
WALL - EAST	GLAZED OPAQUE	2,011 (SF) 2,085 (SF)	49% 51%	N/A
WALL - SOUTH	GLAZED OPAQUE	1,426 (SF) 2,023 (SF)	42% 58%	N/A
WALL - WEST	GLAZED OPAQUE	2,281(SF) 4,801(SF)	32% 68%	N/A
WALL - OVERALL	GLAZED OPAQUE	7,020 (SF) 11,891 (SF)	37 % 63 %	N/A
ROOF	GLAZED OPAQUE	12 (SF) 15,226 (SF)	0.001% 100%	R30
SLAB	TOTAL	15,235 (SF)	%	
FOUNDATION	TOTAL	(SF)	%	

DAYLIGHT
<ul style="list-style-type: none">PERCENTAGE OF FLOOR AREA OR PERCENTAGE OF OCCUPANT WORK STATIONS ACHIEVING ADEQUATE LIGHT LEVELS WITHOUT THE USE OF ARTIFICIAL LIGHTING (>300 LUX AT 3PM MARCH 21ST)ANNUAL DAYLIGHTING PERFORMANCE: (% OF REGULARLY OCCUPIED AREA ACHIEVING AT LEAST 300 LUX AT LEAST 50% OF THE ANNUAL OCCUPIED HOURS.)



RESOURCES

CONSERVATION, EMISSIONS AND WASTE
<ul style="list-style-type: none">ESTIMATED CARBON EMISSIONS ASSOCIATED WITH BUILDING CONSTRUCTION:TARGET PERCENTAGE (BY WEIGHT) OF CONSTRUCTION WASTE DIVERTED FROM LANDFILL: 70%TARGET PERCENTAGE OF MATERIALS REUSED FROM EXISTING BUILDINGS OR OTHER LOCAL SOURCES BY VOLUME OR WEIGHT: 0%PERCENTAGE OF PROJECT FLOOR AREA THAT REPRESENTS ADAPTING EXISTING BUILDINGS: (CO2/SF) 0%
MATERIAL RESEARCH AND TRANSPARENCY
<ul style="list-style-type: none">PERCENTAGE OF MATERIALS, BY VALUE, INCORPORATING HEALTH CRITERIA SUCH AS HPD OR RED LIST COMPLIANCES: 75%PERCENTAGE, BY COST, OF MATERIALS WITH COMPREHENSIVE THIRD PARTY CERTIFICATIONS:WERE OTHER LIFE-CYCLE ASSESSMENTS (LCAs) CONDUCTED?WERE ENVIRONMENTAL PRODUCT DECLARATIONS (EPDs) COLLECTED?

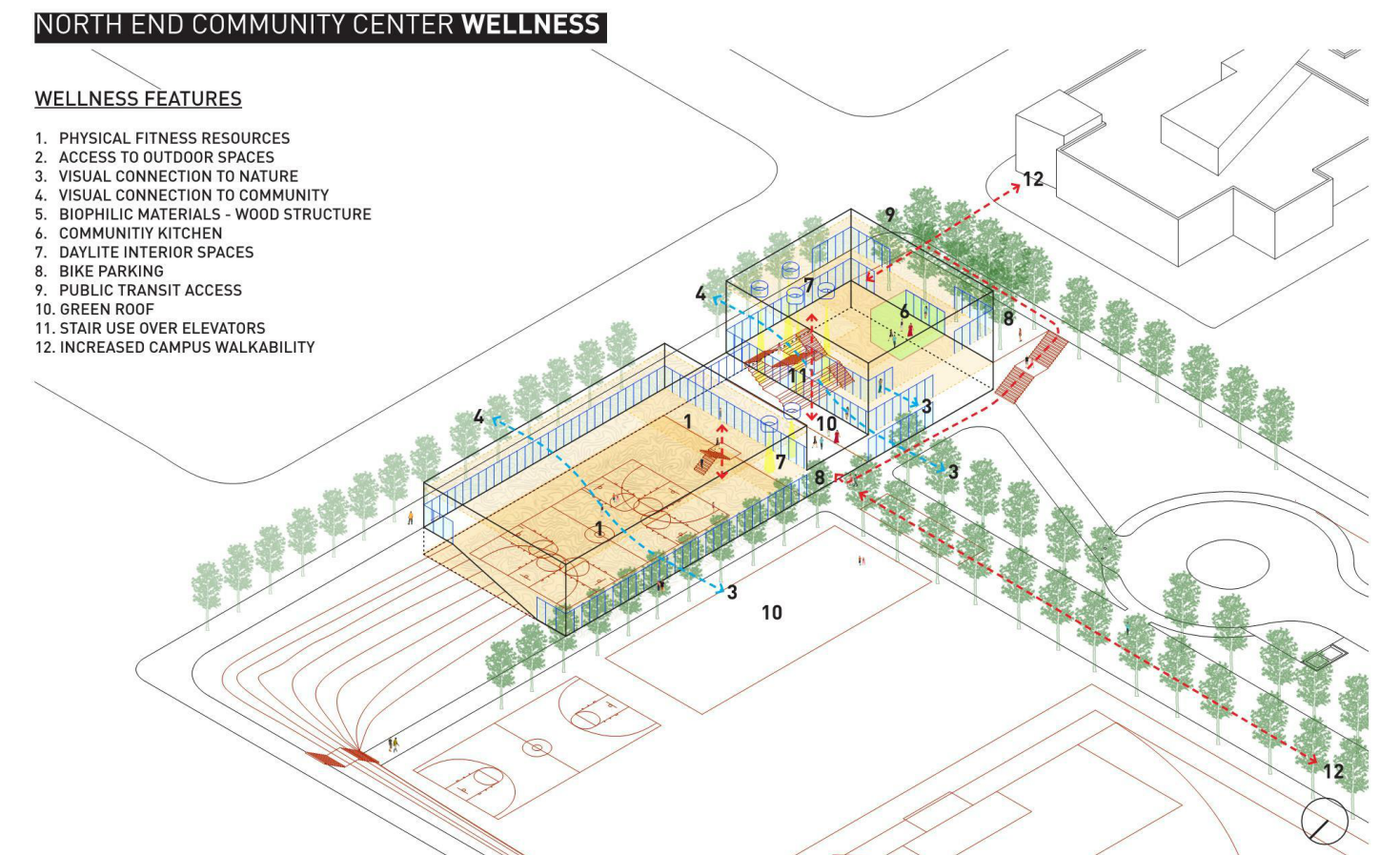
WATER

STORMWATER MANAGEMENT
<ul style="list-style-type: none">PERCENT OF RAINWATER THAT CAN BE MANAGED ON SITE: (FROM MAXIMUM ANTICIPATED 24-HOUR, 2-YEAR STORM EVENT):METRICS OF WATER QUALITY FOR ANY STORMWATER LEAVING THE SITE:
CONSUMPTION
<ul style="list-style-type: none">PREDICTED ANNUAL BASELINE WATER CONSUMPTION (GALLONS/YEAR):PREDICTED ANNUAL DESIGN WATER CONSUMPTION (GALLONS/YEAR):PREDICTED PERCENT WATER USE REDUCTION (%): 30%IS POTABLE WATER USED FOR OUTDOOR IRRIGATION PURPOSES? IF YES, CALCULATE GALLONS PER SQUARE FOOT OF LANDSCAPED AREA DURING MONTH OF PEAK DEMAND. NO, OWNER PROPOSED NO ON-SITE IRRIGATION
HARVESTING
<ul style="list-style-type: none">WHAT PERCENTAGE OF WATER CONSUMED ONSITE COMES FROM RAINWATER CAPTURE? 0%WHAT PERCENTAGE OF WATER CONSUMED ONSITE COMES FROM GREYWATER/BLACKWATER CAPTURE AND TREATMENT? 0%

WELLNESS

DESIGN FOR WELLNESS SUPPORTS COMFORT, HEALTH, AND WELLNESS FOR THE PEOPLE WHO INHABIT OR VISIT BUILDINGS. STRATEGIES FOR WELLNESS OPTIMIZING DAYLIGHT, INDOOR AIR QUALITY, CONNECTIONS TO THE OUTDOORS, AND THERMAL, VISUAL, AND ACOUSTICAL COMFORT FOR OCCUPANTS AND OTHERS INSIDE AND OUTSIDE THE BUILDING.

NATURAL VENTILATION
<ul style="list-style-type: none">PERCENTAGE OF FLOOR AREA OR PERCENTAGE OF OCCUPANT WORK STATIONS WITHIN 30 FEET OF OPERABLE WINDOWS: 0%
VIEWS
<ul style="list-style-type: none">PERCENTAGE OF FLOOR AREA OR PERCENTAGE OF OCCUPANT WORK STATIONS WITH DIRECT VIEWS OF THE OUTDOORS: 90%



SNOW KREILICH ARCHITECTS

219 NORTH SECOND STREET
SUITE 120
MINNEAPOLIS, MN 55401
612 359 9430
WWW.SNOWKREILICH.COM

NORTH END COMMUNITY CENTER

145 Lawson Avenue West
Saint Paul, MN 55117

CLIENT
Saint Paul Parks & Recreation
400 City Hall Annex
25 West 4th Street
Saint Paul, MN 55102

LANDSCAPE ARCHITECT
Saint Paul Parks & Recreation
25 West 4th Street, 400 City Hall Annex
Saint Paul, MN 55102
651.266.6410

CIVIL ENGINEER
Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
651.481.9120

STRUCTURAL ENGINEER
Studio NYL
2995 Baseline Road, Suite 314
Boulder, CO 80303
303.558.3145

MEPFP ENGINEER
Salas O'Brien
860 Blue Gentian Rd, Suite 175
Eagan, MN 55121
651.379.9120

KITCHEN EQUIPMENT CONSULTANT
Culinex
311 4th Ave South
Sartell, MN 56377
320.259.6557

COST CONSULTANT
Loeffler Construction & Consulting
20520 Keokuk Avenue, Suite 100
Lakeville, MN 55044
952.955.9119

100% CONSTRUCTION DOCUMENTS 05/23/2022

2019.13 BG
Project Number Drawn By

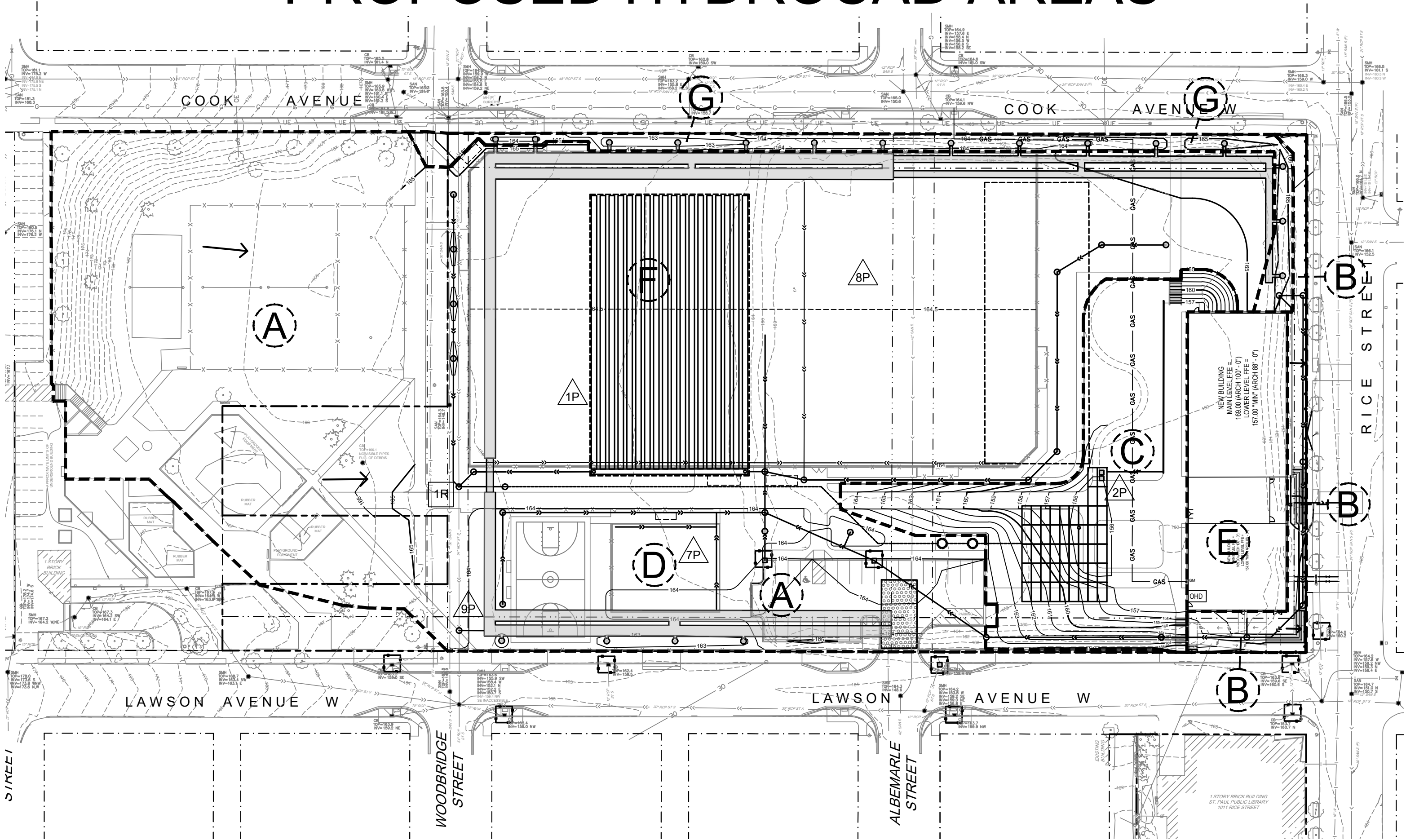
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the State of Minnesota.

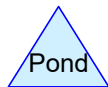
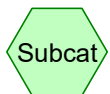
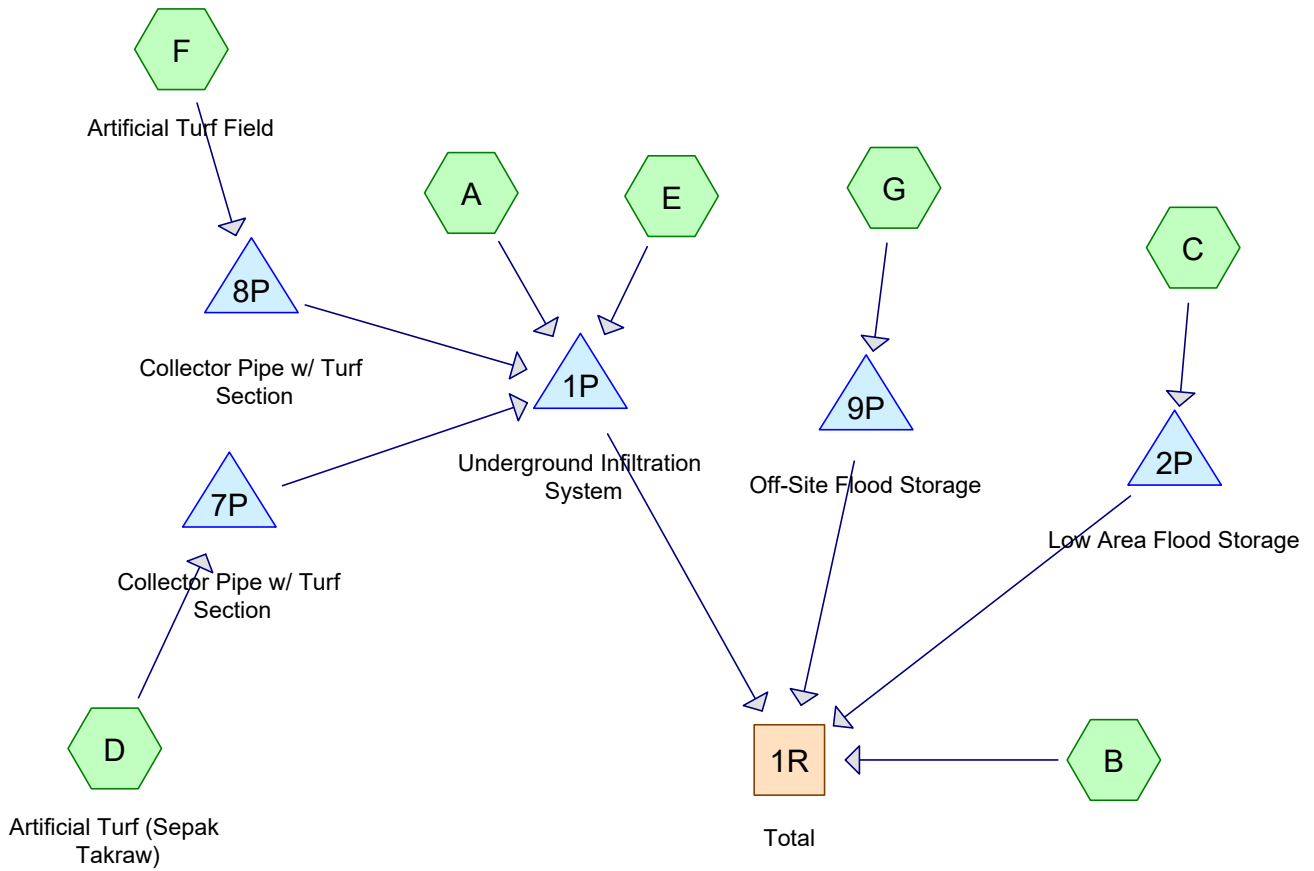
Julie Snow
Signature
Julie Snow
Typed or Printed Name
12433
Registration Number

SUSTAINABILITY

G0.20

PROPOSED HYDROCAD AREAS





Proposed Conditions

Prepared by Larson Engineering Of MN

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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
48,185	61	>75% Grass cover, Good, HSG B (A)
15,705	74	>75% Grass cover, Good, HSG C (C)
61,356	80	>75% Grass cover, Good, HSG D (A, B, G)
99,341	98	Artificial Turf (D, F)
16,072	98	Building (E)
41,423	98	Paved parking, HSG B (A, B, G)
27,313	98	Paved parking, HSG B (undisturbed) (A)
17,913	98	Paved parking, HSG C (C)
327,308	88	TOTAL AREA

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MSE 24-hr 3 2-Year Rainfall=2.81"

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Summary for Subcatchment A:

Runoff = 6.47 cfs @ 12.21 hrs, Volume= 18,831 cf, Depth= 1.40"

Routed to Pond 1P : Underground Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.81"

Area (sf)	CN	Description
50,360	80	>75% Grass cover, Good, HSG D
48,185	61	>75% Grass cover, Good, HSG B
35,330	98	Paved parking, HSG B
* 27,313	98	Paved parking, HSG B (undisturbed)
161,188	81	Weighted Average
98,545		61.14% Pervious Area
62,643		38.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	76	0.0199	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.2	8	0.0150	0.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
12.6	84	Total			

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Summary for Subcatchment B:

Runoff = 0.67 cfs @ 12.11 hrs, Volume= 1,354 cf, Depth= 2.30"
 Routed to Reach 1R : Total

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.81"

Area (sf)	CN	Description
1,367	80	>75% Grass cover, Good, HSG D
5,710	98	Paved parking, HSG B
7,077	95	Weighted Average
1,367		19.32% Pervious Area
5,710		80.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	8	0.0200	0.07		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.1	6	0.0200	0.73		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
0.8	10	0.3180	0.21		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.2	9	0.0200	0.79		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
3.1	33	Total			

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MSE 24-hr 3 2-Year Rainfall=2.81"

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Summary for Subcatchment C:

Runoff = 2.41 cfs @ 12.11 hrs, Volume= 4,884 cf, Depth= 1.74"

Routed to Pond 2P : Low Area Flood Storage

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.81"

Area (sf)	CN	Description
15,705	74	>75% Grass cover, Good, HSG C
17,913	98	Paved parking, HSG C
33,618	87	Weighted Average
15,705		46.72% Pervious Area
17,913		53.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	70	0.1290	0.31		Sheet Flow, Grass: Short n= 0.150 P2= 2.75"

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Summary for Subcatchment D: Artificial Turf (Sepak Takraw)

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 1,073 cf, Depth= 2.58"
Routed to Pond 7P : Collector Pipe w/ Turf Section

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	4,992	98	Artificial Turf
	4,992		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

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MSE 24-hr 3 2-Year Rainfall=2.81"

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Summary for Subcatchment E:

Runoff = 1.59 cfs @ 12.12 hrs, Volume= 3,454 cf, Depth= 2.58"
Routed to Pond 1P : Underground Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	16,072	98	Building
	16,072		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

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Summary for Subcatchment F: Artificial Turf Field

Runoff = 9.99 cfs @ 12.09 hrs, Volume= 20,278 cf, Depth= 2.58"

Routed to Pond 8P : Collector Pipe w/ Turf Section

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.81"

	Area (sf)	CN	Description
*	94,349	98	Artificial Turf
	94,349		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

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MSE 24-hr 3 2-Year Rainfall=2.81"

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Summary for Subcatchment G:

Runoff = 0.48 cfs @ 12.14 hrs, Volume= 972 cf, Depth= 1.17"
Routed to Pond 9P : Off-Site Flood Storage

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.81"

Area (sf)	CN	Description
9,629	80	>75% Grass cover, Good, HSG D
383	98	Paved parking, HSG B
10,012	81	Weighted Average
9,629		96.17% Pervious Area
383		3.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	39	0.0256	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"

Proposed Conditions*MSE 24-hr 3 2-Year Rainfall=2.81"*

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Summary for Reach 1R: Total

Inflow Area = 327,308 sf, 61.73% Impervious, Inflow Depth = 0.09" for 2-Year event
Inflow = 0.69 cfs @ 12.11 hrs, Volume= 2,324 cf
Outflow = 0.69 cfs @ 12.11 hrs, Volume= 2,324 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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MSE 24-hr 3 2-Year Rainfall=2.81"

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Summary for Pond 1P: Underground Infiltration System

Inflow Area = 276,601 sf, 64.37% Impervious, Inflow Depth > 1.87" for 2-Year event
Inflow = 9.05 cfs @ 12.19 hrs, Volume= 43,218 cf
Outflow = 0.25 cfs @ 10.80 hrs, Volume= 43,222 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.25 cfs @ 10.80 hrs, Volume= 43,222 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach 1R : Total

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 157.25' @ 19.65 hrs Surf.Area= 23,995 sf Storage= 28,594 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,067.8 min (1,941.0 - 873.2)

Volume	Invert	Avail.Storage	Storage Description
#1	155.50'	24,522 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 107,978 cf Overall - 46,672 cf Embedded = 61,306 cf x 40.0% Voids
#2	155.50'	45,239 cf	48.0" Round Pipe Storage x 18 Inside #1 L= 200.0'
#3	155.50'	1,433 cf	48.0" Round Pipe Storage Inside #1 L= 114.0'
71,194 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
155.50	23,995	0	0
160.00	23,995	107,978	107,978

Device	Routing	Invert	Outlet Devices
#1	Primary	158.50'	24.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.50' / 157.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	155.50'	0.450 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.25 cfs @ 10.80 hrs HW=155.50' (Free Discharge)
↑ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=155.50' TW=0.00' (Dynamic Tailwater)
↑ **1=Culvert** (Controls 0.00 cfs)

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Stage-Area-Storage for Pond 1P: Underground Infiltration System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
155.50	23,995	0	158.10	23,995	44,223
155.55	23,995	546	158.15	23,995	45,126
155.60	23,995	1,146	158.20	23,995	46,026
155.65	23,995	1,781	158.25	23,995	46,921
155.70	23,995	2,443	158.30	23,995	47,812
155.75	23,995	3,128	158.35	23,995	48,698
155.80	23,995	3,834	158.40	23,995	49,578
155.85	23,995	4,557	158.45	23,995	50,453
155.90	23,995	5,297	158.50	23,995	51,322
155.95	23,995	6,051	158.55	23,995	52,185
156.00	23,995	6,819	158.60	23,995	53,041
156.05	23,995	7,600	158.65	23,995	53,889
156.10	23,995	8,393	158.70	23,995	54,729
156.15	23,995	9,196	158.75	23,995	55,562
156.20	23,995	10,010	158.80	23,995	56,385
156.25	23,995	10,833	158.85	23,995	57,199
156.30	23,995	11,665	158.90	23,995	58,002
156.35	23,995	12,506	158.95	23,995	58,795
156.40	23,995	13,354	159.00	23,995	59,576
156.45	23,995	14,210	159.05	23,995	60,344
156.50	23,995	15,073	159.10	23,995	61,098
156.55	23,995	15,942	159.15	23,995	61,838
156.60	23,995	16,817	159.20	23,995	62,561
156.65	23,995	17,697	159.25	23,995	63,267
156.70	23,995	18,583	159.30	23,995	63,952
156.75	23,995	19,474	159.35	23,995	64,614
156.80	23,995	20,369	159.40	23,995	65,249
156.85	23,995	21,269	159.45	23,995	65,849
156.90	23,995	22,172	159.50	23,995	66,395
156.95	23,995	23,079	159.55	23,995	66,875
157.00	23,995	23,989	159.60	23,995	67,355
157.05	23,995	24,901	159.65	23,995	67,835
157.10	23,995	25,817	159.70	23,995	68,315
157.15	23,995	26,734	159.75	23,995	68,794
157.20	23,995	27,654	159.80	23,995	69,274
157.25	23,995	28,575	159.85	23,995	69,754
157.30	23,995	29,498	159.90	23,995	70,234
157.35	23,995	30,422	159.95	23,995	70,714
157.40	23,995	31,347	160.00	23,995	71,194
157.45	23,995	32,272	160.05	23,995	71,194
157.50	23,995	33,197	160.10	23,995	71,194
157.55	23,995	34,123	160.15	23,995	71,194
157.60	23,995	35,048	160.20	23,995	71,194
157.65	23,995	35,973	160.25	23,995	71,194
157.70	23,995	36,897	160.30	23,995	71,194
157.75	23,995	37,820	160.35	23,995	71,194
157.80	23,995	38,741	160.40	23,995	71,194
157.85	23,995	39,661	160.45	23,995	71,194
157.90	23,995	40,578	160.50	23,995	71,194
157.95	23,995	41,494			
158.00	23,995	42,406			
158.05	23,995	43,316			

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Summary for Pond 2P: Low Area Flood Storage

Inflow Area = 33,618 sf, 53.28% Impervious, Inflow Depth = 1.74" for 2-Year event
 Inflow = 2.41 cfs @ 12.11 hrs, Volume= 4,884 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 149.27' @ 24.23 hrs Surf.Area= 4,941 sf Storage= 4,884 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	154.84'	11 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2A	147.67'	0 cf	68.96'W x 71.65'L x 7.17'H Field A
			35,407 cf Overall - 35,407 cf Embedded = 0 cf x 0.0% Voids
#3A	147.67'	26,700 cf	StormTrap ST1 DoubleTrap 6-0x 50 Inside #2
			Inside= 82.7"W x 72.0"H => 37.97 sf x 14.06'L = 534.0 cf
			Outside= 82.7"W x 86.0"H => 49.42 sf x 14.06'L = 695.0 cf
			10 Rows adjusted for 830.0 cf perimeter wall
			68.96' x 70.31' Core + 0.00' x 0.67' Border = 68.96' x 71.65' System
		26,711 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
154.84	13	0	0
155.67	13	11	11

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Stage-Area-Storage for Pond 2P: Low Area Flood Storage

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
147.67	0	152.87	20,915
147.77	0	152.97	21,360
147.87	0	153.07	21,805
147.97	0	153.17	22,250
148.07	0	153.27	22,695
148.17	0	153.37	23,140
148.27	445	153.47	23,585
148.37	890	153.57	24,030
148.47	1,335	153.67	24,475
148.57	1,780	153.77	24,920
148.67	2,225	153.87	25,365
148.77	2,670	153.97	25,810
148.87	3,115	154.07	26,255
148.97	3,560	154.17	26,700
149.07	4,005	154.27	26,700
149.17	4,450	154.37	26,700
149.27	4,895	154.47	26,700
149.37	5,340	154.57	26,700
149.47	5,785	154.67	26,700
149.57	6,230	154.77	26,700
149.67	6,675	154.87	26,700
149.77	7,120	154.97	26,702
149.87	7,565	155.07	26,703
149.97	8,010	155.17	26,704
150.07	8,455	155.27	26,705
150.17	8,900	155.37	26,707
150.27	9,345	155.47	26,708
150.37	9,790	155.57	26,709
150.47	10,235	155.67	26,711
150.57	10,680		
150.67	11,125		
150.77	11,570		
150.87	12,015		
150.97	12,460		
151.07	12,905		
151.17	13,350		
151.27	13,795		
151.37	14,240		
151.47	14,685		
151.57	15,130		
151.67	15,575		
151.77	16,020		
151.87	16,465		
151.97	16,910		
152.07	17,355		
152.17	17,800		
152.27	18,245		
152.37	18,690		
152.47	19,135		
152.57	19,580		
152.67	20,025		
152.77	20,470		

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Summary for Pond 7P: Collector Pipe w/ Turf Section

Inflow Area = 4,992 sf, 100.00% Impervious, Inflow Depth = 2.58" for 2-Year event
 Inflow = 0.53 cfs @ 12.09 hrs, Volume= 1,073 cf
 Outflow = 0.33 cfs @ 12.10 hrs, Volume= 1,071 cf, Atten= 37%, Lag= 0.6 min
 Primary = 0.33 cfs @ 12.10 hrs, Volume= 1,071 cf
 Routed to Pond 1P : Underground Infiltration System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 160.51' @ 12.10 hrs Surf.Area= 4,992 sf Storage= 302 cf

Plug-Flow detention time= 55.7 min calculated for 1,071 cf (100% of inflow)
 Center-of-Mass det. time= 54.7 min (803.1 - 748.5)

Volume	Invert	Avail.Storage	Storage Description
#1	162.23'	998 cf	6" Base Stone (Prismatic) Listed below (Recalc) 2,496 cf Overall x 40.0% Voids
#2	160.23'	1,872 cf	24" Sand Section (Prismatic) Listed below (Recalc) 9,360 cf Overall x 20.0% Voids
#3	160.23'	225 cf	Collector Drain Trench (Prismatic) Listed below (Recalc) 624 cf Overall - 61 cf Embedded = 563 cf x 40.0% Voids
#4	160.23'	61 cf	12.0" Round 18" Collector Drain Inside #3 L= 78.0'
		3,157 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.23	4,992	0	0
162.73	4,992	2,496	2,496

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.23	4,836	0	0
162.23	4,524	9,360	9,360

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.23	156	0	0
162.23	468	624	624

Device	Routing	Invert	Outlet Devices
#1	Primary	160.23'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.33 cfs @ 12.10 hrs HW=160.51' TW=155.88' (Dynamic Tailwater)
 ↑1=Orifice/Grate (Orifice Controls 0.33 cfs @ 1.81 fps)

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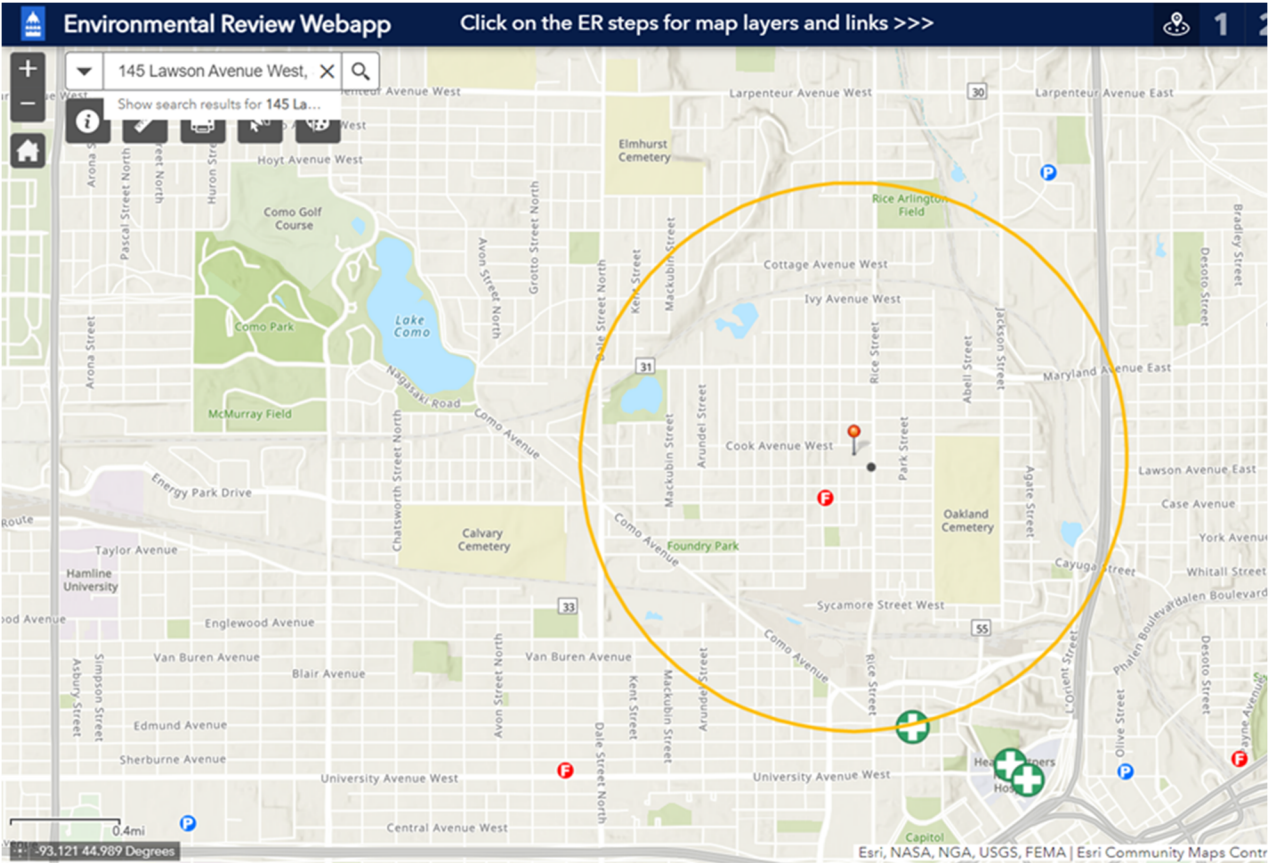
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Stage-Area-Storage for Pond 7P: Collector Pipe w/ Turf Section

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
160.23	0	161.27	1,124	162.31	2,318
160.25	21	161.29	1,146	162.33	2,358
160.27	42	161.31	1,167	162.35	2,398
160.29	63	161.33	1,188	162.37	2,438
160.31	84	161.35	1,209	162.39	2,478
160.33	105	161.37	1,231	162.41	2,518
160.35	126	161.39	1,252	162.43	2,558
160.37	148	161.41	1,273	162.45	2,598
160.39	169	161.43	1,295	162.47	2,638
160.41	190	161.45	1,316	162.49	2,678
160.43	212	161.47	1,337	162.51	2,717
160.45	233	161.49	1,359	162.53	2,757
160.47	255	161.51	1,380	162.55	2,797
160.49	276	161.53	1,402	162.57	2,837
160.51	298	161.55	1,423	162.59	2,877
160.53	320	161.57	1,444	162.61	2,917
160.55	341	161.59	1,466	162.63	2,957
160.57	363	161.61	1,487	162.65	2,997
160.59	385	161.63	1,509	162.67	3,037
160.61	406	161.65	1,530	162.69	3,077
160.63	428	161.67	1,552	162.71	3,117
160.65	450	161.69	1,573	162.73	3,157
160.67	472	161.71	1,595		
160.69	493	161.73	1,616		
160.71	515	161.75	1,638		
160.73	537	161.77	1,659		
160.75	559	161.79	1,681		
160.77	581	161.81	1,702		
160.79	603	161.83	1,724		
160.81	625	161.85	1,746		
160.83	646	161.87	1,767		
160.85	668	161.89	1,789		
160.87	690	161.91	1,811		
160.89	712	161.93	1,832		
160.91	734	161.95	1,854		
160.93	756	161.97	1,875		
160.95	778	161.99	1,897		
160.97	800	162.01	1,919		
160.99	821	162.03	1,941		
161.01	843	162.05	1,962		
161.03	865	162.07	1,984		
161.05	887	162.09	2,006		
161.07	909	162.11	2,028		
161.09	931	162.13	2,049		
161.11	952	162.15	2,071		
161.13	974	162.17	2,093		
161.15	996	162.19	2,115		
161.17	1,017	162.21	2,137		
161.19	1,039	162.23	2,158		
161.21	1,061	162.25	2,198		
161.23	1,082	162.27	2,238		
161.25	1,103	162.29	2,278		

Figure 1. Police, Fire, and Hospital Facilities Locations in Relation to the NECC project



Environmental Assessment

Layers

☒ Fire Stations

...

☒ Police Stations

...

☐ Schools

...

☒ Hospitals

...

☐ Bluff impact zones (Mississippi River Corridor Critical Area)

...

Police Station # G at 1541 Timberlake Road is approximately 1.6 miles along travel routes from the NECC. Fire Station #22 is 0.3 miles or 1,584 feet along travel routes from the NECC.

The nearest hospital is M Health Fairview Bathesda, which is a long-term acute care hospital at the one mile distance from NECC. Gillette Children's Specialty Hospital, Regions, and United Hospitals are in downtown Saint Paul. Gillette Children's Hospital and Regions are approximately 1.7 miles via Rice and Jackson Streets route from the NECC. United Hospital is slightly farther from the park, between 2.2 and 2.8 miles depending on routes taken.

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Summary for Pond 8P: Collector Pipe w/ Turf Section

Inflow Area = 94,349 sf, 100.00% Impervious, Inflow Depth = 2.58" for 2-Year event
 Inflow = 9.99 cfs @ 12.09 hrs, Volume= 20,278 cf
 Outflow = 1.63 cfs @ 12.30 hrs, Volume= 19,862 cf, Atten= 84%, Lag= 12.9 min
 Primary = 1.63 cfs @ 12.30 hrs, Volume= 19,862 cf
 Routed to Pond 1P : Underground Infiltration System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 159.22' @ 12.30 hrs Surf.Area= 94,349 sf Storage= 11,211 cf

Plug-Flow detention time= 244.4 min calculated for 19,862 cf (98% of inflow)
 Center-of-Mass det. time= 232.3 min (980.8 - 748.5)

Volume	Invert	Avail.Storage	Storage Description
#1	160.29'	18,870 cf	6" Base Stone (Prismatic) Listed below (Recalc) 47,175 cf Overall x 40.0% Voids
#2	158.64'	39,796 cf	24" Sand Section (Prismatic) Listed below (Recalc) 198,980 cf Overall x 20.0% Voids
#3	158.64'	1,265 cf	Collector Drain Trench (Prismatic) Listed below (Recalc) 3,870 cf Overall - 707 cf Embedded = 3,163 cf x 40.0% Voids
#4	158.64'	707 cf	18.0" Round 18" Collector Drain Inside #3 L= 400.0'
60,638 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.29	94,349	0	0
160.79	94,349	47,175	47,175

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.64	93,349	0	0
160.79	91,749	198,980	198,980

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.64	1,000	0	0
160.79	2,600	3,870	3,870

Device	Routing	Invert	Outlet Devices
#1	Primary	158.64'	18.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.63 cfs @ 12.30 hrs HW=159.22' TW=156.26' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Orifice Controls 1.63 cfs @ 2.59 fps)

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Stage-Area-Storage for Pond 8P: Collector Pipe w/ Turf Section

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
158.64	0	159.68	20,227	160.72	56,639
158.66	383	159.70	20,618	160.74	57,782
158.68	766	159.72	21,009	160.76	58,924
158.70	1,150	159.74	21,400	160.78	60,067
158.72	1,535	159.76	21,791		
158.74	1,920	159.78	22,182		
158.76	2,305	159.80	22,573		
158.78	2,691	159.82	22,964		
158.80	3,077	159.84	23,355		
158.82	3,464	159.86	23,745		
158.84	3,851	159.88	24,136		
158.86	4,238	159.90	24,526		
158.88	4,625	159.92	24,917		
158.90	5,012	159.94	25,307		
158.92	5,400	159.96	25,697		
158.94	5,788	159.98	26,087		
158.96	6,176	160.00	26,477		
158.98	6,565	160.02	26,866		
159.00	6,953	160.04	27,256		
159.02	7,342	160.06	27,645		
159.04	7,731	160.08	28,033		
159.06	8,120	160.10	28,422		
159.08	8,509	160.12	28,809		
159.10	8,898	160.14	29,196		
159.12	9,288	160.16	29,582		
159.14	9,677	160.18	29,968		
159.16	10,067	160.20	30,354		
159.18	10,457	160.22	30,740		
159.20	10,847	160.24	31,126		
159.22	11,237	160.26	31,512		
159.24	11,627	160.28	31,899		
159.26	12,017	160.30	32,662		
159.28	12,408	160.32	33,804		
159.30	12,798	160.34	34,945		
159.32	13,189	160.36	36,086		
159.34	13,579	160.38	37,227		
159.36	13,970	160.40	38,369		
159.38	14,361	160.42	39,510		
159.40	14,752	160.44	40,652		
159.42	15,143	160.46	41,793		
159.44	15,534	160.48	42,935		
159.46	15,924	160.50	44,077		
159.48	16,316	160.52	45,218		
159.50	16,707	160.54	46,360		
159.52	17,098	160.56	47,502		
159.54	17,489	160.58	48,644		
159.56	17,880	160.60	49,786		
159.58	18,271	160.62	50,928		
159.60	18,662	160.64	52,070		
159.62	19,053	160.66	53,212		
159.64	19,445	160.68	54,355		
159.66	19,836	160.70	55,497		

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Summary for Pond 9P: Off-Site Flood Storage

Inflow Area = 10,012 sf, 3.83% Impervious, Inflow Depth = 1.17" for 2-Year event
Inflow = 0.48 cfs @ 12.14 hrs, Volume= 972 cf
Outflow = 0.07 cfs @ 12.59 hrs, Volume= 970 cf, Atten= 86%, Lag= 27.1 min
Primary = 0.07 cfs @ 12.59 hrs, Volume= 970 cf
Routed to Reach 1R : Total

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 152.69' @ 12.59 hrs Surf.Area= 3,625 sf Storage= 457 cf

Plug-Flow detention time= 168.7 min calculated for 970 cf (100% of inflow)
Center-of-Mass det. time= 167.6 min (981.9 - 814.3)

Volume	Invert	Avail.Storage	Storage Description
#1	152.50'	75,147 cf	96.0" Round 96" CMP L= 1,495.0'
#2	155.50'	13,116 cf	60.0" Round 60" CMP L= 668.0'
		88,263 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	152.50'	12.0" Round Culvert L= 18.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 152.50' / 152.40' S= 0.0056 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.59 hrs HW=152.69' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.07 cfs @ 0.98 fps)

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Stage-Area-Storage for Pond 9P: Off-Site Flood Storage

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
152.50	0	157.70	57,266
152.60	178	157.80	58,734
152.70	500	157.90	60,193
152.80	916	158.00	61,642
152.90	1,405	158.10	63,078
153.00	1,956	158.20	64,501
153.10	2,561	158.30	65,909
153.20	3,214	158.40	67,300
153.30	3,911	158.50	68,672
153.40	4,648	158.60	70,025
153.50	5,422	158.70	71,356
153.60	6,229	158.80	72,664
153.70	7,068	158.90	73,945
153.80	7,937	159.00	75,200
153.90	8,833	159.10	76,424
154.00	9,754	159.20	77,616
154.10	10,699	159.30	78,774
154.20	11,667	159.40	79,894
154.30	12,656	159.50	80,974
154.40	13,664	159.60	82,010
154.50	14,691	159.70	82,998
154.60	15,736	159.80	83,933
154.70	16,796	159.90	84,811
154.80	17,871	160.00	85,625
154.90	18,961	160.10	86,367
155.00	20,063	160.20	87,026
155.10	21,178	160.30	87,587
155.20	22,304	160.40	88,023
155.30	23,440	160.50	88,263
155.40	24,585		
155.50	25,739		
155.60	26,964		
155.70	28,246		
155.80	29,566		
155.90	30,916		
156.00	32,292		
156.10	33,689		
156.20	35,105		
156.30	36,537		
156.40	37,983		
156.50	39,441		
156.60	40,909		
156.70	42,385		
156.80	43,868		
156.90	45,356		
157.00	46,847		
157.10	48,341		
157.20	49,835		
157.30	51,328		
157.40	52,819		
157.50	54,307		
157.60	55,789		

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MSE 24-hr 3 10-Year Rainfall=4.19"

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Summary for Subcatchment A:

Runoff = 11.72 cfs @ 12.20 hrs, Volume= 33,173 cf, Depth= 2.47"

Routed to Pond 1P : Underground Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-Year Rainfall=4.19"

Area (sf)	CN	Description
50,360	80	>75% Grass cover, Good, HSG D
48,185	61	>75% Grass cover, Good, HSG B
35,330	98	Paved parking, HSG B
* 27,313	98	Paved parking, HSG B (undisturbed)
161,188	81	Weighted Average
98,545		61.14% Pervious Area
62,643		38.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	76	0.0199	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.2	8	0.0150	0.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
12.6	84	Total			

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Summary for Subcatchment B:

Runoff = 1.04 cfs @ 12.11 hrs, Volume= 2,132 cf, Depth= 3.62"
 Routed to Reach 1R : Total

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.19"

Area (sf)	CN	Description
1,367	80	>75% Grass cover, Good, HSG D
5,710	98	Paved parking, HSG B
7,077	95	Weighted Average
1,367		19.32% Pervious Area
5,710		80.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	8	0.0200	0.07		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.1	6	0.0200	0.73		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
0.8	10	0.3180	0.21		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.2	9	0.0200	0.79		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
3.1	33	Total			

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Summary for Subcatchment C:

Runoff = 4.05 cfs @ 12.11 hrs, Volume= 8,177 cf, Depth= 2.92"
Routed to Pond 2P : Low Area Flood Storage

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-Year Rainfall=4.19"

Area (sf)	CN	Description
15,705	74	>75% Grass cover, Good, HSG C
17,913	98	Paved parking, HSG C
33,618	87	Weighted Average
15,705		46.72% Pervious Area
17,913		53.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	70	0.1290	0.31		Sheet Flow, Grass: Short n= 0.150 P2= 2.75"

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Summary for Subcatchment D: Artificial Turf (Sepak Takraw)

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 1,645 cf, Depth= 3.95"

Routed to Pond 7P : Collector Pipe w/ Turf Section

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-Year Rainfall=4.19"

	Area (sf)	CN	Description
*	4,992	98	Artificial Turf
	4,992		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

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Summary for Subcatchment E:

Runoff = 2.39 cfs @ 12.12 hrs, Volume= 5,297 cf, Depth= 3.95"

Routed to Pond 1P : Underground Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-Year Rainfall=4.19"

	Area (sf)	CN	Description
*	16,072	98	Building
	16,072		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

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Summary for Subcatchment F: Artificial Turf Field

Runoff = 14.98 cfs @ 12.09 hrs, Volume= 31,093 cf, Depth= 3.95"

Routed to Pond 8P : Collector Pipe w/ Turf Section

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-Year Rainfall=4.19"

	Area (sf)	CN	Description
*	94,349	98	Artificial Turf
	94,349		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

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Summary for Subcatchment G:

Runoff = 0.94 cfs @ 12.14 hrs, Volume= 1,891 cf, Depth= 2.27"

Routed to Pond 9P : Off-Site Flood Storage

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-Year Rainfall=4.19"

Area (sf)	CN	Description
9,629	80	>75% Grass cover, Good, HSG D
383	98	Paved parking, HSG B
10,012	81	Weighted Average
9,629		96.17% Pervious Area
383		3.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	39	0.0256	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"

Proposed Conditions*MSE 24-hr 3 10-Year Rainfall=4.19"*

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Summary for Reach 1R: Total

Inflow Area = 327,308 sf, 61.73% Impervious, Inflow Depth = 0.19" for 10-Year event
Inflow = 1.11 cfs @ 12.11 hrs, Volume= 5,089 cf
Outflow = 1.11 cfs @ 12.11 hrs, Volume= 5,089 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Summary for Pond 1P: Underground Infiltration System

Inflow Area = 276,601 sf, 64.37% Impervious, Inflow Depth > 3.07" for 10-Year event
Inflow = 16.27 cfs @ 12.19 hrs, Volume= 70,780 cf
Outflow = 0.32 cfs @ 20.43 hrs, Volume= 48,855 cf, Atten= 98%, Lag= 494.3 min
Discarded = 0.25 cfs @ 9.51 hrs, Volume= 47,787 cf
Primary = 0.07 cfs @ 20.43 hrs, Volume= 1,067 cf
Routed to Reach 1R : Total

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 158.61' @ 20.43 hrs Surf.Area= 23,995 sf Storage= 53,156 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,143.8 min (1,988.1 - 844.3)

Volume	Invert	Avail.Storage	Storage Description
#1	155.50'	24,522 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 107,978 cf Overall - 46,672 cf Embedded = 61,306 cf x 40.0% Voids
#2	155.50'	45,239 cf	48.0" Round Pipe Storage x 18 Inside #1 L= 200.0'
#3	155.50'	1,433 cf	48.0" Round Pipe Storage Inside #1 L= 114.0'
71,194 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
155.50	23,995	0	0
160.00	23,995	107,978	107,978

Device	Routing	Invert	Outlet Devices
#1	Primary	158.50'	24.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.50' / 157.50' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	155.50'	0.450 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.25 cfs @ 9.51 hrs HW=155.50' (Free Discharge)
↑ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=0.07 cfs @ 20.43 hrs HW=158.61' TW=0.00' (Dynamic Tailwater)
↑ **1=Culvert** (Barrel Controls 0.07 cfs @ 1.57 fps)

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Stage-Area-Storage for Pond 1P: Underground Infiltration System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
155.50	23,995	0	158.10	23,995	44,223
155.55	23,995	546	158.15	23,995	45,126
155.60	23,995	1,146	158.20	23,995	46,026
155.65	23,995	1,781	158.25	23,995	46,921
155.70	23,995	2,443	158.30	23,995	47,812
155.75	23,995	3,128	158.35	23,995	48,698
155.80	23,995	3,834	158.40	23,995	49,578
155.85	23,995	4,557	158.45	23,995	50,453
155.90	23,995	5,297	158.50	23,995	51,322
155.95	23,995	6,051	158.55	23,995	52,185
156.00	23,995	6,819	158.60	23,995	53,041
156.05	23,995	7,600	158.65	23,995	53,889
156.10	23,995	8,393	158.70	23,995	54,729
156.15	23,995	9,196	158.75	23,995	55,562
156.20	23,995	10,010	158.80	23,995	56,385
156.25	23,995	10,833	158.85	23,995	57,199
156.30	23,995	11,665	158.90	23,995	58,002
156.35	23,995	12,506	158.95	23,995	58,795
156.40	23,995	13,354	159.00	23,995	59,576
156.45	23,995	14,210	159.05	23,995	60,344
156.50	23,995	15,073	159.10	23,995	61,098
156.55	23,995	15,942	159.15	23,995	61,838
156.60	23,995	16,817	159.20	23,995	62,561
156.65	23,995	17,697	159.25	23,995	63,267
156.70	23,995	18,583	159.30	23,995	63,952
156.75	23,995	19,474	159.35	23,995	64,614
156.80	23,995	20,369	159.40	23,995	65,249
156.85	23,995	21,269	159.45	23,995	65,849
156.90	23,995	22,172	159.50	23,995	66,395
156.95	23,995	23,079	159.55	23,995	66,875
157.00	23,995	23,989	159.60	23,995	67,355
157.05	23,995	24,901	159.65	23,995	67,835
157.10	23,995	25,817	159.70	23,995	68,315
157.15	23,995	26,734	159.75	23,995	68,794
157.20	23,995	27,654	159.80	23,995	69,274
157.25	23,995	28,575	159.85	23,995	69,754
157.30	23,995	29,498	159.90	23,995	70,234
157.35	23,995	30,422	159.95	23,995	70,714
157.40	23,995	31,347	160.00	23,995	71,194
157.45	23,995	32,272	160.05	23,995	71,194
157.50	23,995	33,197	160.10	23,995	71,194
157.55	23,995	34,123	160.15	23,995	71,194
157.60	23,995	35,048	160.20	23,995	71,194
157.65	23,995	35,973	160.25	23,995	71,194
157.70	23,995	36,897	160.30	23,995	71,194
157.75	23,995	37,820	160.35	23,995	71,194
157.80	23,995	38,741	160.40	23,995	71,194
157.85	23,995	39,661	160.45	23,995	71,194
157.90	23,995	40,578	160.50	23,995	71,194
157.95	23,995	41,494			
158.00	23,995	42,406			
158.05	23,995	43,316			

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Summary for Pond 2P: Low Area Flood Storage

Inflow Area = 33,618 sf, 53.28% Impervious, Inflow Depth = 2.92" for 10-Year event
 Inflow = 4.05 cfs @ 12.11 hrs, Volume= 8,177 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 150.01' @ 24.23 hrs Surf.Area= 4,941 sf Storage= 8,177 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	154.84'	11 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2A	147.67'	0 cf	68.96'W x 71.65'L x 7.17'H Field A
			35,407 cf Overall - 35,407 cf Embedded = 0 cf x 0.0% Voids
#3A	147.67'	26,700 cf	StormTrap ST1 DoubleTrap 6-0x 50 Inside #2
			Inside= 82.7"W x 72.0"H => 37.97 sf x 14.06'L = 534.0 cf
			Outside= 82.7"W x 86.0"H => 49.42 sf x 14.06'L = 695.0 cf
			10 Rows adjusted for 830.0 cf perimeter wall
			68.96' x 70.31' Core + 0.00' x 0.67' Border = 68.96' x 71.65' System
		26,711 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
154.84	13	0	0
155.67	13	11	11

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Stage-Area-Storage for Pond 2P: Low Area Flood Storage

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
147.67	0	152.87	20,915
147.77	0	152.97	21,360
147.87	0	153.07	21,805
147.97	0	153.17	22,250
148.07	0	153.27	22,695
148.17	0	153.37	23,140
148.27	445	153.47	23,585
148.37	890	153.57	24,030
148.47	1,335	153.67	24,475
148.57	1,780	153.77	24,920
148.67	2,225	153.87	25,365
148.77	2,670	153.97	25,810
148.87	3,115	154.07	26,255
148.97	3,560	154.17	26,700
149.07	4,005	154.27	26,700
149.17	4,450	154.37	26,700
149.27	4,895	154.47	26,700
149.37	5,340	154.57	26,700
149.47	5,785	154.67	26,700
149.57	6,230	154.77	26,700
149.67	6,675	154.87	26,700
149.77	7,120	154.97	26,702
149.87	7,565	155.07	26,703
149.97	8,010	155.17	26,704
150.07	8,455	155.27	26,705
150.17	8,900	155.37	26,707
150.27	9,345	155.47	26,708
150.37	9,790	155.57	26,709
150.47	10,235	155.67	26,711
150.57	10,680		
150.67	11,125		
150.77	11,570		
150.87	12,015		
150.97	12,460		
151.07	12,905		
151.17	13,350		
151.27	13,795		
151.37	14,240		
151.47	14,685		
151.57	15,130		
151.67	15,575		
151.77	16,020		
151.87	16,465		
151.97	16,910		
152.07	17,355		
152.17	17,800		
152.27	18,245		
152.37	18,690		
152.47	19,135		
152.57	19,580		
152.67	20,025		
152.77	20,470		

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Summary for Pond 7P: Collector Pipe w/ Turf Section

Inflow Area = 4,992 sf, 100.00% Impervious, Inflow Depth = 3.95" for 10-Year event
 Inflow = 0.79 cfs @ 12.09 hrs, Volume= 1,645 cf
 Outflow = 0.56 cfs @ 12.10 hrs, Volume= 1,643 cf, Atten= 30%, Lag= 0.5 min
 Primary = 0.56 cfs @ 12.10 hrs, Volume= 1,643 cf
 Routed to Pond 1P : Underground Infiltration System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 160.60' @ 12.10 hrs Surf.Area= 4,992 sf Storage= 399 cf

Plug-Flow detention time= 45.3 min calculated for 1,643 cf (100% of inflow)
 Center-of-Mass det. time= 44.9 min (787.0 - 742.1)

Volume	Invert	Avail.Storage	Storage Description
#1	162.23'	998 cf	6" Base Stone (Prismatic) Listed below (Recalc) 2,496 cf Overall x 40.0% Voids
#2	160.23'	1,872 cf	24" Sand Section (Prismatic) Listed below (Recalc) 9,360 cf Overall x 20.0% Voids
#3	160.23'	225 cf	Collector Drain Trench (Prismatic) Listed below (Recalc) 624 cf Overall - 61 cf Embedded = 563 cf x 40.0% Voids
#4	160.23'	61 cf	12.0" Round 18" Collector Drain Inside #3 L= 78.0'
		3,157 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.23	4,992	0	0
162.73	4,992	2,496	2,496

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.23	4,836	0	0
162.23	4,524	9,360	9,360

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.23	156	0	0
162.23	468	624	624

Device	Routing	Invert	Outlet Devices
#1	Primary	160.23'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.55 cfs @ 12.10 hrs HW=160.60' TW=156.24' (Dynamic Tailwater)
 ↑1=Orifice/Grate (Orifice Controls 0.55 cfs @ 2.08 fps)

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Stage-Area-Storage for Pond 7P: Collector Pipe w/ Turf Section

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
160.23	0	161.27	1,124	162.31	2,318
160.25	21	161.29	1,146	162.33	2,358
160.27	42	161.31	1,167	162.35	2,398
160.29	63	161.33	1,188	162.37	2,438
160.31	84	161.35	1,209	162.39	2,478
160.33	105	161.37	1,231	162.41	2,518
160.35	126	161.39	1,252	162.43	2,558
160.37	148	161.41	1,273	162.45	2,598
160.39	169	161.43	1,295	162.47	2,638
160.41	190	161.45	1,316	162.49	2,678
160.43	212	161.47	1,337	162.51	2,717
160.45	233	161.49	1,359	162.53	2,757
160.47	255	161.51	1,380	162.55	2,797
160.49	276	161.53	1,402	162.57	2,837
160.51	298	161.55	1,423	162.59	2,877
160.53	320	161.57	1,444	162.61	2,917
160.55	341	161.59	1,466	162.63	2,957
160.57	363	161.61	1,487	162.65	2,997
160.59	385	161.63	1,509	162.67	3,037
160.61	406	161.65	1,530	162.69	3,077
160.63	428	161.67	1,552	162.71	3,117
160.65	450	161.69	1,573	162.73	3,157
160.67	472	161.71	1,595		
160.69	493	161.73	1,616		
160.71	515	161.75	1,638		
160.73	537	161.77	1,659		
160.75	559	161.79	1,681		
160.77	581	161.81	1,702		
160.79	603	161.83	1,724		
160.81	625	161.85	1,746		
160.83	646	161.87	1,767		
160.85	668	161.89	1,789		
160.87	690	161.91	1,811		
160.89	712	161.93	1,832		
160.91	734	161.95	1,854		
160.93	756	161.97	1,875		
160.95	778	161.99	1,897		
160.97	800	162.01	1,919		
160.99	821	162.03	1,941		
161.01	843	162.05	1,962		
161.03	865	162.07	1,984		
161.05	887	162.09	2,006		
161.07	909	162.11	2,028		
161.09	931	162.13	2,049		
161.11	952	162.15	2,071		
161.13	974	162.17	2,093		
161.15	996	162.19	2,115		
161.17	1,017	162.21	2,137		
161.19	1,039	162.23	2,158		
161.21	1,061	162.25	2,198		
161.23	1,082	162.27	2,238		
161.25	1,103	162.29	2,278		

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Summary for Pond 8P: Collector Pipe w/ Turf Section

Inflow Area = 94,349 sf, 100.00% Impervious, Inflow Depth = 3.95" for 10-Year event
 Inflow = 14.98 cfs @ 12.09 hrs, Volume= 31,093 cf
 Outflow = 3.04 cfs @ 12.29 hrs, Volume= 30,667 cf, Atten= 80%, Lag= 11.8 min
 Primary = 3.04 cfs @ 12.29 hrs, Volume= 30,667 cf
 Routed to Pond 1P : Underground Infiltration System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 159.46' @ 12.29 hrs Surf.Area= 94,349 sf Storage= 15,888 cf

Plug-Flow detention time= 197.8 min calculated for 30,667 cf (99% of inflow)
 Center-of-Mass det. time= 189.3 min (931.4 - 742.1)

Volume	Invert	Avail.Storage	Storage Description
#1	160.29'	18,870 cf	6" Base Stone (Prismatic) Listed below (Recalc) 47,175 cf Overall x 40.0% Voids
#2	158.64'	39,796 cf	24" Sand Section (Prismatic) Listed below (Recalc) 198,980 cf Overall x 20.0% Voids
#3	158.64'	1,265 cf	Collector Drain Trench (Prismatic) Listed below (Recalc) 3,870 cf Overall - 707 cf Embedded = 3,163 cf x 40.0% Voids
#4	158.64'	707 cf	18.0" Round 18" Collector Drain Inside #3 L= 400.0'
60,638 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.29	94,349	0	0
160.79	94,349	47,175	47,175

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.64	93,349	0	0
160.79	91,749	198,980	198,980

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.64	1,000	0	0
160.79	2,600	3,870	3,870

Device	Routing	Invert	Outlet Devices
#1	Primary	158.64'	18.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.03 cfs @ 12.29 hrs HW=159.46' TW=156.82' (Dynamic Tailwater)
 ↑1=Orifice/Grate (Orifice Controls 3.03 cfs @ 3.08 fps)

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MSE 24-hr 3 10-Year Rainfall=4.19"

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Stage-Area-Storage for Pond 8P: Collector Pipe w/ Turf Section

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
158.64	0	159.68	20,227	160.72	56,639
158.66	383	159.70	20,618	160.74	57,782
158.68	766	159.72	21,009	160.76	58,924
158.70	1,150	159.74	21,400	160.78	60,067
158.72	1,535	159.76	21,791		
158.74	1,920	159.78	22,182		
158.76	2,305	159.80	22,573		
158.78	2,691	159.82	22,964		
158.80	3,077	159.84	23,355		
158.82	3,464	159.86	23,745		
158.84	3,851	159.88	24,136		
158.86	4,238	159.90	24,526		
158.88	4,625	159.92	24,917		
158.90	5,012	159.94	25,307		
158.92	5,400	159.96	25,697		
158.94	5,788	159.98	26,087		
158.96	6,176	160.00	26,477		
158.98	6,565	160.02	26,866		
159.00	6,953	160.04	27,256		
159.02	7,342	160.06	27,645		
159.04	7,731	160.08	28,033		
159.06	8,120	160.10	28,422		
159.08	8,509	160.12	28,809		
159.10	8,898	160.14	29,196		
159.12	9,288	160.16	29,582		
159.14	9,677	160.18	29,968		
159.16	10,067	160.20	30,354		
159.18	10,457	160.22	30,740		
159.20	10,847	160.24	31,126		
159.22	11,237	160.26	31,512		
159.24	11,627	160.28	31,899		
159.26	12,017	160.30	32,662		
159.28	12,408	160.32	33,804		
159.30	12,798	160.34	34,945		
159.32	13,189	160.36	36,086		
159.34	13,579	160.38	37,227		
159.36	13,970	160.40	38,369		
159.38	14,361	160.42	39,510		
159.40	14,752	160.44	40,652		
159.42	15,143	160.46	41,793		
159.44	15,534	160.48	42,935		
159.46	15,924	160.50	44,077		
159.48	16,316	160.52	45,218		
159.50	16,707	160.54	46,360		
159.52	17,098	160.56	47,502		
159.54	17,489	160.58	48,644		
159.56	17,880	160.60	49,786		
159.58	18,271	160.62	50,928		
159.60	18,662	160.64	52,070		
159.62	19,053	160.66	53,212		
159.64	19,445	160.68	54,355		
159.66	19,836	160.70	55,497		

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Summary for Pond 9P: Off-Site Flood Storage

Inflow Area = 10,012 sf, 3.83% Impervious, Inflow Depth = 2.27" for 10-Year event
Inflow = 0.94 cfs @ 12.14 hrs, Volume= 1,891 cf
Outflow = 0.17 cfs @ 12.48 hrs, Volume= 1,889 cf, Atten= 82%, Lag= 20.7 min
Primary = 0.17 cfs @ 12.48 hrs, Volume= 1,889 cf
Routed to Reach 1R : Total

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 152.79' @ 12.48 hrs Surf.Area= 4,486 sf Storage= 880 cf

Plug-Flow detention time= 132.9 min calculated for 1,889 cf (100% of inflow)

Center-of-Mass det. time= 132.4 min (934.2 - 801.8)

Volume	Invert	Avail.Storage	Storage Description
#1	152.50'	75,147 cf	96.0" Round 96" CMP L= 1,495.0'
#2	155.50'	13,116 cf	60.0" Round 60" CMP L= 668.0'
		88,263 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	152.50'	12.0" Round Culvert L= 18.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 152.50' / 152.40' S= 0.0056 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.17 cfs @ 12.48 hrs HW=152.79' TW=0.00' (Dynamic Tailwater)

↑ **1=Culvert** (Barrel Controls 0.17 cfs @ 1.31 fps)

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MSE 24-hr 3 10-Year Rainfall=4.19"

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Stage-Area-Storage for Pond 9P: Off-Site Flood Storage

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
152.50	0	157.70	57,266
152.60	178	157.80	58,734
152.70	500	157.90	60,193
152.80	916	158.00	61,642
152.90	1,405	158.10	63,078
153.00	1,956	158.20	64,501
153.10	2,561	158.30	65,909
153.20	3,214	158.40	67,300
153.30	3,911	158.50	68,672
153.40	4,648	158.60	70,025
153.50	5,422	158.70	71,356
153.60	6,229	158.80	72,664
153.70	7,068	158.90	73,945
153.80	7,937	159.00	75,200
153.90	8,833	159.10	76,424
154.00	9,754	159.20	77,616
154.10	10,699	159.30	78,774
154.20	11,667	159.40	79,894
154.30	12,656	159.50	80,974
154.40	13,664	159.60	82,010
154.50	14,691	159.70	82,998
154.60	15,736	159.80	83,933
154.70	16,796	159.90	84,811
154.80	17,871	160.00	85,625
154.90	18,961	160.10	86,367
155.00	20,063	160.20	87,026
155.10	21,178	160.30	87,587
155.20	22,304	160.40	88,023
155.30	23,440	160.50	88,263
155.40	24,585		
155.50	25,739		
155.60	26,964		
155.70	28,246		
155.80	29,566		
155.90	30,916		
156.00	32,292		
156.10	33,689		
156.20	35,105		
156.30	36,537		
156.40	37,983		
156.50	39,441		
156.60	40,909		
156.70	42,385		
156.80	43,868		
156.90	45,356		
157.00	46,847		
157.10	48,341		
157.20	49,835		
157.30	51,328		
157.40	52,819		
157.50	54,307		
157.60	55,789		

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MSE 24-hr 3 100-Year Rainfall=7.36"

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Summary for Subcatchment A:

Runoff = 25.15 cfs @ 12.20 hrs, Volume= 70,253 cf, Depth= 5.23"

Routed to Pond 1P : Underground Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=7.36"

Area (sf)	CN	Description
50,360	80	>75% Grass cover, Good, HSG D
48,185	61	>75% Grass cover, Good, HSG B
35,330	98	Paved parking, HSG B
* 27,313	98	Paved parking, HSG B (undisturbed)
161,188	81	Weighted Average
98,545		61.14% Pervious Area
62,643		38.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	76	0.0199	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.2	8	0.0150	0.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
12.6	84	Total			

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MSE 24-hr 3 100-Year Rainfall=7.36"

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Summary for Subcatchment B:

Runoff = 1.90 cfs @ 12.11 hrs, Volume= 3,961 cf, Depth= 6.72"
 Routed to Reach 1R : Total

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=7.36"

Area (sf)	CN	Description
1,367	80	>75% Grass cover, Good, HSG D
5,710	98	Paved parking, HSG B
7,077	95	Weighted Average
1,367		19.32% Pervious Area
5,710		80.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	8	0.0200	0.07		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.1	6	0.0200	0.73		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
0.8	10	0.3180	0.21		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.2	9	0.0200	0.79		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
3.1	33	Total			

Proposed Conditions

MSE 24-hr 3 100-Year Rainfall=7.36"

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Summary for Subcatchment C:

Runoff = 8.03 cfs @ 12.11 hrs, Volume= 16,332 cf, Depth= 5.83"

Routed to Pond 2P : Low Area Flood Storage

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=7.36"

Area (sf)	CN	Description
15,705	74	>75% Grass cover, Good, HSG C
17,913	98	Paved parking, HSG C
33,618	87	Weighted Average
15,705		46.72% Pervious Area
17,913		53.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	70	0.1290	0.31		Sheet Flow, Grass: Short n= 0.150 P2= 2.75"

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Summary for Subcatchment D: Artificial Turf (Sepak Takraw)

Runoff = 1.40 cfs @ 12.09 hrs, Volume= 2,962 cf, Depth= 7.12"
Routed to Pond 7P : Collector Pipe w/ Turf Section

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=7.36"

	Area (sf)	CN	Description
*	4,992	98	Artificial Turf
	4,992		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

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Summary for Subcatchment E:

Runoff = 4.22 cfs @ 12.12 hrs, Volume= 9,537 cf, Depth= 7.12"
Routed to Pond 1P : Underground Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=7.36"

	Area (sf)	CN	Description
*	16,072	98	Building
	16,072		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

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Summary for Subcatchment F: Artificial Turf Field

Runoff = 26.42 cfs @ 12.09 hrs, Volume= 55,985 cf, Depth= 7.12"
Routed to Pond 8P : Collector Pipe w/ Turf Section

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=7.36"

	Area (sf)	CN	Description
*	94,349	98	Artificial Turf
	94,349		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

Proposed Conditions

MSE 24-hr 3 100-Year Rainfall=7.36"

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Summary for Subcatchment G:

Runoff = 2.05 cfs @ 12.14 hrs, Volume= 4,262 cf, Depth= 5.11"

Routed to Pond 9P : Off-Site Flood Storage

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=7.36"

Area (sf)	CN	Description
9,629	80	>75% Grass cover, Good, HSG D
383	98	Paved parking, HSG B
10,012	81	Weighted Average
9,629		96.17% Pervious Area
383		3.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	39	0.0256	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"

Proposed Conditions*MSE 24-hr 3 100-Year Rainfall=7.36"*

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Summary for Reach 1R: Total

Inflow Area = 327,308 sf, 61.73% Impervious, Inflow Depth = 2.66" for 100-Year event
Inflow = 6.64 cfs @ 12.78 hrs, Volume= 72,637 cf
Outflow = 6.64 cfs @ 12.78 hrs, Volume= 72,637 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Summary for Pond 1P: Underground Infiltration System

Inflow Area = 276,601 sf, 64.37% Impervious, Inflow Depth = 6.00" for 100-Year event
Inflow = 34.30 cfs @ 12.19 hrs, Volume= 138,291 cf
Outflow = 6.36 cfs @ 12.79 hrs, Volume= 114,369 cf, Atten= 81%, Lag= 35.8 min
Discarded = 0.25 cfs @ 7.31 hrs, Volume= 49,952 cf
Primary = 6.11 cfs @ 12.79 hrs, Volume= 64,417 cf
Routed to Reach 1R : Total

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 159.58' @ 12.79 hrs Surf.Area= 23,995 sf Storage= 67,154 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 540.1 min (1,364.0 - 823.9)

Volume	Invert	Avail.Storage	Storage Description
#1	155.50'	24,522 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 107,978 cf Overall - 46,672 cf Embedded = 61,306 cf x 40.0% Voids
#2	155.50'	45,239 cf	48.0" Round Pipe Storage x 18 Inside #1 L= 200.0'
#3	155.50'	1,433 cf	48.0" Round Pipe Storage Inside #1 L= 114.0'
71,194 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
155.50	23,995	0	0
160.00	23,995	107,978	107,978

Device	Routing	Invert	Outlet Devices
#1	Primary	158.50'	24.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.50' / 157.50' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	155.50'	0.450 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.25 cfs @ 7.31 hrs HW=155.50' (Free Discharge)
↑ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=6.11 cfs @ 12.79 hrs HW=159.58' TW=0.00' (Dynamic Tailwater)
↑ **1=Culvert** (Inlet Controls 6.11 cfs @ 3.54 fps)

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Stage-Area-Storage for Pond 1P: Underground Infiltration System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
155.50	23,995	0	158.10	23,995	44,223
155.55	23,995	546	158.15	23,995	45,126
155.60	23,995	1,146	158.20	23,995	46,026
155.65	23,995	1,781	158.25	23,995	46,921
155.70	23,995	2,443	158.30	23,995	47,812
155.75	23,995	3,128	158.35	23,995	48,698
155.80	23,995	3,834	158.40	23,995	49,578
155.85	23,995	4,557	158.45	23,995	50,453
155.90	23,995	5,297	158.50	23,995	51,322
155.95	23,995	6,051	158.55	23,995	52,185
156.00	23,995	6,819	158.60	23,995	53,041
156.05	23,995	7,600	158.65	23,995	53,889
156.10	23,995	8,393	158.70	23,995	54,729
156.15	23,995	9,196	158.75	23,995	55,562
156.20	23,995	10,010	158.80	23,995	56,385
156.25	23,995	10,833	158.85	23,995	57,199
156.30	23,995	11,665	158.90	23,995	58,002
156.35	23,995	12,506	158.95	23,995	58,795
156.40	23,995	13,354	159.00	23,995	59,576
156.45	23,995	14,210	159.05	23,995	60,344
156.50	23,995	15,073	159.10	23,995	61,098
156.55	23,995	15,942	159.15	23,995	61,838
156.60	23,995	16,817	159.20	23,995	62,561
156.65	23,995	17,697	159.25	23,995	63,267
156.70	23,995	18,583	159.30	23,995	63,952
156.75	23,995	19,474	159.35	23,995	64,614
156.80	23,995	20,369	159.40	23,995	65,249
156.85	23,995	21,269	159.45	23,995	65,849
156.90	23,995	22,172	159.50	23,995	66,395
156.95	23,995	23,079	159.55	23,995	66,875
157.00	23,995	23,989	159.60	23,995	67,355
157.05	23,995	24,901	159.65	23,995	67,835
157.10	23,995	25,817	159.70	23,995	68,315
157.15	23,995	26,734	159.75	23,995	68,794
157.20	23,995	27,654	159.80	23,995	69,274
157.25	23,995	28,575	159.85	23,995	69,754
157.30	23,995	29,498	159.90	23,995	70,234
157.35	23,995	30,422	159.95	23,995	70,714
157.40	23,995	31,347	160.00	23,995	71,194
157.45	23,995	32,272	160.05	23,995	71,194
157.50	23,995	33,197	160.10	23,995	71,194
157.55	23,995	34,123	160.15	23,995	71,194
157.60	23,995	35,048	160.20	23,995	71,194
157.65	23,995	35,973	160.25	23,995	71,194
157.70	23,995	36,897	160.30	23,995	71,194
157.75	23,995	37,820	160.35	23,995	71,194
157.80	23,995	38,741	160.40	23,995	71,194
157.85	23,995	39,661	160.45	23,995	71,194
157.90	23,995	40,578	160.50	23,995	71,194
157.95	23,995	41,494			
158.00	23,995	42,406			
158.05	23,995	43,316			

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Summary for Pond 2P: Low Area Flood Storage

Inflow Area = 33,618 sf, 53.28% Impervious, Inflow Depth = 5.83" for 100-Year event
 Inflow = 8.03 cfs @ 12.11 hrs, Volume= 16,332 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 151.84' @ 24.23 hrs Surf.Area= 4,941 sf Storage= 16,332 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	154.84'	11 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2A	147.67'	0 cf	68.96'W x 71.65'L x 7.17'H Field A
			35,407 cf Overall - 35,407 cf Embedded = 0 cf x 0.0% Voids
#3A	147.67'	26,700 cf	StormTrap ST1 DoubleTrap 6-0x 50 Inside #2
			Inside= 82.7"W x 72.0"H => 37.97 sf x 14.06'L = 534.0 cf
			Outside= 82.7"W x 86.0"H => 49.42 sf x 14.06'L = 695.0 cf
			10 Rows adjusted for 830.0 cf perimeter wall
			68.96' x 70.31' Core + 0.00' x 0.67' Border = 68.96' x 71.65' System
		26,711 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
154.84	13	0	0
155.67	13	11	11

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Stage-Area-Storage for Pond 2P: Low Area Flood Storage

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
147.67	0	152.87	20,915
147.77	0	152.97	21,360
147.87	0	153.07	21,805
147.97	0	153.17	22,250
148.07	0	153.27	22,695
148.17	0	153.37	23,140
148.27	445	153.47	23,585
148.37	890	153.57	24,030
148.47	1,335	153.67	24,475
148.57	1,780	153.77	24,920
148.67	2,225	153.87	25,365
148.77	2,670	153.97	25,810
148.87	3,115	154.07	26,255
148.97	3,560	154.17	26,700
149.07	4,005	154.27	26,700
149.17	4,450	154.37	26,700
149.27	4,895	154.47	26,700
149.37	5,340	154.57	26,700
149.47	5,785	154.67	26,700
149.57	6,230	154.77	26,700
149.67	6,675	154.87	26,700
149.77	7,120	154.97	26,702
149.87	7,565	155.07	26,703
149.97	8,010	155.17	26,704
150.07	8,455	155.27	26,705
150.17	8,900	155.37	26,707
150.27	9,345	155.47	26,708
150.37	9,790	155.57	26,709
150.47	10,235	155.67	26,711
150.57	10,680		
150.67	11,125		
150.77	11,570		
150.87	12,015		
150.97	12,460		
151.07	12,905		
151.17	13,350		
151.27	13,795		
151.37	14,240		
151.47	14,685		
151.57	15,130		
151.67	15,575		
151.77	16,020		
151.87	16,465		
151.97	16,910		
152.07	17,355		
152.17	17,800		
152.27	18,245		
152.37	18,690		
152.47	19,135		
152.57	19,580		
152.67	20,025		
152.77	20,470		

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Summary for Pond 7P: Collector Pipe w/ Turf Section

Inflow Area = 4,992 sf, 100.00% Impervious, Inflow Depth = 7.12" for 100-Year event
 Inflow = 1.40 cfs @ 12.09 hrs, Volume= 2,962 cf
 Outflow = 1.09 cfs @ 12.10 hrs, Volume= 2,960 cf, Atten= 22%, Lag= 0.4 min
 Primary = 1.09 cfs @ 12.10 hrs, Volume= 2,960 cf
 Routed to Pond 1P : Underground Infiltration System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 160.77' @ 12.10 hrs Surf.Area= 4,992 sf Storage= 583 cf

Plug-Flow detention time= 34.6 min calculated for 2,960 cf (100% of inflow)
 Center-of-Mass det. time= 34.2 min (769.1 - 734.9)

Volume	Invert	Avail.Storage	Storage Description
#1	162.23'	998 cf	6" Base Stone (Prismatic) Listed below (Recalc) 2,496 cf Overall x 40.0% Voids
#2	160.23'	1,872 cf	24" Sand Section (Prismatic) Listed below (Recalc) 9,360 cf Overall x 20.0% Voids
#3	160.23'	225 cf	Collector Drain Trench (Prismatic) Listed below (Recalc) 624 cf Overall - 61 cf Embedded = 563 cf x 40.0% Voids
#4	160.23'	61 cf	12.0" Round 18" Collector Drain Inside #3 L= 78.0'
3,157 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.23	4,992	0	0
162.73	4,992	2,496	2,496

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.23	4,836	0	0
162.23	4,524	9,360	9,360

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.23	156	0	0
162.23	468	624	624

Device	Routing	Invert	Outlet Devices
#1	Primary	160.23'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.08 cfs @ 12.10 hrs HW=160.77' TW=157.21' (Dynamic Tailwater)
 ↑1=Orifice/Grate (Orifice Controls 1.08 cfs @ 2.50 fps)

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Stage-Area-Storage for Pond 7P: Collector Pipe w/ Turf Section

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
160.23	0	161.27	1,124	162.31	2,318
160.25	21	161.29	1,146	162.33	2,358
160.27	42	161.31	1,167	162.35	2,398
160.29	63	161.33	1,188	162.37	2,438
160.31	84	161.35	1,209	162.39	2,478
160.33	105	161.37	1,231	162.41	2,518
160.35	126	161.39	1,252	162.43	2,558
160.37	148	161.41	1,273	162.45	2,598
160.39	169	161.43	1,295	162.47	2,638
160.41	190	161.45	1,316	162.49	2,678
160.43	212	161.47	1,337	162.51	2,717
160.45	233	161.49	1,359	162.53	2,757
160.47	255	161.51	1,380	162.55	2,797
160.49	276	161.53	1,402	162.57	2,837
160.51	298	161.55	1,423	162.59	2,877
160.53	320	161.57	1,444	162.61	2,917
160.55	341	161.59	1,466	162.63	2,957
160.57	363	161.61	1,487	162.65	2,997
160.59	385	161.63	1,509	162.67	3,037
160.61	406	161.65	1,530	162.69	3,077
160.63	428	161.67	1,552	162.71	3,117
160.65	450	161.69	1,573	162.73	3,157
160.67	472	161.71	1,595		
160.69	493	161.73	1,616		
160.71	515	161.75	1,638		
160.73	537	161.77	1,659		
160.75	559	161.79	1,681		
160.77	581	161.81	1,702		
160.79	603	161.83	1,724		
160.81	625	161.85	1,746		
160.83	646	161.87	1,767		
160.85	668	161.89	1,789		
160.87	690	161.91	1,811		
160.89	712	161.93	1,832		
160.91	734	161.95	1,854		
160.93	756	161.97	1,875		
160.95	778	161.99	1,897		
160.97	800	162.01	1,919		
160.99	821	162.03	1,941		
161.01	843	162.05	1,962		
161.03	865	162.07	1,984		
161.05	887	162.09	2,006		
161.07	909	162.11	2,028		
161.09	931	162.13	2,049		
161.11	952	162.15	2,071		
161.13	974	162.17	2,093		
161.15	996	162.19	2,115		
161.17	1,017	162.21	2,137		
161.19	1,039	162.23	2,158		
161.21	1,061	162.25	2,198		
161.23	1,082	162.27	2,238		
161.25	1,103	162.29	2,278		

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Summary for Pond 8P: Collector Pipe w/ Turf Section

Inflow Area = 94,349 sf, 100.00% Impervious, Inflow Depth = 7.12" for 100-Year event
 Inflow = 26.42 cfs @ 12.09 hrs, Volume= 55,985 cf
 Outflow = 6.43 cfs @ 12.20 hrs, Volume= 55,541 cf, Atten= 76%, Lag= 6.7 min
 Primary = 6.43 cfs @ 12.20 hrs, Volume= 55,541 cf
 Routed to Pond 1P : Underground Infiltration System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 159.96' @ 12.20 hrs Surf.Area= 94,349 sf Storage= 25,645 cf

Plug-Flow detention time= 171.8 min calculated for 55,532 cf (99% of inflow)
 Center-of-Mass det. time= 167.0 min (901.9 - 734.9)

Volume	Invert	Avail.Storage	Storage Description
#1	160.29'	18,870 cf	6" Base Stone (Prismatic) Listed below (Recalc) 47,175 cf Overall x 40.0% Voids
#2	158.64'	39,796 cf	24" Sand Section (Prismatic) Listed below (Recalc) 198,980 cf Overall x 20.0% Voids
#3	158.64'	1,265 cf	Collector Drain Trench (Prismatic) Listed below (Recalc) 3,870 cf Overall - 707 cf Embedded = 3,163 cf x 40.0% Voids
#4	158.64'	707 cf	18.0" Round 18" Collector Drain Inside #3 L= 400.0'
60,638 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.29	94,349	0	0
160.79	94,349	47,175	47,175

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.64	93,349	0	0
160.79	91,749	198,980	198,980

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.64	1,000	0	0
160.79	2,600	3,870	3,870

Device	Routing	Invert	Outlet Devices
#1	Primary	158.64'	18.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.43 cfs @ 12.20 hrs HW=159.96' TW=157.86' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Orifice Controls 6.43 cfs @ 3.91 fps)

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MSE 24-hr 3 100-Year Rainfall=7.36"

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Stage-Area-Storage for Pond 8P: Collector Pipe w/ Turf Section

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
158.64	0	159.68	20,227	160.72	56,639
158.66	383	159.70	20,618	160.74	57,782
158.68	766	159.72	21,009	160.76	58,924
158.70	1,150	159.74	21,400	160.78	60,067
158.72	1,535	159.76	21,791		
158.74	1,920	159.78	22,182		
158.76	2,305	159.80	22,573		
158.78	2,691	159.82	22,964		
158.80	3,077	159.84	23,355		
158.82	3,464	159.86	23,745		
158.84	3,851	159.88	24,136		
158.86	4,238	159.90	24,526		
158.88	4,625	159.92	24,917		
158.90	5,012	159.94	25,307		
158.92	5,400	159.96	25,697		
158.94	5,788	159.98	26,087		
158.96	6,176	160.00	26,477		
158.98	6,565	160.02	26,866		
159.00	6,953	160.04	27,256		
159.02	7,342	160.06	27,645		
159.04	7,731	160.08	28,033		
159.06	8,120	160.10	28,422		
159.08	8,509	160.12	28,809		
159.10	8,898	160.14	29,196		
159.12	9,288	160.16	29,582		
159.14	9,677	160.18	29,968		
159.16	10,067	160.20	30,354		
159.18	10,457	160.22	30,740		
159.20	10,847	160.24	31,126		
159.22	11,237	160.26	31,512		
159.24	11,627	160.28	31,899		
159.26	12,017	160.30	32,662		
159.28	12,408	160.32	33,804		
159.30	12,798	160.34	34,945		
159.32	13,189	160.36	36,086		
159.34	13,579	160.38	37,227		
159.36	13,970	160.40	38,369		
159.38	14,361	160.42	39,510		
159.40	14,752	160.44	40,652		
159.42	15,143	160.46	41,793		
159.44	15,534	160.48	42,935		
159.46	15,924	160.50	44,077		
159.48	16,316	160.52	45,218		
159.50	16,707	160.54	46,360		
159.52	17,098	160.56	47,502		
159.54	17,489	160.58	48,644		
159.56	17,880	160.60	49,786		
159.58	18,271	160.62	50,928		
159.60	18,662	160.64	52,070		
159.62	19,053	160.66	53,212		
159.64	19,445	160.68	54,355		
159.66	19,836	160.70	55,497		

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MSE 24-hr 3 100-Year Rainfall=7.36"

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Summary for Pond 9P: Off-Site Flood Storage

Inflow Area = 10,012 sf, 3.83% Impervious, Inflow Depth = 5.11" for 100-Year event
 Inflow = 2.05 cfs @ 12.14 hrs, Volume= 4,262 cf
 Outflow = 0.48 cfs @ 12.38 hrs, Volume= 4,259 cf, Atten= 77%, Lag= 14.6 min
 Primary = 0.48 cfs @ 12.38 hrs, Volume= 4,259 cf
 Routed to Reach 1R : Total

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 152.99' @ 12.38 hrs Surf.Area= 5,739 sf Storage= 1,901 cf

Plug-Flow detention time= 102.0 min calculated for 4,259 cf (100% of inflow)

Center-of-Mass det. time= 101.6 min (888.0 - 786.5)

Volume	Invert	Avail.Storage	Storage Description
#1	152.50'	75,147 cf	96.0" Round 96" CMP L= 1,495.0'
#2	155.50'	13,116 cf	60.0" Round 60" CMP L= 668.0'
		88,263 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	152.50'	12.0" Round Culvert L= 18.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 152.50' / 152.40' S= 0.0056 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.38 hrs HW=152.99' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 0.48 cfs @ 1.83 fps)

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MSE 24-hr 3 100-Year Rainfall=7.36"

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Stage-Area-Storage for Pond 9P: Off-Site Flood Storage

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
152.50	0	157.70	57,266
152.60	178	157.80	58,734
152.70	500	157.90	60,193
152.80	916	158.00	61,642
152.90	1,405	158.10	63,078
153.00	1,956	158.20	64,501
153.10	2,561	158.30	65,909
153.20	3,214	158.40	67,300
153.30	3,911	158.50	68,672
153.40	4,648	158.60	70,025
153.50	5,422	158.70	71,356
153.60	6,229	158.80	72,664
153.70	7,068	158.90	73,945
153.80	7,937	159.00	75,200
153.90	8,833	159.10	76,424
154.00	9,754	159.20	77,616
154.10	10,699	159.30	78,774
154.20	11,667	159.40	79,894
154.30	12,656	159.50	80,974
154.40	13,664	159.60	82,010
154.50	14,691	159.70	82,998
154.60	15,736	159.80	83,933
154.70	16,796	159.90	84,811
154.80	17,871	160.00	85,625
154.90	18,961	160.10	86,367
155.00	20,063	160.20	87,026
155.10	21,178	160.30	87,587
155.20	22,304	160.40	88,023
155.30	23,440	160.50	88,263
155.40	24,585		
155.50	25,739		
155.60	26,964		
155.70	28,246		
155.80	29,566		
155.90	30,916		
156.00	32,292		
156.10	33,689		
156.20	35,105		
156.30	36,537		
156.40	37,983		
156.50	39,441		
156.60	40,909		
156.70	42,385		
156.80	43,868		
156.90	45,356		
157.00	46,847		
157.10	48,341		
157.20	49,835		
157.30	51,328		
157.40	52,819		
157.50	54,307		
157.60	55,789		

Proposed Conditions

MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Summary for Subcatchment A:

Runoff = 18.83 cfs @ 12.20 hrs, Volume= 52,702 cf, Depth= 3.92"

Routed to Pond 1P : Underground Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

Area (sf)	CN	Description
50,360	80	>75% Grass cover, Good, HSG D
48,185	61	>75% Grass cover, Good, HSG B
35,330	98	Paved parking, HSG B
* 27,313	98	Paved parking, HSG B (undisturbed)
161,188	81	Weighted Average
98,545		61.14% Pervious Area
62,643		38.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	76	0.0199	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.2	8	0.0150	0.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
12.6	84	Total			

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Summary for Subcatchment B:

Runoff = 1.50 cfs @ 12.11 hrs, Volume= 3,115 cf, Depth= 5.28"
 Routed to Reach 1R : Total

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

Area (sf)	CN	Description
1,367	80	>75% Grass cover, Good, HSG D
5,710	98	Paved parking, HSG B
7,077	95	Weighted Average
1,367		19.32% Pervious Area
5,710		80.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	8	0.0200	0.07		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.1	6	0.0200	0.73		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
0.8	10	0.3180	0.21		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"
0.2	9	0.0200	0.79		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.75"
3.1	33	Total			

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Summary for Subcatchment C:

Runoff = 6.18 cfs @ 12.11 hrs, Volume= 12,510 cf, Depth= 4.47"

Routed to Pond 2P : Low Area Flood Storage

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

Area (sf)	CN	Description
15,705	74	>75% Grass cover, Good, HSG C
17,913	98	Paved parking, HSG C
33,618	87	Weighted Average
15,705		46.72% Pervious Area
17,913		53.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	70	0.1290	0.31		Sheet Flow, Grass: Short n= 0.150 P2= 2.75"

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Summary for Subcatchment D: Artificial Turf (Sepak Takraw)

Runoff = 1.12 cfs @ 12.09 hrs, Volume= 2,355 cf, Depth= 5.66"

Routed to Pond 7P : Collector Pipe w/ Turf Section

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

	Area (sf)	CN	Description
*	4,992	98	Artificial Turf
	4,992		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

Proposed Conditions*MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"*

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Summary for Subcatchment E:

Runoff = 3.38 cfs @ 12.12 hrs, Volume= 7,583 cf, Depth= 5.66"
Routed to Pond 1P : Underground Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

	Area (sf)	CN	Description
*	16,072	98	Building
	16,072		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

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Summary for Subcatchment F: Artificial Turf Field

Runoff = 21.16 cfs @ 12.09 hrs, Volume= 44,517 cf, Depth= 5.66"
Routed to Pond 8P : Collector Pipe w/ Turf Section

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

	Area (sf)	CN	Description
*	94,349	98	Artificial Turf
	94,349		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

Proposed Conditions

MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Summary for Subcatchment G:

Runoff = 1.53 cfs @ 12.14 hrs, Volume= 3,143 cf, Depth= 3.77"

Routed to Pond 9P : Off-Site Flood Storage

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

Area (sf)	CN	Description
9,629	80	>75% Grass cover, Good, HSG D
383	98	Paved parking, HSG B
10,012	81	Weighted Average
9,629		96.17% Pervious Area
383		3.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	39	0.0256	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 2.75"

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Summary for Reach 1R: Total

Inflow Area = 327,308 sf, 61.73% Impervious, Inflow Depth = 1.48" for 100-Year-St. Paul event
Inflow = 2.71 cfs @ 13.53 hrs, Volume= 40,460 cf
Outflow = 2.71 cfs @ 13.53 hrs, Volume= 40,460 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Summary for Pond 1P: Underground Infiltration System

Inflow Area = 276,601 sf, 64.37% Impervious, Inflow Depth > 4.63" for 100-Year-St. Paul event
Inflow = 25.91 cfs @ 12.19 hrs, Volume= 106,718 cf
Outflow = 2.73 cfs @ 13.59 hrs, Volume= 83,359 cf, Atten= 89%, Lag= 83.9 min
Discarded = 0.25 cfs @ 8.63 hrs, Volume= 49,153 cf
Primary = 2.48 cfs @ 13.59 hrs, Volume= 34,206 cf
Routed to Reach 1R : Total

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 159.16' @ 13.59 hrs Surf.Area= 23,995 sf Storage= 61,950 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 723.6 min (1,554.0 - 830.4)

Volume	Invert	Avail.Storage	Storage Description
#1	155.50'	24,522 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 107,978 cf Overall - 46,672 cf Embedded = 61,306 cf x 40.0% Voids
#2	155.50'	45,239 cf	48.0" Round Pipe Storage x 18 Inside #1 L= 200.0'
#3	155.50'	1,433 cf	48.0" Round Pipe Storage Inside #1 L= 114.0'
71,194 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
155.50	23,995	0	0
160.00	23,995	107,978	107,978

Device	Routing	Invert	Outlet Devices
#1	Primary	158.50'	24.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.50' / 157.50' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	155.50'	0.450 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.25 cfs @ 8.63 hrs HW=155.50' (Free Discharge)
↑ **2=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=2.48 cfs @ 13.59 hrs HW=159.16' TW=0.00' (Dynamic Tailwater)
↑ **1=Culvert** (Inlet Controls 2.48 cfs @ 2.76 fps)

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Stage-Area-Storage for Pond 1P: Underground Infiltration System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
155.50	23,995	0	158.10	23,995	44,223
155.55	23,995	546	158.15	23,995	45,126
155.60	23,995	1,146	158.20	23,995	46,026
155.65	23,995	1,781	158.25	23,995	46,921
155.70	23,995	2,443	158.30	23,995	47,812
155.75	23,995	3,128	158.35	23,995	48,698
155.80	23,995	3,834	158.40	23,995	49,578
155.85	23,995	4,557	158.45	23,995	50,453
155.90	23,995	5,297	158.50	23,995	51,322
155.95	23,995	6,051	158.55	23,995	52,185
156.00	23,995	6,819	158.60	23,995	53,041
156.05	23,995	7,600	158.65	23,995	53,889
156.10	23,995	8,393	158.70	23,995	54,729
156.15	23,995	9,196	158.75	23,995	55,562
156.20	23,995	10,010	158.80	23,995	56,385
156.25	23,995	10,833	158.85	23,995	57,199
156.30	23,995	11,665	158.90	23,995	58,002
156.35	23,995	12,506	158.95	23,995	58,795
156.40	23,995	13,354	159.00	23,995	59,576
156.45	23,995	14,210	159.05	23,995	60,344
156.50	23,995	15,073	159.10	23,995	61,098
156.55	23,995	15,942	159.15	23,995	61,838
156.60	23,995	16,817	159.20	23,995	62,561
156.65	23,995	17,697	159.25	23,995	63,267
156.70	23,995	18,583	159.30	23,995	63,952
156.75	23,995	19,474	159.35	23,995	64,614
156.80	23,995	20,369	159.40	23,995	65,249
156.85	23,995	21,269	159.45	23,995	65,849
156.90	23,995	22,172	159.50	23,995	66,395
156.95	23,995	23,079	159.55	23,995	66,875
157.00	23,995	23,989	159.60	23,995	67,355
157.05	23,995	24,901	159.65	23,995	67,835
157.10	23,995	25,817	159.70	23,995	68,315
157.15	23,995	26,734	159.75	23,995	68,794
157.20	23,995	27,654	159.80	23,995	69,274
157.25	23,995	28,575	159.85	23,995	69,754
157.30	23,995	29,498	159.90	23,995	70,234
157.35	23,995	30,422	159.95	23,995	70,714
157.40	23,995	31,347	160.00	23,995	71,194
157.45	23,995	32,272	160.05	23,995	71,194
157.50	23,995	33,197	160.10	23,995	71,194
157.55	23,995	34,123	160.15	23,995	71,194
157.60	23,995	35,048	160.20	23,995	71,194
157.65	23,995	35,973	160.25	23,995	71,194
157.70	23,995	36,897	160.30	23,995	71,194
157.75	23,995	37,820	160.35	23,995	71,194
157.80	23,995	38,741	160.40	23,995	71,194
157.85	23,995	39,661	160.45	23,995	71,194
157.90	23,995	40,578	160.50	23,995	71,194
157.95	23,995	41,494			
158.00	23,995	42,406			
158.05	23,995	43,316			

Proposed Conditions

MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Summary for Pond 2P: Low Area Flood Storage

Inflow Area = 33,618 sf, 53.28% Impervious, Inflow Depth = 4.47" for 100-Year-St. Paul event
 Inflow = 6.18 cfs @ 12.11 hrs, Volume= 12,510 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 150.98' @ 24.23 hrs Surf.Area= 4,941 sf Storage= 12,510 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	154.84'	11 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 68.96'W x 71.65'L x 7.17'H Field A 35,407 cf Overall - 35,407 cf Embedded = 0 cf x 0.0% Voids StormTrap ST1 DoubleTrap 6-0x 50 Inside #2 Inside= 82.7"W x 72.0"H => 37.97 sf x 14.06'L = 534.0 cf Outside= 82.7"W x 86.0"H => 49.42 sf x 14.06'L = 695.0 cf 10 Rows adjusted for 830.0 cf perimeter wall 68.96' x 70.31' Core + 0.00' x 0.67' Border = 68.96' x 71.65' System
#2A	147.67'	0 cf	
#3A	147.67'	26,700 cf	
		26,711 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
154.84	13	0	0
155.67	13	11	11

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Stage-Area-Storage for Pond 2P: Low Area Flood Storage

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
147.67	0	152.87	20,915
147.77	0	152.97	21,360
147.87	0	153.07	21,805
147.97	0	153.17	22,250
148.07	0	153.27	22,695
148.17	0	153.37	23,140
148.27	445	153.47	23,585
148.37	890	153.57	24,030
148.47	1,335	153.67	24,475
148.57	1,780	153.77	24,920
148.67	2,225	153.87	25,365
148.77	2,670	153.97	25,810
148.87	3,115	154.07	26,255
148.97	3,560	154.17	26,700
149.07	4,005	154.27	26,700
149.17	4,450	154.37	26,700
149.27	4,895	154.47	26,700
149.37	5,340	154.57	26,700
149.47	5,785	154.67	26,700
149.57	6,230	154.77	26,700
149.67	6,675	154.87	26,700
149.77	7,120	154.97	26,702
149.87	7,565	155.07	26,703
149.97	8,010	155.17	26,704
150.07	8,455	155.27	26,705
150.17	8,900	155.37	26,707
150.27	9,345	155.47	26,708
150.37	9,790	155.57	26,709
150.47	10,235	155.67	26,711
150.57	10,680		
150.67	11,125		
150.77	11,570		
150.87	12,015		
150.97	12,460		
151.07	12,905		
151.17	13,350		
151.27	13,795		
151.37	14,240		
151.47	14,685		
151.57	15,130		
151.67	15,575		
151.77	16,020		
151.87	16,465		
151.97	16,910		
152.07	17,355		
152.17	17,800		
152.27	18,245		
152.37	18,690		
152.47	19,135		
152.57	19,580		
152.67	20,025		
152.77	20,470		

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Summary for Pond 7P: Collector Pipe w/ Turf Section

Inflow Area = 4,992 sf, 100.00% Impervious, Inflow Depth = 5.66" for 100-Year-St. Paul event
 Inflow = 1.12 cfs @ 12.09 hrs, Volume= 2,355 cf
 Outflow = 0.84 cfs @ 12.10 hrs, Volume= 2,354 cf, Atten= 25%, Lag= 0.4 min
 Primary = 0.84 cfs @ 12.10 hrs, Volume= 2,354 cf
 Routed to Pond 1P : Underground Infiltration System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 160.70' @ 12.10 hrs Surf.Area= 4,992 sf Storage= 502 cf

Plug-Flow detention time= 38.6 min calculated for 2,354 cf (100% of inflow)
 Center-of-Mass det. time= 38.0 min (775.5 - 737.5)

Volume	Invert	Avail.Storage	Storage Description
#1	162.23'	998 cf	6" Base Stone (Prismatic) Listed below (Recalc) 2,496 cf Overall x 40.0% Voids
#2	160.23'	1,872 cf	24" Sand Section (Prismatic) Listed below (Recalc) 9,360 cf Overall x 20.0% Voids
#3	160.23'	225 cf	Collector Drain Trench (Prismatic) Listed below (Recalc) 624 cf Overall - 61 cf Embedded = 563 cf x 40.0% Voids
#4	160.23'	61 cf	12.0" Round 18" Collector Drain Inside #3 L= 78.0'
3,157 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.23	4,992	0	0
162.73	4,992	2,496	2,496

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.23	4,836	0	0
162.23	4,524	9,360	9,360

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.23	156	0	0
162.23	468	624	624

Device	Routing	Invert	Outlet Devices
#1	Primary	160.23'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.84 cfs @ 12.10 hrs HW=160.70' TW=156.74' (Dynamic Tailwater)
 ↑1=Orifice/Grate (Orifice Controls 0.84 cfs @ 2.33 fps)

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Stage-Area-Storage for Pond 7P: Collector Pipe w/ Turf Section

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
160.23	0	161.27	1,124	162.31	2,318
160.25	21	161.29	1,146	162.33	2,358
160.27	42	161.31	1,167	162.35	2,398
160.29	63	161.33	1,188	162.37	2,438
160.31	84	161.35	1,209	162.39	2,478
160.33	105	161.37	1,231	162.41	2,518
160.35	126	161.39	1,252	162.43	2,558
160.37	148	161.41	1,273	162.45	2,598
160.39	169	161.43	1,295	162.47	2,638
160.41	190	161.45	1,316	162.49	2,678
160.43	212	161.47	1,337	162.51	2,717
160.45	233	161.49	1,359	162.53	2,757
160.47	255	161.51	1,380	162.55	2,797
160.49	276	161.53	1,402	162.57	2,837
160.51	298	161.55	1,423	162.59	2,877
160.53	320	161.57	1,444	162.61	2,917
160.55	341	161.59	1,466	162.63	2,957
160.57	363	161.61	1,487	162.65	2,997
160.59	385	161.63	1,509	162.67	3,037
160.61	406	161.65	1,530	162.69	3,077
160.63	428	161.67	1,552	162.71	3,117
160.65	450	161.69	1,573	162.73	3,157
160.67	472	161.71	1,595		
160.69	493	161.73	1,616		
160.71	515	161.75	1,638		
160.73	537	161.77	1,659		
160.75	559	161.79	1,681		
160.77	581	161.81	1,702		
160.79	603	161.83	1,724		
160.81	625	161.85	1,746		
160.83	646	161.87	1,767		
160.85	668	161.89	1,789		
160.87	690	161.91	1,811		
160.89	712	161.93	1,832		
160.91	734	161.95	1,854		
160.93	756	161.97	1,875		
160.95	778	161.99	1,897		
160.97	800	162.01	1,919		
160.99	821	162.03	1,941		
161.01	843	162.05	1,962		
161.03	865	162.07	1,984		
161.05	887	162.09	2,006		
161.07	909	162.11	2,028		
161.09	931	162.13	2,049		
161.11	952	162.15	2,071		
161.13	974	162.17	2,093		
161.15	996	162.19	2,115		
161.17	1,017	162.21	2,137		
161.19	1,039	162.23	2,158		
161.21	1,061	162.25	2,198		
161.23	1,082	162.27	2,238		
161.25	1,103	162.29	2,278		

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Summary for Pond 8P: Collector Pipe w/ Turf Section

Inflow Area = 94,349 sf, 100.00% Impervious, Inflow Depth = 5.66" for 100-Year-St. Paul event
 Inflow = 21.16 cfs @ 12.09 hrs, Volume= 44,517 cf
 Outflow = 4.91 cfs @ 12.20 hrs, Volume= 44,079 cf, Atten= 77%, Lag= 6.8 min
 Primary = 4.91 cfs @ 12.20 hrs, Volume= 44,079 cf
 Routed to Pond 1P : Underground Infiltration System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 159.73' @ 12.20 hrs Surf.Area= 94,349 sf Storage= 21,265 cf

Plug-Flow detention time= 178.9 min calculated for 44,072 cf (99% of inflow)
 Center-of-Mass det. time= 173.0 min (910.5 - 737.5)

Volume	Invert	Avail.Storage	Storage Description
#1	160.29'	18,870 cf	6" Base Stone (Prismatic) Listed below (Recalc) 47,175 cf Overall x 40.0% Voids
#2	158.64'	39,796 cf	24" Sand Section (Prismatic) Listed below (Recalc) 198,980 cf Overall x 20.0% Voids
#3	158.64'	1,265 cf	Collector Drain Trench (Prismatic) Listed below (Recalc) 3,870 cf Overall - 707 cf Embedded = 3,163 cf x 40.0% Voids
#4	158.64'	707 cf	18.0" Round 18" Collector Drain Inside #3 L= 400.0'
60,638 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.29	94,349	0	0
160.79	94,349	47,175	47,175

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.64	93,349	0	0
160.79	91,749	198,980	198,980

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
158.64	1,000	0	0
160.79	2,600	3,870	3,870

Device	Routing	Invert	Outlet Devices
#1	Primary	158.64'	18.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.91 cfs @ 12.20 hrs HW=159.73' TW=157.25' (Dynamic Tailwater)
 ↑1=Orifice/Grate (Orifice Controls 4.91 cfs @ 3.56 fps)

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Stage-Area-Storage for Pond 8P: Collector Pipe w/ Turf Section

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
158.64	0	159.68	20,227	160.72	56,639
158.66	383	159.70	20,618	160.74	57,782
158.68	766	159.72	21,009	160.76	58,924
158.70	1,150	159.74	21,400	160.78	60,067
158.72	1,535	159.76	21,791		
158.74	1,920	159.78	22,182		
158.76	2,305	159.80	22,573		
158.78	2,691	159.82	22,964		
158.80	3,077	159.84	23,355		
158.82	3,464	159.86	23,745		
158.84	3,851	159.88	24,136		
158.86	4,238	159.90	24,526		
158.88	4,625	159.92	24,917		
158.90	5,012	159.94	25,307		
158.92	5,400	159.96	25,697		
158.94	5,788	159.98	26,087		
158.96	6,176	160.00	26,477		
158.98	6,565	160.02	26,866		
159.00	6,953	160.04	27,256		
159.02	7,342	160.06	27,645		
159.04	7,731	160.08	28,033		
159.06	8,120	160.10	28,422		
159.08	8,509	160.12	28,809		
159.10	8,898	160.14	29,196		
159.12	9,288	160.16	29,582		
159.14	9,677	160.18	29,968		
159.16	10,067	160.20	30,354		
159.18	10,457	160.22	30,740		
159.20	10,847	160.24	31,126		
159.22	11,237	160.26	31,512		
159.24	11,627	160.28	31,899		
159.26	12,017	160.30	32,662		
159.28	12,408	160.32	33,804		
159.30	12,798	160.34	34,945		
159.32	13,189	160.36	36,086		
159.34	13,579	160.38	37,227		
159.36	13,970	160.40	38,369		
159.38	14,361	160.42	39,510		
159.40	14,752	160.44	40,652		
159.42	15,143	160.46	41,793		
159.44	15,534	160.48	42,935		
159.46	15,924	160.50	44,077		
159.48	16,316	160.52	45,218		
159.50	16,707	160.54	46,360		
159.52	17,098	160.56	47,502		
159.54	17,489	160.58	48,644		
159.56	17,880	160.60	49,786		
159.58	18,271	160.62	50,928		
159.60	18,662	160.64	52,070		
159.62	19,053	160.66	53,212		
159.64	19,445	160.68	54,355		
159.66	19,836	160.70	55,497		

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Summary for Pond 9P: Off-Site Flood Storage

Inflow Area = 10,012 sf, 3.83% Impervious, Inflow Depth = 3.77" for 100-Year-St. Paul event
 Inflow = 1.53 cfs @ 12.14 hrs, Volume= 3,143 cf
 Outflow = 0.33 cfs @ 12.41 hrs, Volume= 3,140 cf, Atten= 79%, Lag= 16.4 min
 Primary = 0.33 cfs @ 12.41 hrs, Volume= 3,140 cf
 Routed to Reach 1R : Total

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 152.90' @ 12.41 hrs Surf.Area= 5,243 sf Storage= 1,430 cf

Plug-Flow detention time= 111.9 min calculated for 3,139 cf (100% of inflow)

Center-of-Mass det. time= 111.8 min (904.0 - 792.2)

Volume	Invert	Avail.Storage	Storage Description
#1	152.50'	75,147 cf	96.0" Round 96" CMP L= 1,495.0'
#2	155.50'	13,116 cf	60.0" Round 60" CMP L= 668.0'
		88,263 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	152.50'	12.0" Round Culvert L= 18.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 152.50' / 152.40' S= 0.0056 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.41 hrs HW=152.90' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 0.33 cfs @ 1.62 fps)

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MSE 24-hr 3 100-Year-St. Paul Rainfall=5.90"

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Stage-Area-Storage for Pond 9P: Off-Site Flood Storage

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
152.50	0	157.70	57,266
152.60	178	157.80	58,734
152.70	500	157.90	60,193
152.80	916	158.00	61,642
152.90	1,405	158.10	63,078
153.00	1,956	158.20	64,501
153.10	2,561	158.30	65,909
153.20	3,214	158.40	67,300
153.30	3,911	158.50	68,672
153.40	4,648	158.60	70,025
153.50	5,422	158.70	71,356
153.60	6,229	158.80	72,664
153.70	7,068	158.90	73,945
153.80	7,937	159.00	75,200
153.90	8,833	159.10	76,424
154.00	9,754	159.20	77,616
154.10	10,699	159.30	78,774
154.20	11,667	159.40	79,894
154.30	12,656	159.50	80,974
154.40	13,664	159.60	82,010
154.50	14,691	159.70	82,998
154.60	15,736	159.80	83,933
154.70	16,796	159.90	84,811
154.80	17,871	160.00	85,625
154.90	18,961	160.10	86,367
155.00	20,063	160.20	87,026
155.10	21,178	160.30	87,587
155.20	22,304	160.40	88,023
155.30	23,440	160.50	88,263
155.40	24,585		
155.50	25,739		
155.60	26,964		
155.70	28,246		
155.80	29,566		
155.90	30,916		
156.00	32,292		
156.10	33,689		
156.20	35,105		
156.30	36,537		
156.40	37,983		
156.50	39,441		
156.60	40,909		
156.70	42,385		
156.80	43,868		
156.90	45,356		
157.00	46,847		
157.10	48,341		
157.20	49,835		
157.30	51,328		
157.40	52,819		
157.50	54,307		
157.60	55,789		

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Multi-Event Tables

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Events for Subcatchment A:

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	2.81	6.47	18,831	1.40
10-Year	4.19	11.72	33,173	2.47
100-Year	7.36	25.15	70,253	5.23
100-Year-St. Paul	5.90	18.83	52,702	3.92

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Events for Subcatchment B:

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	2.81	0.67	1,354	2.30
10-Year	4.19	1.04	2,132	3.62
100-Year	7.36	1.90	3,961	6.72
100-Year-St. Paul	5.90	1.50	3,115	5.28

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Events for Subcatchment C:

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	2.81	2.41	4,884	1.74
10-Year	4.19	4.05	8,177	2.92
100-Year	7.36	8.03	16,332	5.83
100-Year-St. Paul	5.90	6.18	12,510	4.47

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Events for Subcatchment D: Artificial Turf (Sepak Takraw)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	2.81	0.53	1,073	2.58
10-Year	4.19	0.79	1,645	3.95
100-Year	7.36	1.40	2,962	7.12
100-Year-St. Paul	5.90	1.12	2,355	5.66

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Events for Subcatchment E:

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	2.81	1.59	3,454	2.58
10-Year	4.19	2.39	5,297	3.95
100-Year	7.36	4.22	9,537	7.12
100-Year-St. Paul	5.90	3.38	7,583	5.66

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Events for Subcatchment F: Artificial Turf Field

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	2.81	9.99	20,278	2.58
10-Year	4.19	14.98	31,093	3.95
100-Year	7.36	26.42	55,985	7.12
100-Year-St. Paul	5.90	21.16	44,517	5.66

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Events for Subcatchment G:

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	2.81	0.48	972	1.17
10-Year	4.19	0.94	1,891	2.27
100-Year	7.36	2.05	4,262	5.11
100-Year-St. Paul	5.90	1.53	3,143	3.77

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Events for Reach 1R: Total

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.69	0.69	0.00	0
10-Year	1.11	1.11	0.00	0
100-Year	6.64	6.64	0.00	0
100-Year-St. Paul	2.71	2.71	0.00	0

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Multi-Event Tables

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Events for Pond 1P: Underground Infiltration System

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	9.05	0.25	0.25	0.00	157.25	28,594
10-Year	16.27	0.32	0.25	0.07	158.61	53,156
100-Year	34.30	6.36	0.25	6.11	159.58	67,154
100-Year-St. Paul	25.91	2.73	0.25	2.48	159.16	61,950

Proposed Conditions

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Multi-Event Tables

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Page 84

Events for Pond 2P: Low Area Flood Storage

Event	Inflow (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	2.41	149.27	4,884
10-Year	4.05	150.01	8,177
100-Year	8.03	151.84	16,332
100-Year-St. Paul	6.18	150.98	12,510

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Multi-Event Tables

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Page 85

Events for Pond 7P: Collector Pipe w/ Turf Section

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.53	0.33	160.51	302
10-Year	0.79	0.56	160.60	399
100-Year	1.40	1.09	160.77	583
100-Year-St. Paul	1.12	0.84	160.70	502

Proposed Conditions

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Multi-Event Tables

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Events for Pond 8P: Collector Pipe w/ Turf Section

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	9.99	1.63	159.22	11,211
10-Year	14.98	3.04	159.46	15,888
100-Year	26.42	6.43	159.96	25,645
100-Year-St. Paul	21.16	4.91	159.73	21,265

Proposed Conditions

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Multi-Event Tables

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Events for Pond 9P: Off-Site Flood Storage

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	0.48	0.07	152.69	457
10-Year	0.94	0.17	152.79	880
100-Year	2.05	0.48	152.99	1,901
100-Year-St. Paul	1.53	0.33	152.90	1,430

Date of Determination: 05/20/22

Determination Expiration: 05/20/24

Greetings!

Please see the determination below.

Project Name: North End Community Center
Project Address: 145 Lawson Avenue West
Suite #/Campus: N/A
City Name: St. Paul
Applicant: Christopher Stark, City of Saint Paul; James Howarth, Snow Kreilich Architects

Special Notes: None

Charge Calculation:

Community Center: 21,707 sq. ft. @ 1750 sq. ft. / SAC = 12.40

Total Charge: 12.40

Credit Calculation:

None

Total Credit: 0

Net SAC: 12.40 = **12 SAC Due**

The business information was provided to MCES by the applicant at this time. It is the City's responsibility to substantiate the business use and size at the time of the final inspection. If there is a change in use or size, a redetermination will need to be made. If you have any questions email me at: toni.janzig@metc.state.mn.us.

Thank you,

Toni Janzig

SAC Technician

Please visit our SAC website by going to: <http://www.metrocouncil.org/SACprogram>

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NORTH END
COMMUNITY CENTER

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St. Paul, MN 55117

CLIENT
St. Paul Parks & Recreation
400 City Hall Annex
25 West 4th Street
St. Paul, MN 55102

LANDSCAPE ARCHITECT
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651.481.9120

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320.259.6557

COST CONSULTANT
Loeffler Construction & Consulting
20520 Keokuk Avenue, Suite 100
Lakeville, MN 55044
952.955.9119

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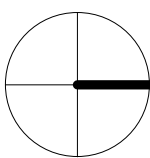
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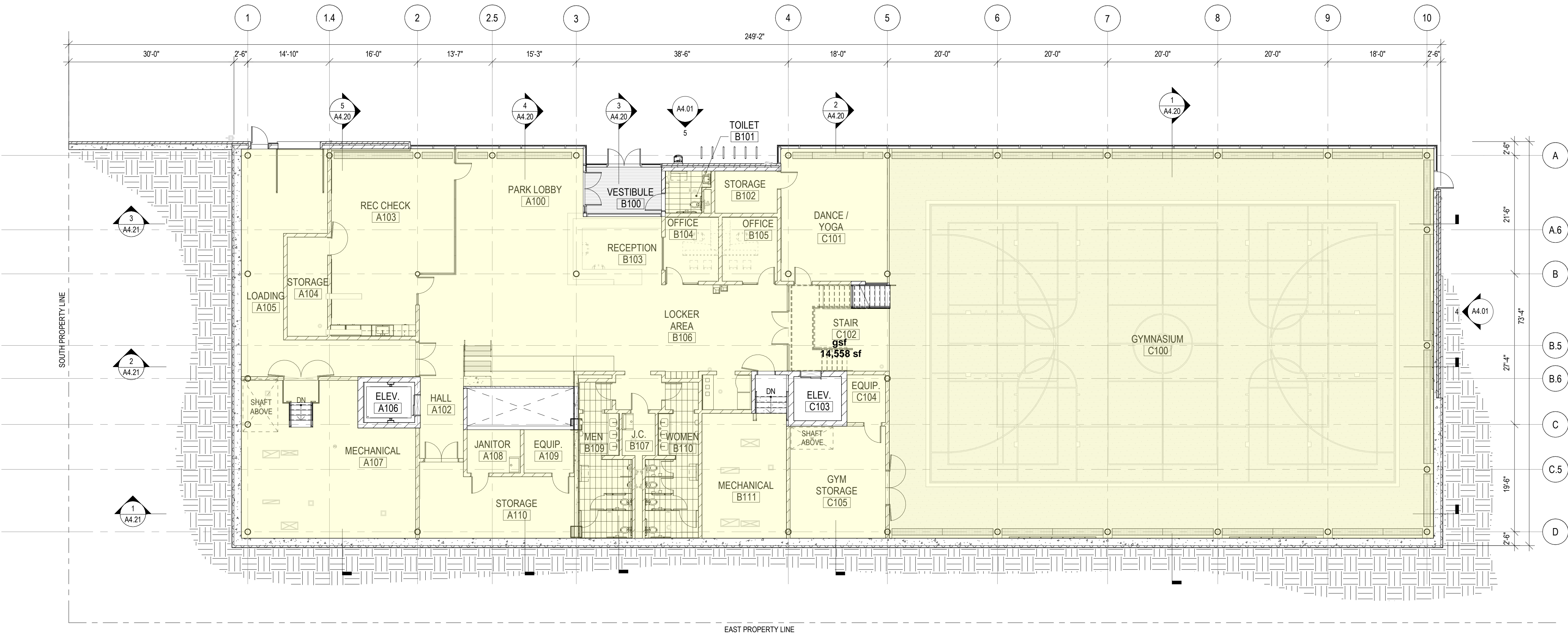
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LOWER LEVEL OVERALL FLOOR PLAN

A2.10



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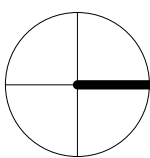
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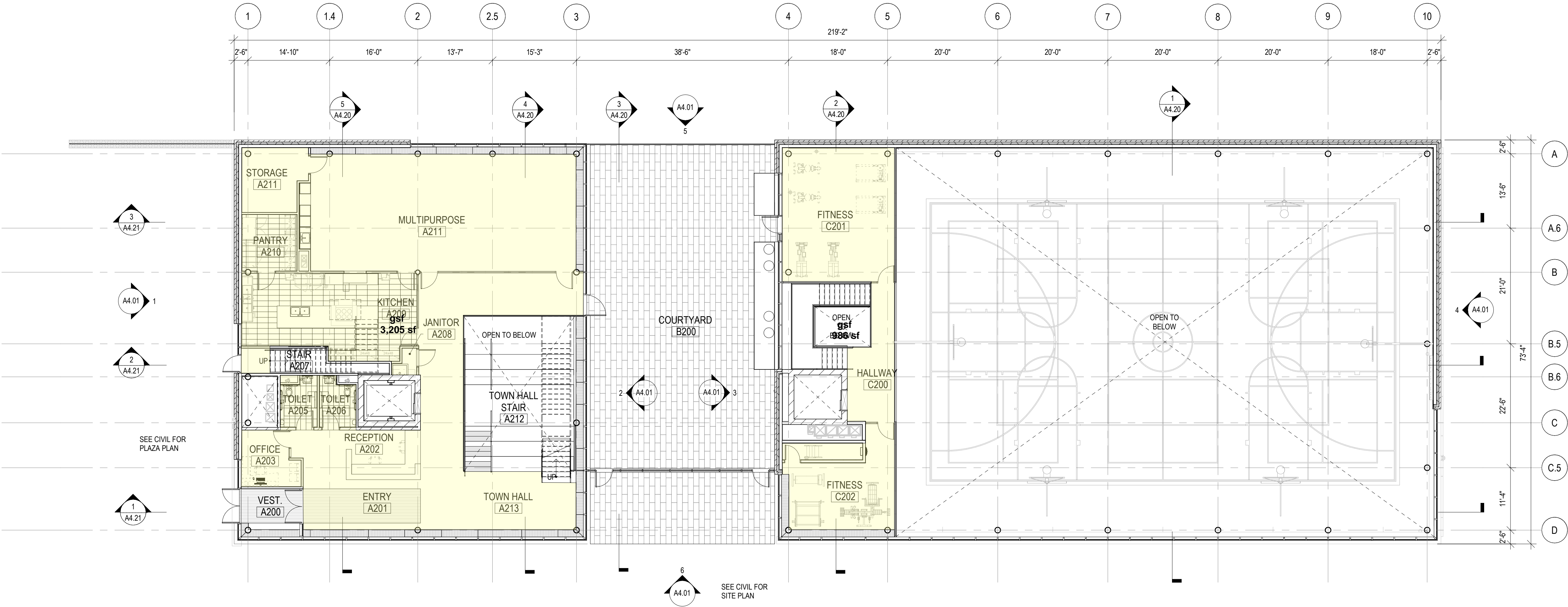
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MAIN LEVEL OVERALL FLOOR
PLAN

A2.20



MAIN LEVEL OVERALL FLOOR PLAN 1
3/32" = 1'-0" A2.20

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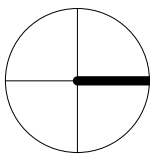
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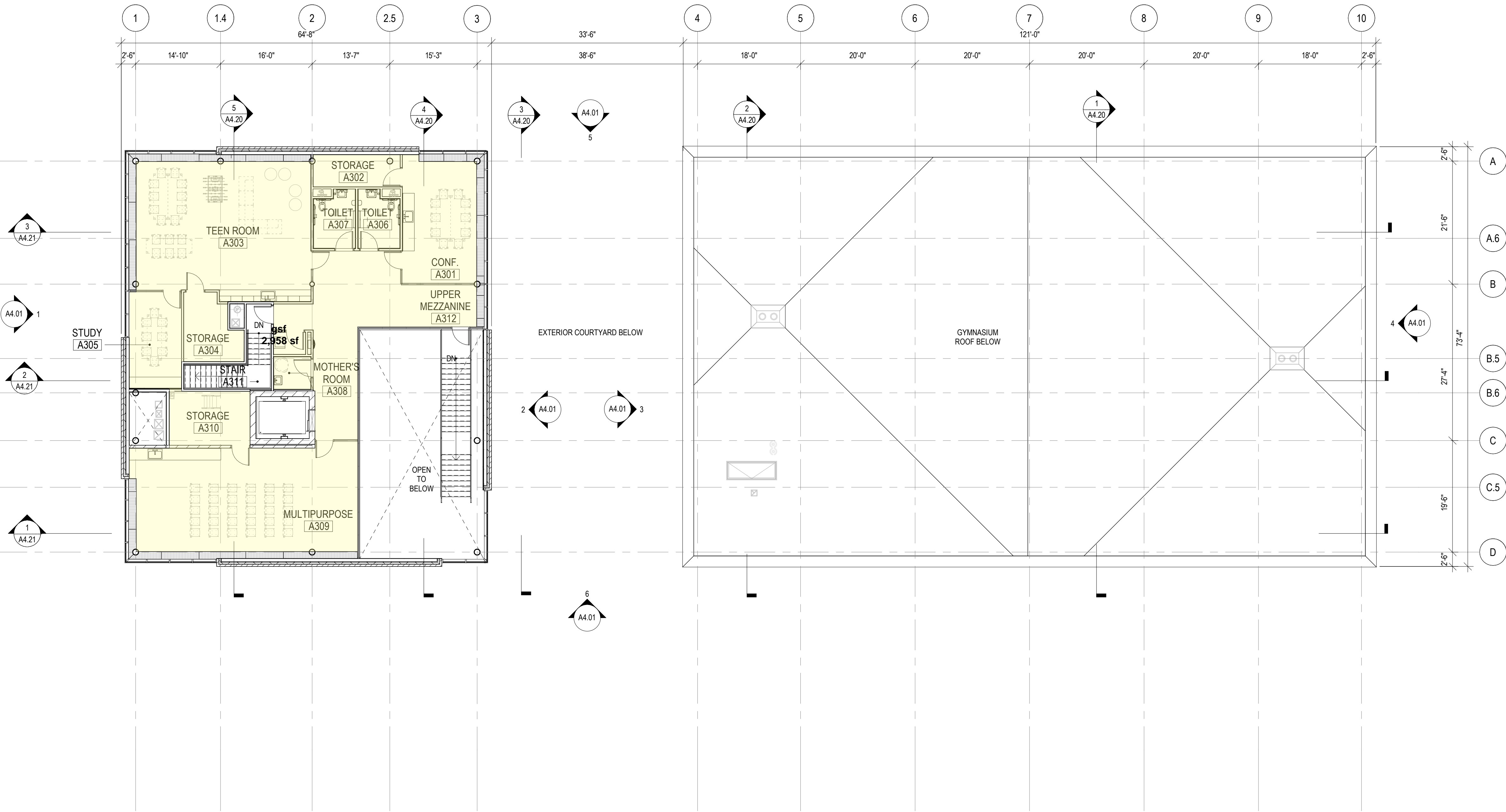
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UPPER LEVEL OVERALL FLOOR PLAN

A2.30



UPPER LEVEL OVERALL FLOOR PLAN 1
3/32" = 1'-0" A2.30

NORTH END COMMUNITY CENTER TRANSPORTATION STUDY

Submitted to:
City of Saint Paul
The Department of Parks and Recreation

Submitted by:
Transportation Collaborative & Consultants, LLC

June 2022



CONTENTS

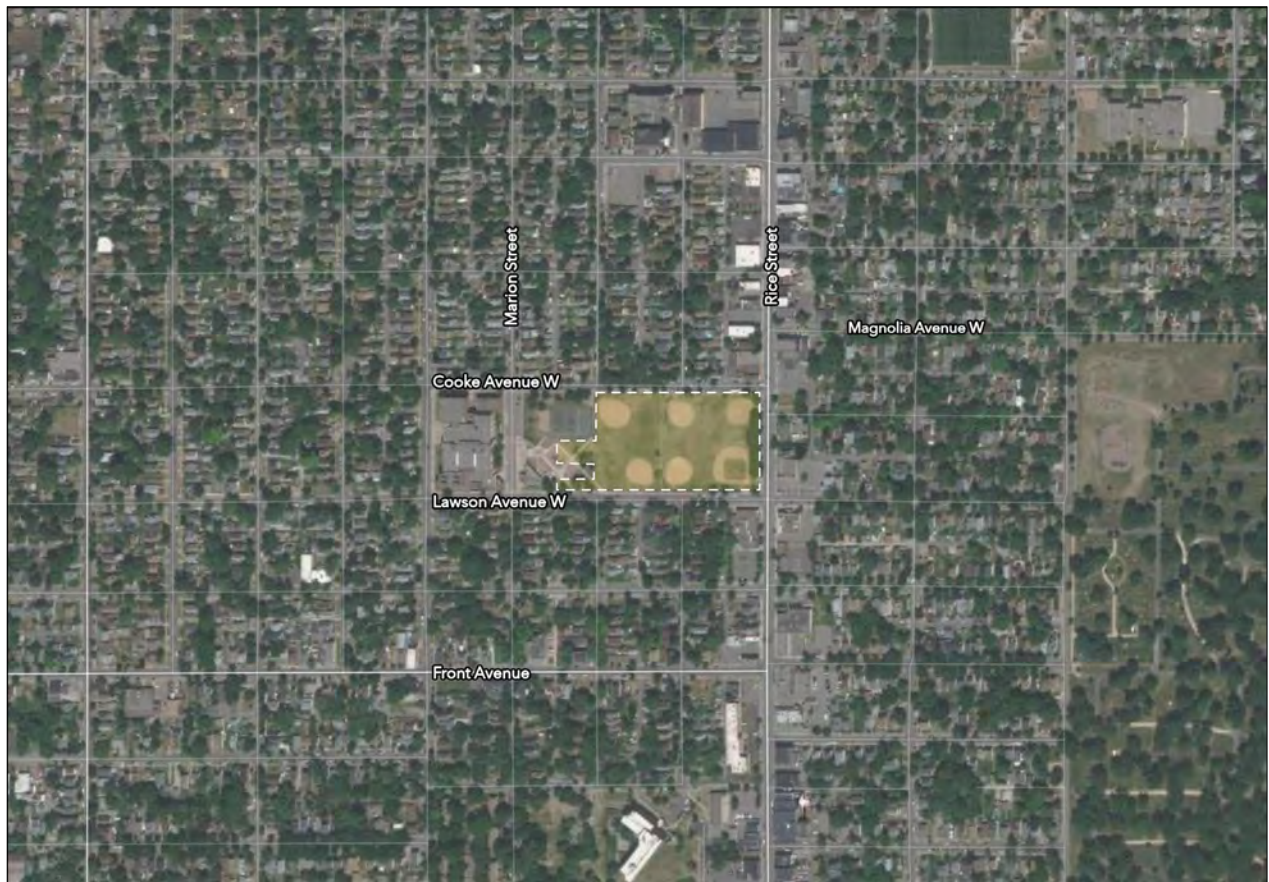
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INTRODUCTION

With recent efforts to expand social and athletic programming opportunities in the City's North End neighborhood, the City of Saint Paul is constructing a new North End Community Center. As part the project, City staff wanted to understand transportation operations and impacts associated with the proposed development. Therefore, TC2 was tasked with completing the North End Community Center Transportation Study, which focuses on the intersections along Rice Street at Lawson Avenue and Cook Avenue with respect to transportation activity and safety for all user and modes (see [Figure 1](#)).

In December 2016, The Ramsey County Board of Commissioners approved the *Ramsey County All-Abilities Transportation Network* to cultivate the county's vision of creating a vibrant community in which all are valued and thrive with a commitment to creating and maintaining a quality comprehensive transportation system. As part of this resolution, the County aspires to uphold strategies that allows pedestrians, bicyclists, transit users and motorists to move freely and safely throughout the County.

Figure 1 Subject Site



Thus, the main objectives of the study are to quantify existing conditions, identify future issues and needs, and develop / evaluate potential strategies to improve and incorporate into the project. The findings of this study will help the City of Saint Paul plan for future infrastructure improvements, including potential traffic control and pedestrian crossing enhancements. The following study assumptions, methodology, and findings are offered for consideration.

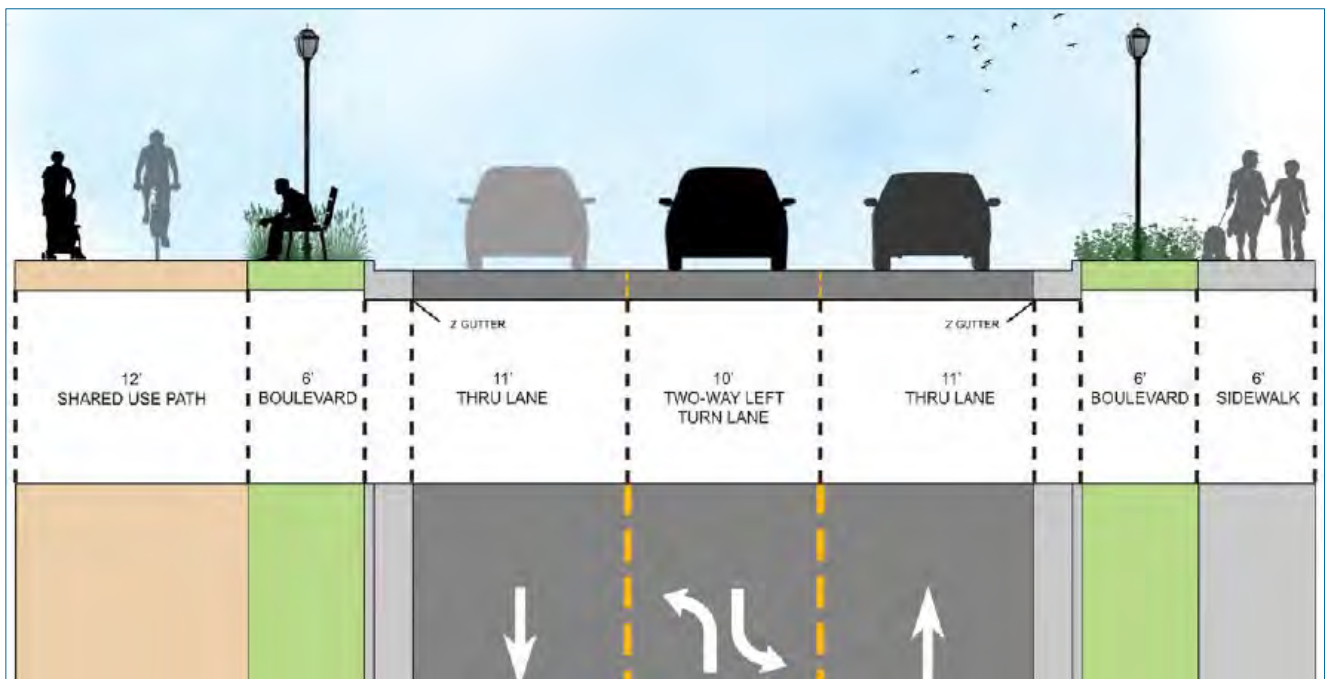
RELATED PLANNING STUDIES

The 2040 Ramsey County Comprehensive Plan recognizes the safety and operational traffic concerns along Rice Street (CSAH 49) and delegated the roadway as a candidate for traffic calming measures to include lane reductions from four lanes to three lanes. The Plan recommended further study and alternate lane configurations for the roadway in which resulted in the *Rice Street Visioning Study* mentioned hereafter.

At the time of this transportation study, Rice Street between Pennsylvania Avenue and Wheelock Parkway, is under analysis for redesign and corridor improvements as part of the *Rice Street Visioning Study*. The study recognizes that the existing roadway has safety and traffic concerns and the need to strengthen community development, bike/pedestrian connections, public safety, livability, and compatible land uses along the corridor. The visioning study has resulted in the recommended proposed design for Rice Street as a three-lane roadway with 11-foot through lanes and a 10-foot center turn lane; 6-foot boulevards; and a 6-foot sidewalk on one side and a 12-foot shared use path on the other side as shown in [Figure 2](#). Proposed roadway reconstruction of Rice Street is set to begin in 2024.

Note that there are ongoing efforts and collaboration between the proposed North End Community Center design team and Rice Streets' Visioning Study Team to increase corridor safety.

Figure 2 Recommended Rice Street Roadway Design



EXISTING CONDITIONS

Existing conditions were reviewed to quantify current operations and identify any existing issues. The evaluation of existing conditions included collecting traffic volumes, observing transportation characteristics, and reviewing staff/community member comments, which are described in the following sections.

Transportation Volumes

Intersection turning movement and pedestrian/bicyclist counts were collected at the following intersections on Thursday, March 24, 2022.

- Rice Street and Cook Avenue (West)
- Rice Street and Cook Avenue (East)
- Rice Street and Lawson Avenue

Data was collected for a 13-hour period (i.e., from 6 a.m. to 7 p.m.) at the intersection of Rice Street and Lawson Avenue to understand how traffic patterns and pedestrian activity vary throughout the day. Data was also collected from 7:00 to 10:00 a.m. and 3:30 to 5:30 p.m. at the Cook Avenue intersections, which coincides with peak activity at the adjacent Wellstone Elementary School and along Rice Street. Note that these counts were collected while school was in session, and it was a relatively nice weather day for late-March. The Wellstone Elementary school hours of operation are from 9:45 a.m. to 4:15 p.m., although they are planning to change for the 2022-2023 school year. Historical Average Daily Traffic (ADT) volumes were obtained from MnDOT and/or estimated from the traffic counts.

Figure 3 illustrates the existing hourly traffic volume profile at the Rice Street and Lawson Avenue intersection, which help illustrate how vehicular activity varies throughout the day. In general, the corridor follows a typical pattern with a defined morning peak occurring between 8:00 and 9:00 a.m. and an afternoon peak occurring between 3:30 and 4:30 p.m. ADT volumes along Rice Street are approximately 13,000 vpd, while ADT volumes along Lawson Avenue west and east of Rice Street are approximately 850 vpd and 550 vpd, respectively.

Figure 3 Rice Street and Lawson Avenue Traffic Volume Profile

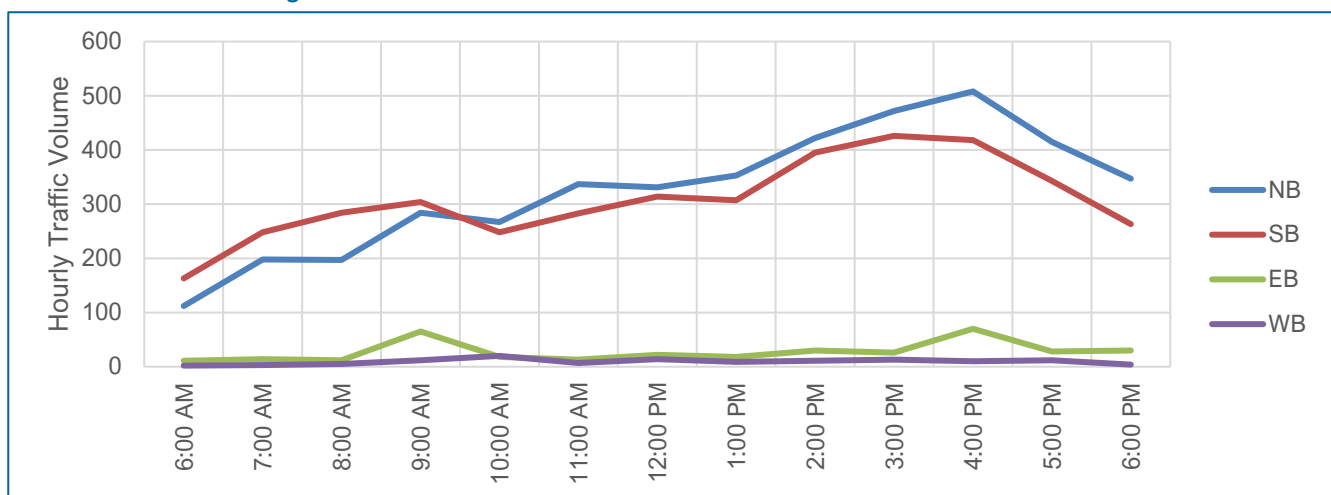
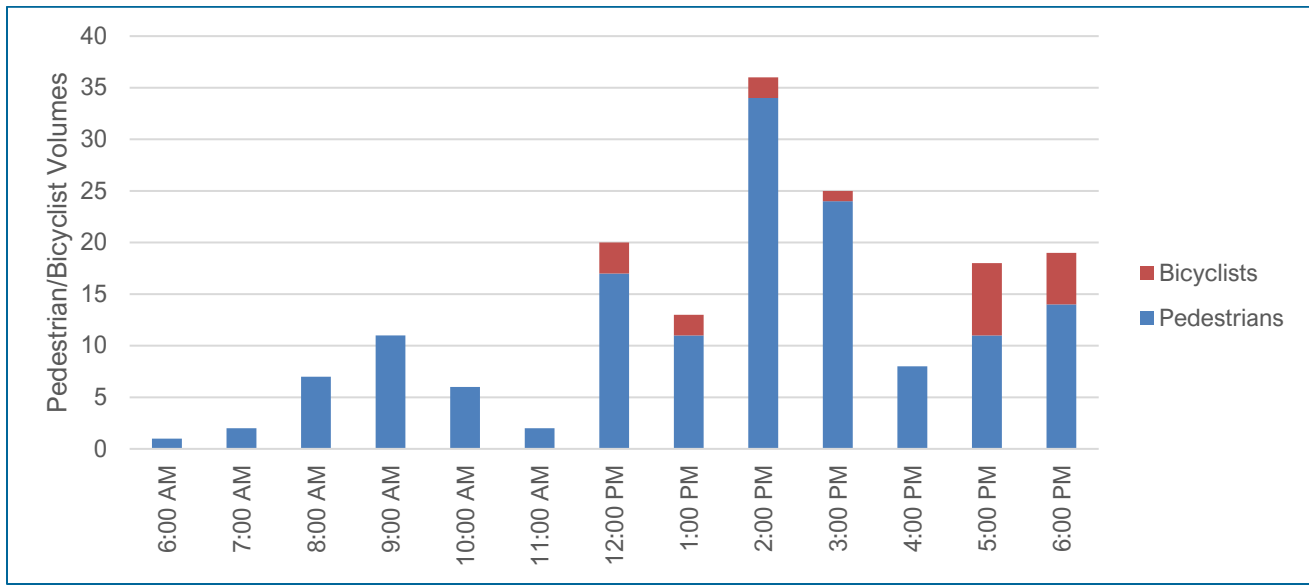


Figure 4 illustrates the existing hourly multimodal activity at the Rice Street and Lawson Avenue intersection. This information helps illustrate how activity varies throughout the day. In general, there is a fair amount of pedestrian activity throughout the day, while bicyclist activity did not increase until the afternoon. This could partially be attributed to the time of year when data was collected, given the Minnesota climate. During the 13-hour count conducted on Thursday, March 24, 2022, one hundred and forty-eight (148) pedestrians and twenty (20) bicyclists were observed at Rice Street and Lawson Avenue.

Figure 4 Multimodal Activity at Rice Street and Lawson Avenue



Transportation Characteristics

Observations were conducted within the study area to identify various transportation characteristics such as roadway geometry, multimodal facilities, speed limits, and traffic controls. The following information provides a general overview of key roadways within the study area. Figure 5 provides an illustration of the existing transportation network and volumes within the study area.

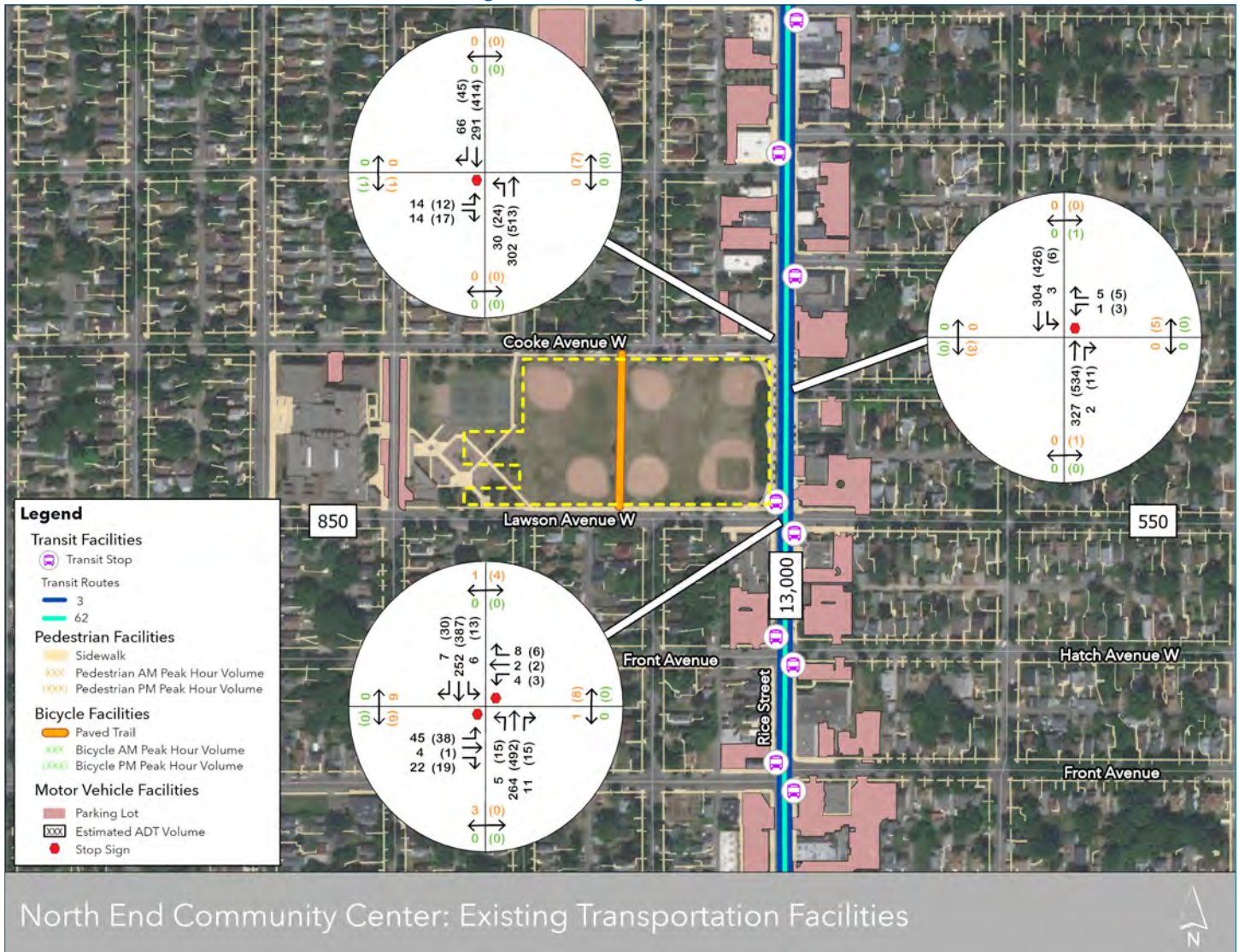
- **Rice Street** is a 70-foot-wide 4-lane undivided urban roadway that has two travel lanes in each direction, although on-street parking is allowed during certain hours of the day which effectively changes operations to a single travel lane in each direction. Six (6) foot sidewalks with four (4) foot boulevards are present on both sides of the roadway. The posted speed limit is 30-mph.
- **Cook Avenue (West)** is a local two-way roadway that is less than one-mile in length. On-street parking is allowed, and pedestrian sidewalks are present on both sides of the street. Cook Avenue terminates at Rice Street via a T-intersection. The speed limit is 25-mph.
- **Lawson Avenue** is a local two-way roadway that is approximately 1.25 miles in length. On-street parking is present on both sides of the street. A sidewalk is present on the north side of the roadway, but there is a gap between Rice Street and Marion Street on the south side of the roadway. The speed limit is 25-mph.

The study intersections along Rice Street at Lawson Avenue, Cook Avenue (west), and Cook Avenue (east) are unsignalized, with side-street stop control.

From a transit perspective, there are bus stops in the northwest and southeast quadrants of the Rice Street and Lawson Avenue intersection. These bus stops serve Route 3 and Route 62. Route 3 is an urban local bus route that operates east-west between downtown Minneapolis and Saint Paul along Como Avenue and Rice Street. Route 3 runs from approximately 4:30 a.m. until approximately 2 a.m., with service every five (5) to 15 minutes during peak periods. Ridership activity for Route 3 included an average of 7,620 passengers per day.

Route 62 is an urban local bus route that runs primarily on Rice Street and serves the Highway 36 and Rice Street Park & Ride that includes 208 parking spaces. Route 62 runs from approximately 5 a.m. to 1 a.m. seven days a week, with service generally running every half hour. Ridership activity for Route 62 included an average of 838 passengers per day.

Figure 5 Existing Conditions



Stakeholder Experiences

Staff at the existing community center and other community members have expressed concerns regarding pedestrian safety due to minimal to non-existent pedestrian facilities and traffic calming measures along the Rice Street corridor. The subject area falls within the high priority area for walking investments laid out in the *2019 Saint Paul Pedestrian Plan*. The Plans' high priority areas are based on neighborhoods where residents rely on walking the most, along and across busy streets such as four-lane roads and areas of the city that lack sidewalks. The *2019 Saint Paul Pedestrian Plan* also recognizes that many streets in the North End neighborhood lack sidewalks. In addition, two rail corridors and Interstate 35E create barriers for walking and reduce the number of available routes to destinations in and around the North End neighborhood.

PROPOSED DEVELOPMENT

The proposed development, shown in [Figure 6](#), includes construction of a 25,000 square foot recreational center building and a 270,000 square foot public park bounded by Cook Avenue to the north, Lawson Avenue to the south, Rice Street to the east, and Wellstone Elementary School to the west. The proposed development is assumed to be fully constructed and operational by the winter of 2024 and will replace the existing Rice Recreation Center (currently within the Wellstone Elementary School). The community center will maximize programmatic use of the park space, creating room for a full-size football and soccer field and two youth baseball fields. The updated facility will also have indoor basketball courts, a community kitchen, a fitness room, and multigenerational activities / spaces. The exterior of the site will be improved with a new play area, outdoor courts, a garden space, and a multi-purpose athletic field.

The proposed community center will serve the North End Community and beyond, as visitors from other areas will attend and participate in tournaments, sport leagues and special events. Given the operating characteristics of the facility, peak daily activity at the site is expected to occur between 4 and 5 p.m., which corresponds to the adjacent school dismissal time and Rice Street Library program offerings to include homework assistance and tutoring. Further information regarding trip generation by mode type is provided later in this report.

Staff members of the City of Saint Paul anticipate an increase in user activity to the new community center, including additional programing of the athletic fields. With improved outdoor lighting and the installation of turf fields, games will be able to extend past sunset and the turf fields can be used in varied weather conditions, including wet conditions, compared to other local fields.

The proposed development is expected to hold regular meetings for neighborhood groups, provide rental of facilities for community members and organizations, serve as a location for food distribution and a polling place. Some of the expected recurring events are shown in [Table 1](#).

Table 1 Recurring Events

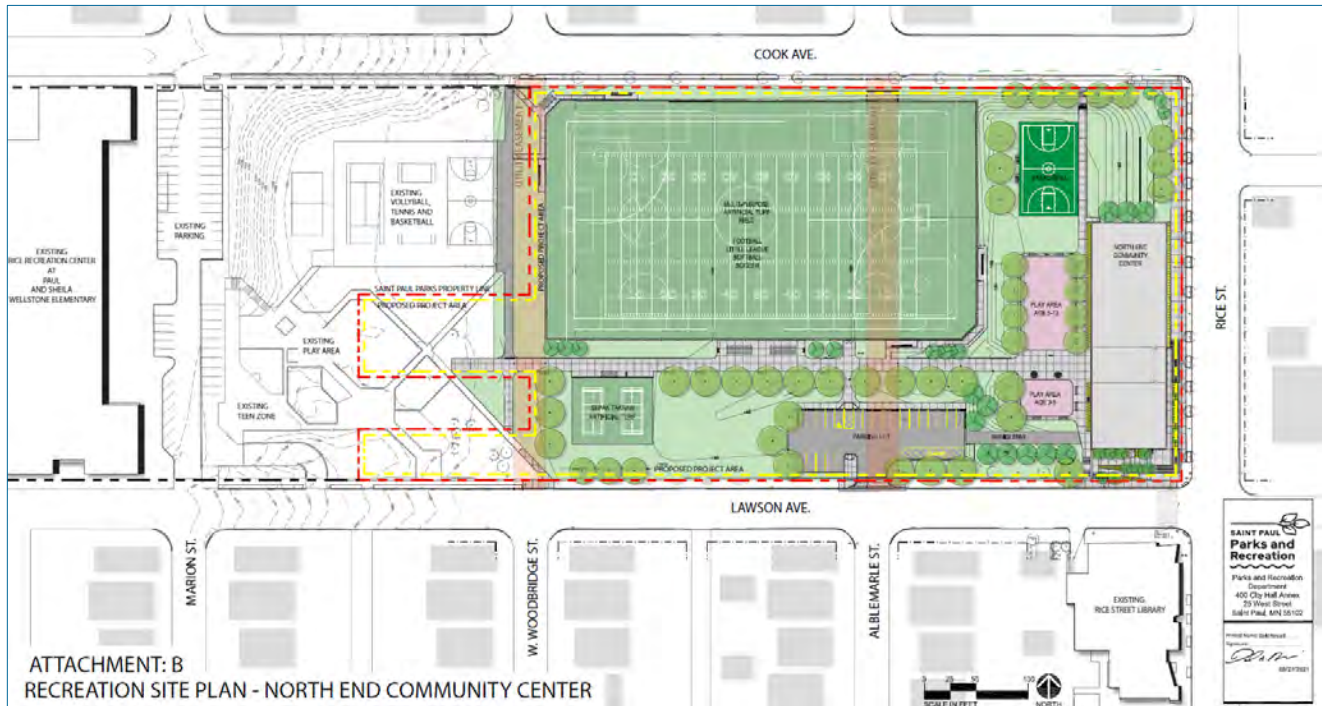
Event	Time of Year	Estimated Participant Count
Summer Kick-Off in May	May	150 to 200
Safe Summer Night	June	200+
Halloween party	October	100
Turkey Giveaway	November	130 families
Games & Tournaments	Year Round	300 to 600 daily
Cultural/Religious Rentals	Year Round	800 to 1,000

Multimodal Facilities

Pedestrian Access and facilities

Pedestrian access to the site will be provided via a proposed shared use path along the west side of Rice Street. A planned pedestrian-only path will connect Wellstone Elementary School to the proposed community center that will run through the 900-foot-long Fritz Klark Recreational Field that exists between the two facilities. Existing directly across the proposed community center is the Rice Street Library. It is highly anticipated that a strong partnership through activity programming will exist between the library and the North End Community Center. As a result, there will be an increase in pedestrian crossings of Lawson Avenue between these two facilities. As proposed, pedestrian sidewalks will continue to bound the subject site.

Figure 6 Site Plan



Bicycle Access and facilities

The City of Saint Paul is currently updating its 2015 *Bicycle Plan* to include an expanded bicycle network of additional separated bike lanes and shared use paths. The plan is anticipated to be adopted during Summer 2022. It is proposed that bicyclists will access the North End Community Center via a proposed shared use path along the west side of Rice Street. The proposed community center will provide bicycle parking.

Motor Vehicle Access and Facilities

Off-street parking and visitor pick-up/drop-off for the community center building and outdoor amenities will be located off Lawson Avenue. The parking lot will have 22 parking stalls including one (1) ADA space. The proposed parking lot connects to a service drive to facilitate operational site needs including deliveries, loading/unloading, and garbage pickup. Strategic positioning of this parking lot was considered to allow for the maximum programmatic use of park space, needed space for stormwater retention and consideration to the existing grading slopes of the site to allow personal vehicles convenient access to the site.

Transit Access and facilities

Portions of Route 3 and Route 62 have been identified as candidates for bus rapid transit (BRT) implementation between 2025 – 2030 through Network Next, a 20-year plan that will expand and improve the bus network. Per [Table 2](#), a corridor ridership forecast was developed that resulted in Route 3 and Route 62 increasing ridership compared to 2040 build versus no build conditions, which are shown in [Table 2](#).

Table 2 2040 Corridor Ridership Build vs. No Build

Corridor	Corridor Ridership without BRT (No Build)	Corridor Ridership with BRT (Build)
Como / Maryland (Route 3)	10,900	11,600
Rice / Robert (Route 62)	7,100	9,100

Source: Arterial BRT Corridor Evaluation and Prioritization: Ridership Forecasts, February 2021, Metro Transit

TRIP GENERATION

The proposed community center will offer extended hours of operation from 9 a.m. to 9 p.m. Monday through Friday, 10 a.m. to 5 p.m. on Saturdays and 1 to 5 p.m. on Sundays. As a result of the increased hours of operation, there will be an increase to the vehicle, pedestrian, and bicycle traffic volumes. Trip generation for the proposed development was estimated using the *ITE Trip Generation Manual, 11th Edition* and includes trips for all modes (i.e., vehicular, bicycle, transit, and walk) for typical weekday a.m. and p.m. peak hours, as well as daily. ITE land use code 495 (Recreational Community Center) was used, which is described as:

“A recreational community center is a stand-alone public facility similar to and including YMCAs. These facilities often include classes and clubs for adults and children, a day care or nursery school, meeting rooms and other social facilities, swimming pools and whirlpools, saunas, tennis, racquetball, handball, pickle ball, basketball and volleyball courts; outdoor athletic fields/courts, exercise classes, weightlifting and gymnastics equipment, locker rooms, and a restaurant or snack bar.”

A combination of data from this land use code was leveraged, as well as engineering judgment to identify the trip generation by travel mode. Based on this trip generation estimate, which is shown in [Table 3](#), the proposed community center is expected to generate approximately 48 a.m. peak hour vehicular trips, 63 p.m. peak hour vehicular trips, and 720 daily vehicular trips. Approximately 25 percent of users are estimated to arrive/depart via other modes of transportation, such as walking, biking, and/or transit. This data was estimated using person trip estimates using the ITE Trip Generation Manual, as well as engineering judgment.

Table 3 Trip Generation Summary

Size / Land Use (ITE Code)	Mode Type (% Mode Share)	AM Peak Hour		PM Peak Hour		Daily
		In	Out	In	Out	
25,000 SF / Recreational Center (495)	Vehicle (75%)	32	16	29	34	720
	Bike (5%)	2	1	2	3	46
	Transit (7.5%)	3	2	3	4	70
	Walk (12.5%)	6	3	5	6	116
Total Site Trips (All Modes)		43	22	39	47	952

Figure 7 Directional Distribution

Daily peak activity at the site is expected to occur between 4 and 5 p.m., with an increase during the midday related to senior programming offerings and collaboration with the Rice Street Library. Although other events and programming are expected to occur as described in the proposed development section, these events will generally occur outside of the peak traffic conditions within the area or do not occur often enough to warrant dedicated infrastructure improvements.

Trips generated by the proposed developments were distributed throughout the study area based on a combination of existing area travel patterns and engineering judgment. The directional distribution and corresponding site generate trips by travel mode are illustrated in [Figure 7](#) and [Figure 8](#), respectively.

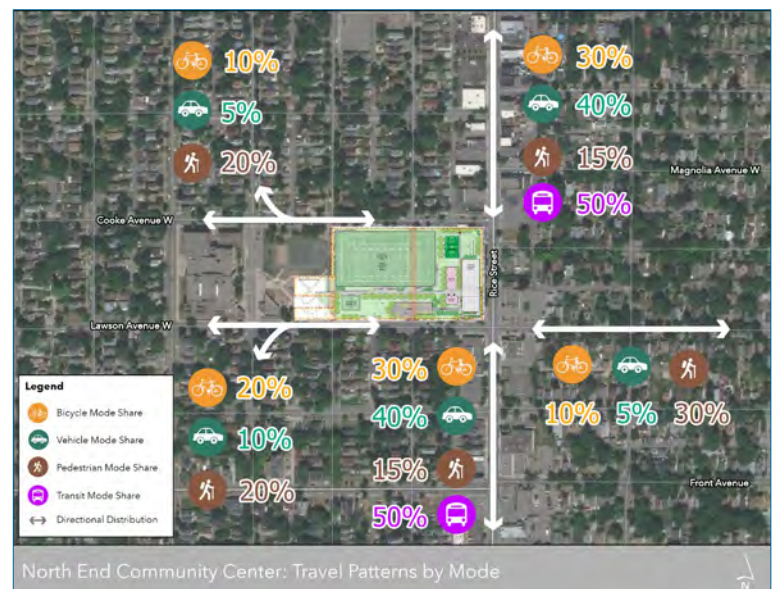
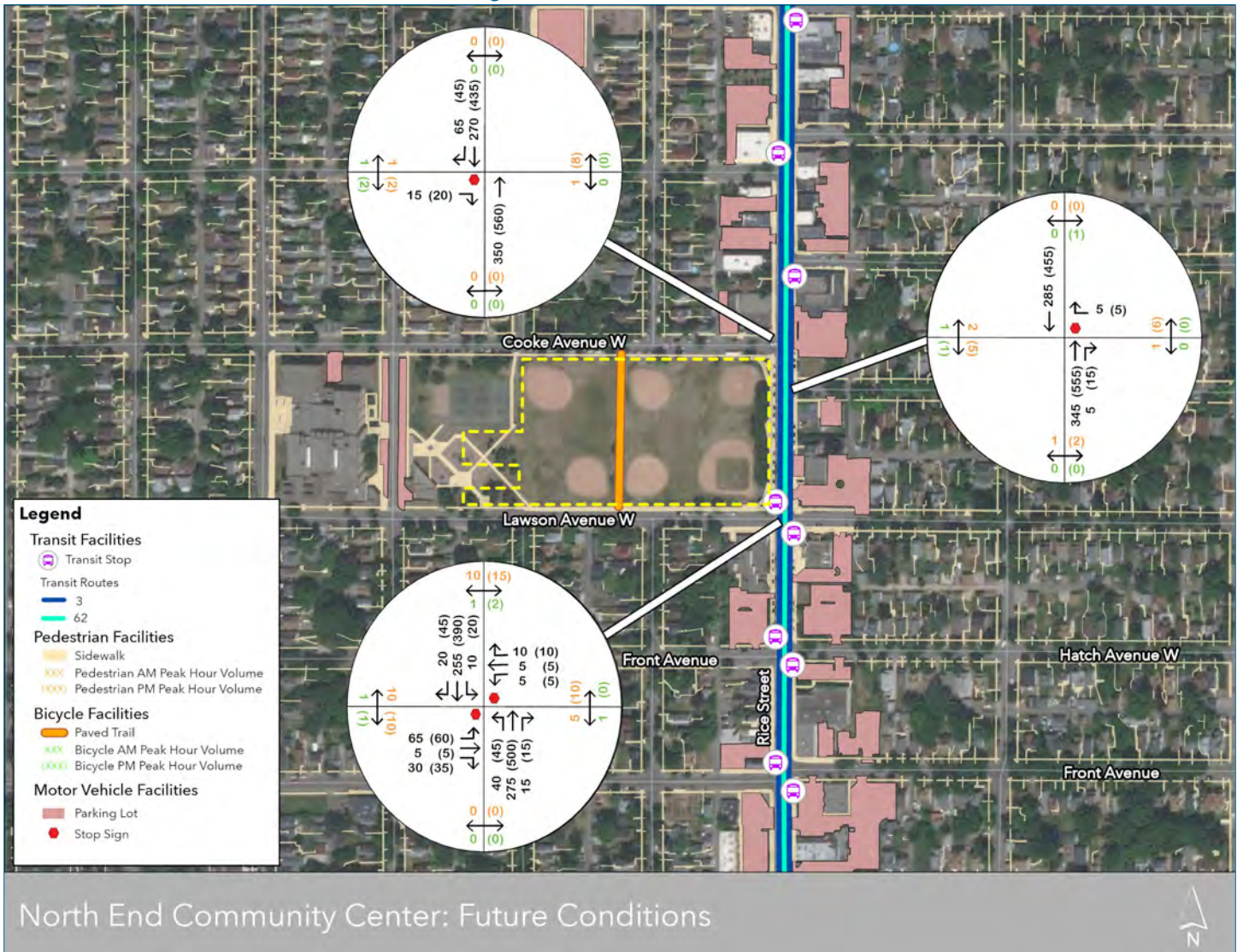


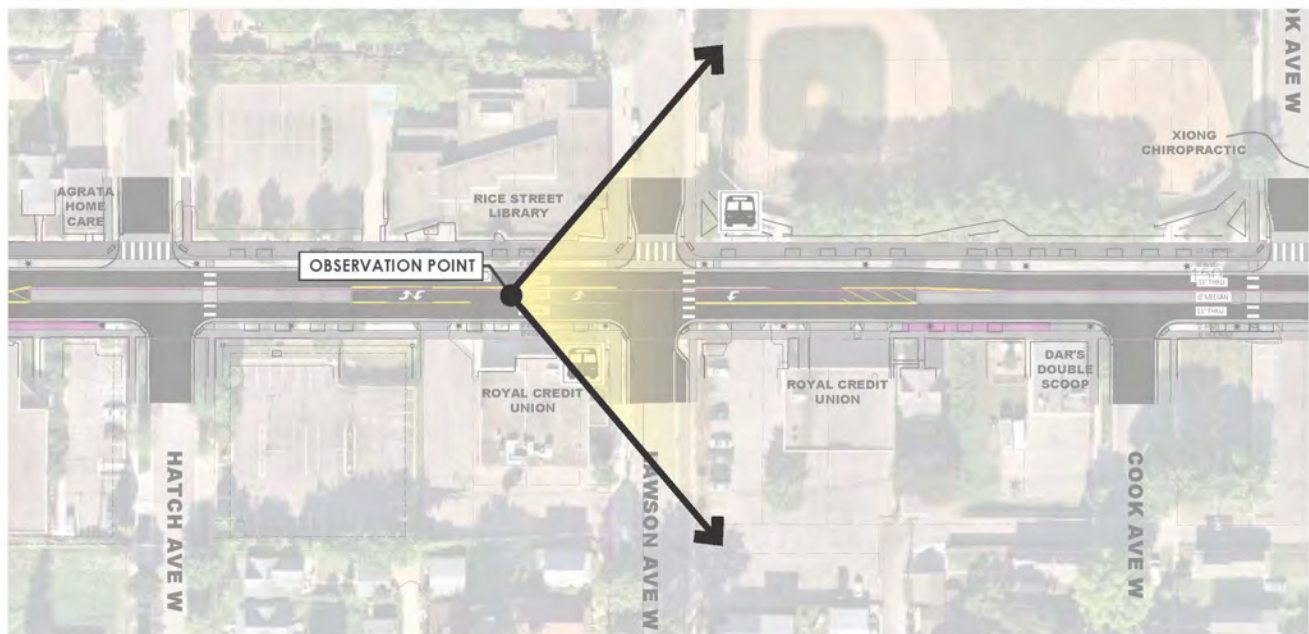
Figure 8 Future Conditions



TRANSPORTATION EVALUATION

Since Rice Street is planned to be reconstructed in the next couple years, a close look at the traffic volume and pedestrian/bicyclist activity at the Rice Street and Lawson Avenue intersection was completed. This assessment focuses on future traffic/multimodal activity at the intersection, as well as the ability of the proposed infrastructure to accommodate future conditions efficiently and safely. A key component to the evaluation includes a signal warrant analysis, as well as a pedestrian crossing assessment to identify any short- or long-term infrastructure improvements or enhancements that should be considered. The following information provides an overview of the transportation evaluation conducted as part of this study.

LAWSON AVE W & RICE STREET



LAWSON AVE & RICE STREET



Traffic Signal Considerations

A signal warrant analysis was performed to understand how future traffic and multimodal volumes compare to traffic signal warrant criteria for the Rice Street and Lawson Avenue intersection. This evaluation focused on future build conditions, which accounts for existing conditions plus additional traffic and multimodal activity from the proposed North End Community Center. No background growth was included given area traffic volumes have been relatively stable for several years within the study area.

Results of the signal warrant analysis indicates that future traffic volumes and multimodal activity are not expected to meet any signal warrant criteria. In general, traffic volumes would need to increase along all approaches to meet the criteria and there is limited growth potential in the area, particularly on the Lawson Avenue approaches. There is a fair amount of pedestrian activity throughout the day, although there is not enough activity to meet pedestrian warrant criteria. The adjacent Wellstone Elementary School does result in increased pedestrian activity, but the school generally serves a broader area, which limits the amount of associated pedestrian activity. The North End Community Center is not expected to increase multimodal activity to the point of meeting a pedestrian signal warrant. Detailed results of the warrant analysis are provided in the Appendix.

From a coordinated signal warrant perspective, a traffic signal could be considered at the Rice Street and Lawson Avenue intersection. Adjacent traffic signals along Rice Street at Front Avenue and Geranium Avenue are located approximately 650 feet and 1,300 feet to the south and north of Lawson Avenue, respectively. Although the criteria for a coordinated signal system desires signals spaced at 1,000 feet or more, there are multiple locations along Rice Street where signals are spaced at 500 to 650 feet. Thus, it would be reasonable to consider future signalization of the Rice Street and Lawson Avenue intersection from a coordinated signal system perspective. A signal would also provide for an enhanced pedestrian crossing. However, further evaluation and discussion with area agencies would need to occur, which is outside of this study.

Pedestrian Crossings Considerations

If a traffic signal at Lawson Avenue is not desired by agency partners, at a minimum pedestrian crossing improvements should be considered. As noted earlier, there is a fair amount of existing pedestrian activity at the intersection, and it is expected to increase as a result of the proposed community center. As illustrated, the proposed Rice Street concepts incorporate key elements such as striped crosswalks along the west and north intersection approaches, as well as curb-extensions in the southwest, northwest, and northeast quadrants of the intersection.

To understand if any additional enhancements should be considered, the Federal Highway Administration (FHWA) Safe Transportation for Every Pedestrian (STEP) guide was reviewed. This guide offers countermeasures for uncontrolled crossing locations based on AADT, the posted speed limit and roadway configuration. The STEP guide and roadway characteristics are highlighted in the graphic to the right.

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	1 2 4 5 6	1 5 6 7 9	1 5 6 7 9	1 4 5 6 7 9	1 5 6 7 9	1 5 6 7 9	1 4 5 6 7 9	1 5 6 7 9	1 5 6 7 9
3 lanes with raised median (1 lane in each direction)	1 2 3 4 5	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	1 2 3 4 5 6	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9	1 3 5 6 7 9
4+ lanes with raised median (2 or more lanes in each direction)	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9
4+ lanes w/o raised median (2 or more lanes in each direction)	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9	1 3 5 6 7 8 9

Given the set of conditions in a cell,

- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

- 1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- 2 Raised crosswalk
- 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- 4 In-Street Pedestrian Crossing sign
- 5 Curb extension
- 6 Pedestrian refuge island
- 7 Rectangular Rapid-Flashing Beacon (RRFB)**
- 8 Road Diet
- 9 Pedestrian Hybrid Beacon (PHB)***

Based on the STEP guide, high-visibility crosswalk markings, parking restrictions on crosswalk approaches, adequate nighttime lighting levels, and crossing warning signs should be installed as part of the Rice Street reconstruction project. The intersection is also a candidate for:

- Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- In-Street Pedestrian Crossing sign
- Curb extension (*already planned*)
- Pedestrian Refuge Island (*not planned given the roadway configuration*)
- Rectangular Rapid Flashing Beacon (RRFB)
- Pedestrian Hybrid Beacon (PHB)

If a traffic signal were considered, there would not be a need for either a RRFB or a PHB. However, if a signal is not installed, a RRFB or a PHB could be a potential consideration. Guidance suggests that PHB's are most effective when:

- Locations need additional enhancements to improve motorist yielding rates or address limited gaps in traffic at marked crosswalks.
- There is a high volume of pedestrian traffic, such as near transit stops, schools, and multi-use trail crossings. The MnMUTCD states that the lowest pedestrian volume threshold for a PHB is 20 pedestrians/hour to cross the major street.
- Traffic signals are not yet warranted and/or are too costly to install.
- Installed at mid-block crossings. Consideration can be given to their use at minor, uncontrolled intersections, but this is not typically encouraged as it may create ambiguity for the assignment of right of way for vehicles on the minor road.

Given that peak pedestrian activity crossing Rice Street is expected to be under the 20-pedestrians/hour threshold after opening of the North End Community Center, as well as typically not being encouraged at an intersection, the Rice Street and Lawson Avenue intersection does not appear to be an ideal candidate for a PHB. Future crossings of Rice Street at Lawson Avenue are estimated to be 15 pedestrians per hour.

The purpose of an RRFB is to increase driver awareness of the presence of pedestrians at crosswalks that are not across approaches controlled by YIELD signs, STOP signs, or traffic signals. Research shows that an RRFB is most effective on roadways with volumes less than 12,000 vehicles per day and with speeds less than 40 mph. The RRFB offers significant safety benefits, achieving high rates of compliance for a relatively low cost, particularly as compared to a traffic signal and PHB alternatives. Therefore, the crosswalk on the north approach of the Rice Street and Lawson Avenue intersection appears to be a good candidate for an RRFB. Further discussion should occur with area agencies, as well as the Rice Street design team to determine if a RRFB should be planned for/incorporated as part of the reconstruction project.

It is important to note that there may be a one- or two-year period following the opening of the North End Community Center before Rice Street is reconstructed. Investing in interim infrastructure enhancements is not recommended given the potential short life-span. Furthermore, waiting will allow the North End Community Center to better understand their users, needs, and programming.

SUMMARY

Based on this assessment, the existing and proposed transportation networks can support the proposed North End Community Center development. The development once completed will generate approximately 48 a.m. peak hour vehicular trips, 63 p.m. peak hour vehicular trips, and 720 daily vehicular trips. About 25 percent of users are estimated to arrive/depart via other modes of transportation, such as walking, biking, and/or transit. The resultant impact to the adjacent transportation system is expected to be relatively minimal, considering the facility currently operates within the adjacent Wellstone Elementary School and the site will be well served by multimodal facilities and transit service.

To help support and/or enhance the proposed development, additional enhancements should be considered for the Rice Street and Lawson Avenue intersection. In particular, a future traffic signal or RRFB at this location would help facilitate/improve pedestrian movements across Rice Street. These enhancements should be further discussed and/or investigated with area agencies and the Rice Street reconstruction design team for potential implementation. No other transportation and/or site improvements are needed to accommodate the proposed development.

145 Lawson Avenue West

South of Maryland, (/MN/St._Paul/South_of_Maryland) St. Paul (/MN/St._Paul), 55117

[Add scores to your site \(/professional/badges.php?address=145 Lawson Avenue West St. Paul, MN 55117\)](/professional/badges.php?address=145+Lawson+Avenue+West+St.+Paul,+MN+55117)

Commute to **Downtown St. Paul (/compare#edit-commutes)**

6 min

15 min

12 min

38 min

Favorite

Map

Nearby St. Paul Apartments on Redfin (<https://www.redfin.com/city/15027/MN/St-Paul/apartments-for-rent>)

[Looking for a home for sale in St. Paul? \(<https://www.redfin.com/city/15027/MN/St-Paul>\)](https://www.redfin.com/city/15027/MN/St-Paul)



Very Walkable

Most errands can be accomplished on foot.



Some Transit

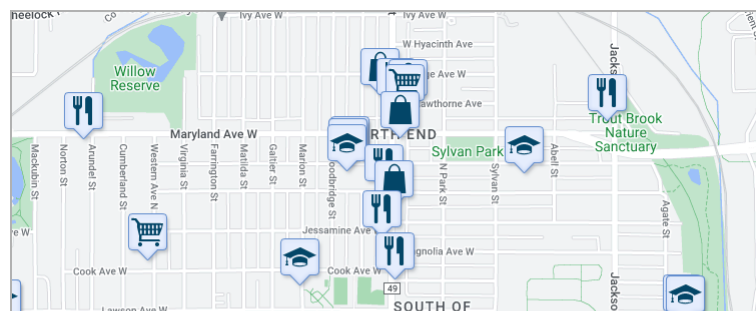
A few nearby public transportation options.

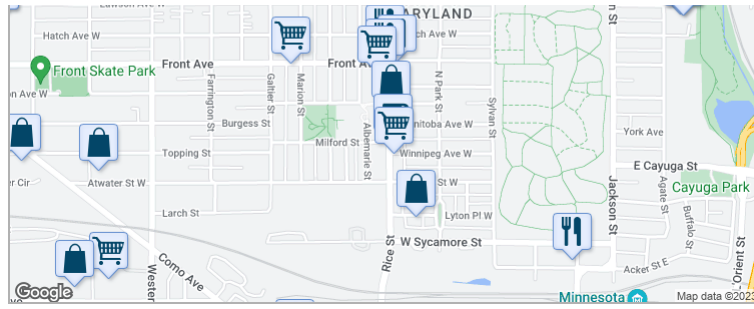


Bikeable

Some bike infrastructure.

About your score





About this Location



145 Lawson Avenue West has a Walk Score of 76 out of 100. This location is Very Walkable so most errands can be accomplished on foot.

This location is in the South of Maryland neighborhood in St. Paul. Nearby parks include Scheffer Playground, Marydale Park and West Minnehaha Park.



Some Transit

145 Lawson Avenue West has some transit which means a few nearby public transportation options.

Rail lines:

METRO Green Line	1.1 mi
------------------	--------

Bus lines:

62	0.0 mi	3	0.0 mi
68	0.5 mi		

Less ▲

South of Maryland Neighborhood

145 Lawson Avenue West is in the South of Maryland neighborhood. South of Maryland is the 21st most walkable neighborhood in **St. Paul** (/MN/St. Paul), with a neighborhood Walk Score of 61.

[Learn More About South of Maryland \(/MN/St. Paul/So...](#)

[Learn More About St. Paul \(/MN/St. Paul\)](#)

[United States \(/cities-and-neighborhoods/\)](#) [Minnesota \(/MN\)](#) [St. Paul \(/MN/St. Paul\)](#) **[South of Maryland \(/MN/St. Paul/South_of_Maryland\)](#)**



Walk Score (/	Professional (/professional/)
About (/about.shtml)	Walk Score Widget (/professional/walk-score-widget.php)
How It Works (/how-it-works/)	Walk Score APIs (/professional/walk-score-apis.php)
Press (/press/)	Data Services (/professional/research.php)
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	Badges (/professional/badges.php)

If you are using a screen reader or having trouble reading this website, please call Walk Score customer service at (253) 256-1634.

APPENDIX

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	North End Community Center
Project/File #	22-030
Scenario	Build Conditions with Cook Avenue (RIRO)

Intersection Information			
Major Street (N/S Road)	Rice Street (CSAH 49)	Minor Street (E/W Road)	Lawson Avenue
Analyzed with	2 or more approach lanes	Analyzed with	1 Approach Lane
Total Approach Volume	8812 vehicles	Total Approach Volume	977 vehicles
Total Ped/Bike Volume	92 crossings	Total Ped/Bike Volume	150 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

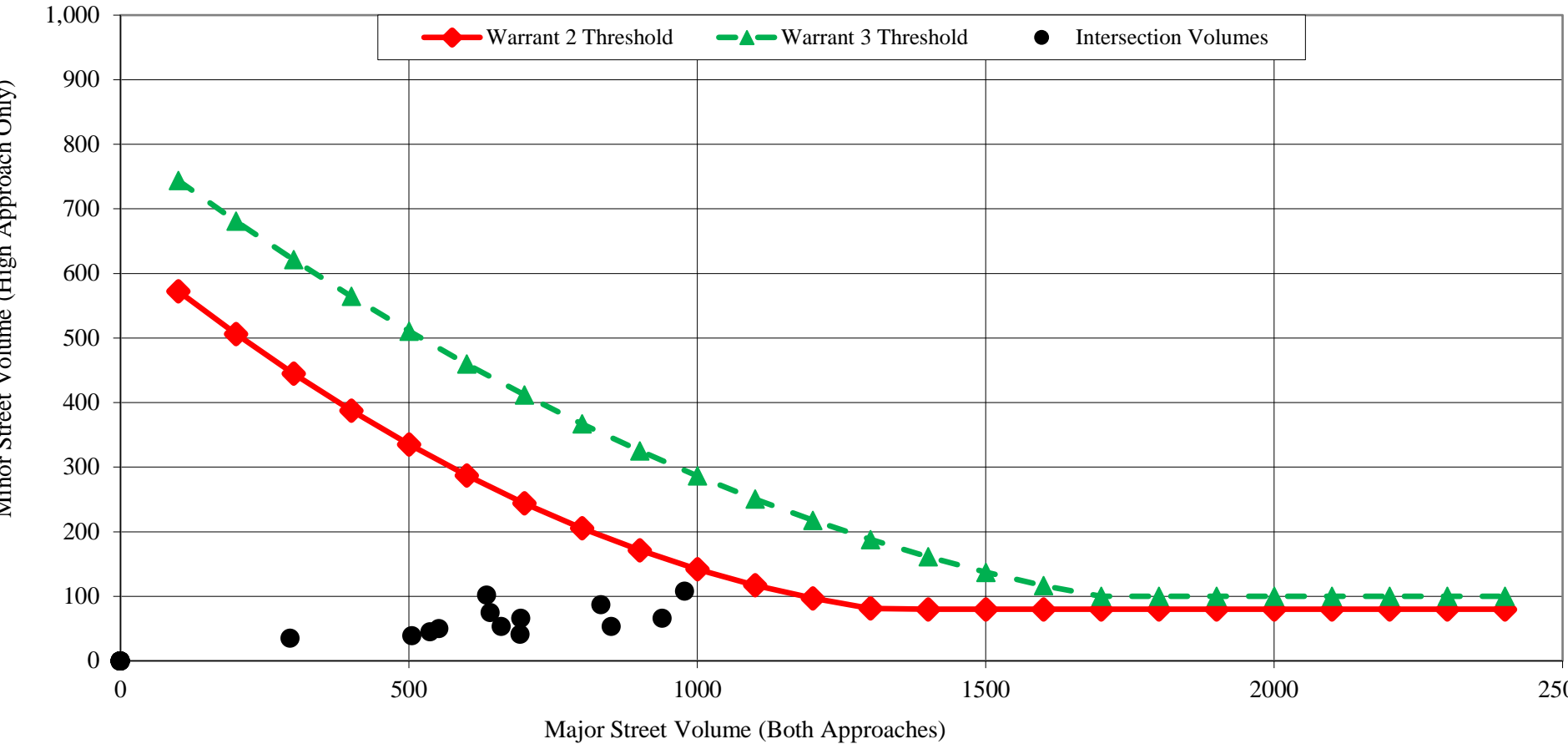
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	0 hours	1 hour	0 (Cond. A) & 3 (Cond. B)
Criteria - Major Street (veh/hr)	600	900	480 (Cond. A) & 720 (Cond. B)
Criteria - Minor Street (veh/hr)	150	75	120 (Cond. A) & 60 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	0 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Not Satisfied
Required values reached for	0 total, minor, 0 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	150	
Criteria - Minor Street High Side Delay (veh-hrs)	5	

Figure 4C-1 (Warrant 2) & Figure 4C-3 (Warrant 3)



Traffic Signal Warrant Analysis

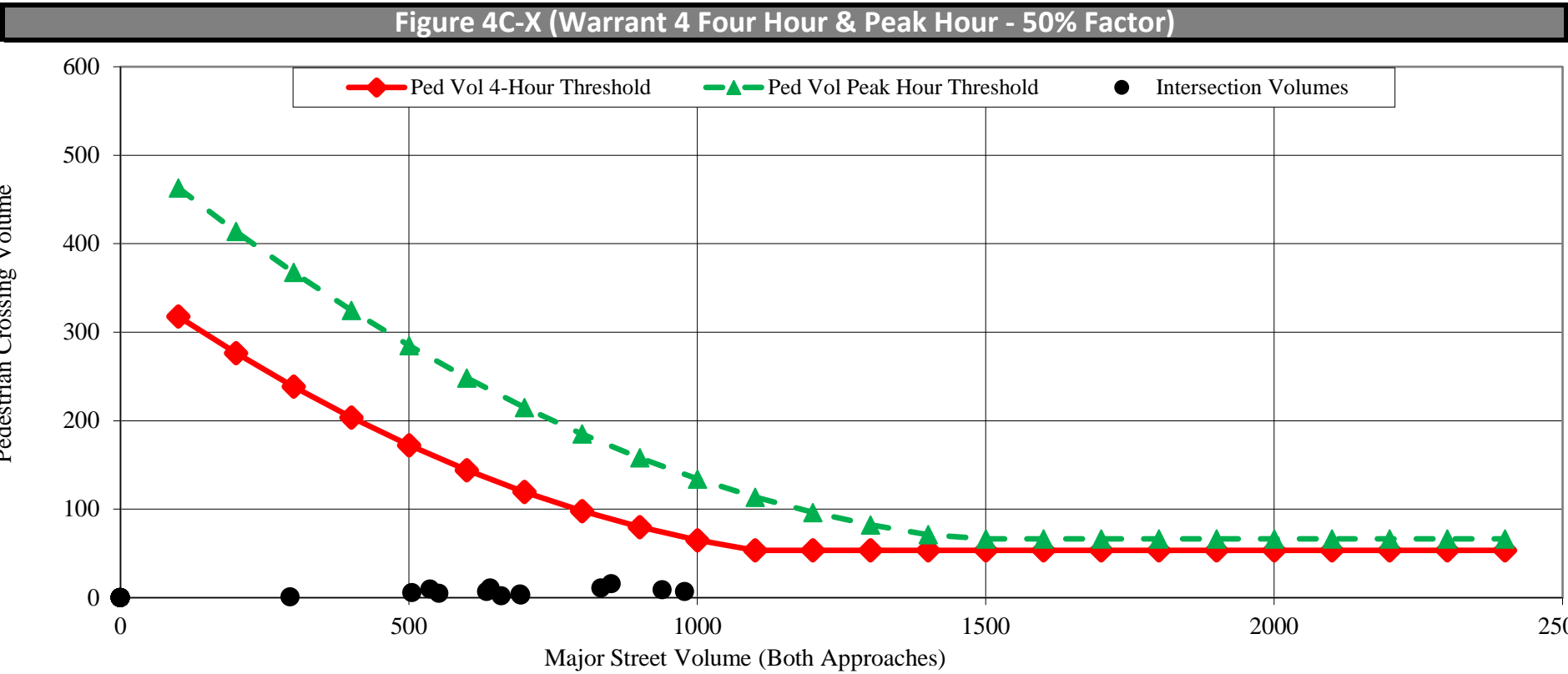
Warrants 4 to 6 (Pedestrian, School, Coordinated Systems)

Project Name	North End Community Center
Project/File #	22-030
Scenario	Build Conditions with Cook Avenue (RIRO)

Intersection Information			
Major Street (N/S Road)	Rice Street (CSAH 49)	Minor Street (E/W Road)	Lawson Avenue
Analyzed with	2 or more approach lanes	Analyzed with	1 Approach Lane
Total Approach Volume	8812 vehicles	Total Approach Volume	977 vehicles
Total Ped/Bike Volume	92 crossings	Total Ped/Bike Volume	150 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Pedestrian Warrant thresholds.

Warrant 4, Pedestrian Volume		
	Condition A - Four Hour Vol.	Condition B - Peak Hour Vol.
Condition Satisfied?	Not Satisfied	Not Satisfied
Required values reached for	0 hours	0 hours
Criteria - Min. Distance to Nearest Controlled Crossing	300 feet, unless progressive movement not impacted	
Criteria - Major Street Volume and Crossing Volume	See Figure Below	



Warrant 5, School Crossing	
Condition Satisfied?	Not Satisfied
Criteria - School Crossing Data	<ul style="list-style-type: none">- 20 or more schoolchildren crossing during the highest hour.- Consideration given to other remedial measures.- 300 feet or more to nearest controlled crossing, or proposed signal will not restrict progression.- Engineering study showing inadequate gaps in traffic.

Warrant 6, Coordinated Signal System	
Condition Satisfied?	Not Satisfied
Criteria - Coordinated Signal System	<ul style="list-style-type: none">- If one-way, the adjacent traffic control signals are too far apart to provide the necessary degree of vehicular platooning.- If two-way, the adjacent traffic control signals do not provide the necessary degree of platooning, but will collectively provide a progressive operation with the proposed traffic control signal.- Resultant spacing of traffic control signal is 1,000 feet or greater.

Traffic Signal Warrant Analysis

Rice Street (CSAH 49) (Major Street) Volume

Northbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	10	114	1	1
7 - 8 AM	33	207	1	3
8 - 9 AM	37	198	2	4
9 - 10 AM	35	277	7	4
10 - 11 AM	24	252	18	2
11 - 12 PM	27	333	8	1
12 - 1 PM	34	327	8	1
1 - 2 PM	22	350	8	2
2 - 3 PM	22	415	12	4
3 - 4 PM	36	450	17	0
4 - 5 PM	36	495	13	4
5 - 6 PM	49	411	6	3
6 - 7 PM	20	341	4	3
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			4,660	32

Southbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	1	163	5	0
7 - 8 AM	5	245	14	3
8 - 9 AM	10	270	20	6
9 - 10 AM	7	280	29	3
10 - 11 AM	5	236	17	3
11 - 12 PM	14	267	11	1
12 - 1 PM	15	297	13	2
1 - 2 PM	13	289	11	2
2 - 3 PM	19	368	15	12
3 - 4 PM	14	391	31	9
4 - 5 PM	20	383	31	3
5 - 6 PM	10	328	29	8
6 - 7 PM	8	250	18	8
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			4,152	60

Lawson Avenue (Minor Street) Volume

Eastbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	22	1	12	2
7 - 8 AM	26	3	10	1
8 - 9 AM	27	4	14	4
9 - 10 AM	62	5	35	9
10 - 11 AM	29	3	18	6
11 - 12 PM	32	2	19	3
12 - 1 PM	36	6	24	12
1 - 2 PM	22	4	15	6
2 - 3 PM	28	8	17	6
3 - 4 PM	36	5	25	7
4 - 5 PM	70	3	35	7
5 - 6 PM	52	5	30	7
6 - 7 PM	36	5	34	7
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			820	77

Westbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	1	2	0	2
7 - 8 AM	1	3	2	3
8 - 9 AM	2	4	2	3
9 - 10 AM	4	3	8	2
10 - 11 AM	6	3	13	3
11 - 12 PM	3	2	4	3
12 - 1 PM	8	3	6	9
1 - 2 PM	4	2	5	3
2 - 3 PM	3	1	9	14
3 - 4 PM	6	3	6	13
4 - 5 PM	4	4	6	4
5 - 6 PM	7	5	6	6
6 - 7 PM	2	2	2	8
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			157	73

UTILITY NOTES

- It is the responsibility of the contractor to perform or coordinate all necessary utility connections and relocations from existing utility locations to the proposed building, as well as to all onsite amenities. These connections include but are not limited to water, sanitary sewer, cable TV, telephone, gas, electric, site lighting, etc.
- All service connections shall be performed in accordance with state and local standard specifications for construction. Utility connections (sanitary sewer, watermain, and storm sewer) may require a permit from the City.
- The contractor shall verify the elevations at proposed connections to existing utilities prior to any demolition or excavation.
- The contractor shall notify all appropriate engineering departments and utility companies 72 hours prior to construction. All necessary precautions shall be made to avoid damage to existing utilities.
- Storm sewer requires testing in accordance with Minnesota plumbing code 4714.1109 where located within 10 feet of waterlines or the building.
- HDPE storm sewer piping shall meet ASTM F2306 and fittings shall meet ASTM D3212 joint pressure test. Installation shall meet ASTM C2321.
- All RCP pipe shown on the plans shall be MN/DOT class 3.
- Maintain a minimum of 8' of cover over all water lines and sanitary sewer lines. Where 8' of cover is not provided, install 2" rigid polystyrene insulation (MN/DOT 3760) with a thermal resistance of at least 5 and a compressive strength of at least 25 psi. Insulation shall be 8" wide, centered over pipe with 6" sand cushion between pipe and insulation. Where depth is less than 5', use 4" of insulation.
- Install water lines 12" above sewers. Where the sewer is less than 12" below the water line (or above), install sewer piping of materials approved for inside building use for 10 feet on each side of the crossing.
- Pressure test and disinfect all new watermains in accordance with state and local requirements.
- See Project Specifications for bedding requirements.
- Sanitary sewer piping shall be PVC, SDR-26.

- A structure adjustment shall include removing and salvaging the existing casting assembly, removing existing concrete rings to the precast section. Install new rings and salvaged casting to proposed grades, cleaning casting flange by mechanical means to insure a sound surface and install an external chimney seal from casting to precast section. Chimney seals shall be Infi-Shield Uni-Band or an approved equal.
- The Contractor shall notify Capitol Region Watershed District at least 24 hours before the construction of any stormwater features.
- All sewer pipes installed with a slope less than 2%, shall be installed using laser equipment to ensure pipe slope.
- All existing sewer lines running through the project area shall be televised once construction has been completed to verify no damage has occurred. A copy of the recordings shall be provided to the City for review.
- Prior to commencing with site earthwork and utility installations, the contractor shall dig three (3) separate test pits in the location of the underground stormwater pipe system to verify the presence and elevation of ground water. The test pits shall be performed with the geotechnical engineer present and the groundwater elevations (if any) shall be provided to the engineer.**

KEY NOTES

UNDERGROUND STORAGE SYSTEM, SEE DETAIL 1/C5.03	HDPE FLARED END SECTION, SEE DETAIL 1/C5.04
STORM SEWER MANHOLE, SEE DETAIL 2/C5.03	INLINE DRAIN, SEE DETAIL 5/C5.04
TRENCH DRAIN, SEE DETAIL 3/C5.03	NYLOPLAST STRUCTURE, SEE DETAIL 2/C5.04
SADDLE SERVICE CONNECTION, SEE DETAIL 4/C5.03	STORM SEWER CLEAN OUT, SEE DETAIL 10/C5.054
GATE VALVE, SEE DETAIL 5/C5.03	INLINE DRAIN, COORD. WITH LANDSCAPE FOR FINISH ELEVATION OF PLAYGROUND CONCRETE SURFACE SEE DETAIL 4/C5.04
MANHOLE ADJUST, SEE DETAIL 6/C5.03	

ST. PAUL REGIONAL WATER SERVICES NOTES

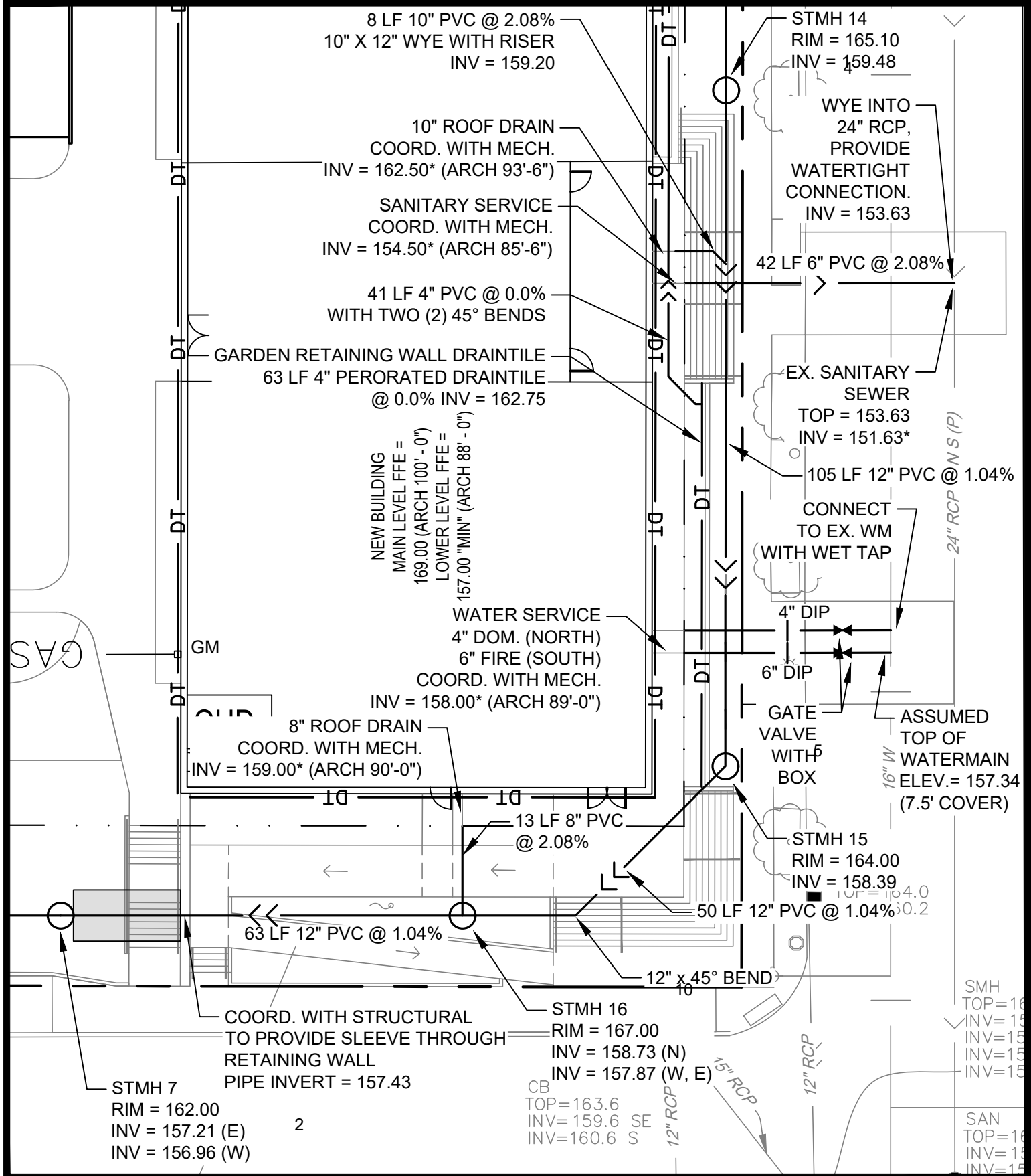
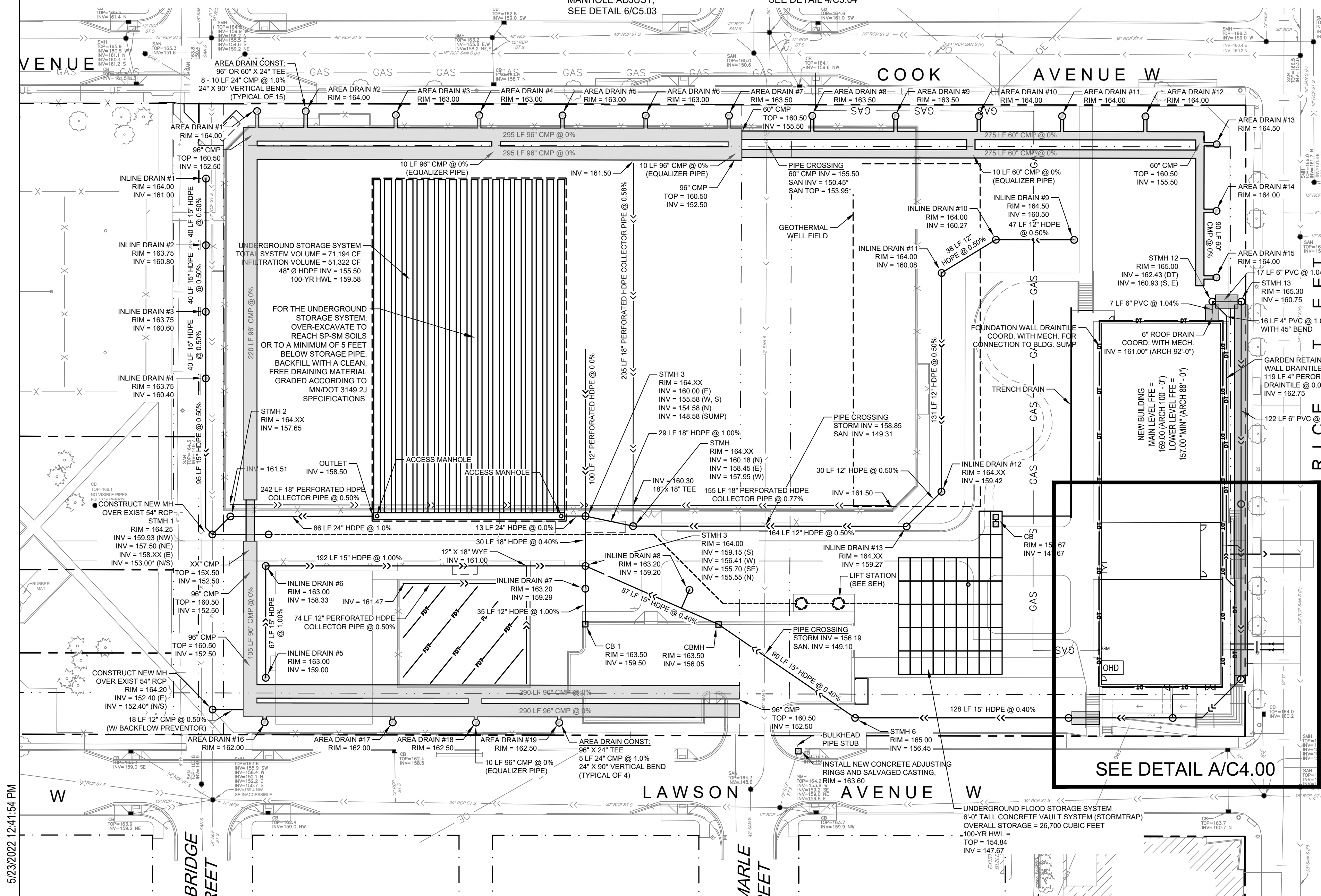
- Water services to be installed according to SPRWS "Standards for the Installation of Water Mains.
- A four-sided trench box is required on all excavations deeper than 5 feet where underground work or inspection is to be performed by SPRWS. For all wet taps to be performed by SPRWS, a minimum trench box size of 8 feet high x 8 feet wide x 10 feet long is required. Ladders are required and must extend 3 feet above the surface of the trench. Sidewalks, pavements, ducts and appurtenant structures shall not be undermined unless a support system or another method of protection is provided. Trenches in excess of 20 feet in depth must be signed off by a registered professional engineer. Excavated material must be kept a minimum of 2 feet from the edge of the trench.
- Service connections shall be installed with 8 feet of cover as per the established grade from the main to the property line or, if applicable, to the utility easement line. When solid rock conditions are encountered, water services may be installed with 6.5 feet of cover. At this depth, the need for insulation will be determined by SPRWS Inspectors.
- All pipe 2" and smaller must be Type K copper.
- Pipe material for 8" Ductile Iron Pipe must be Class 52. Pipe material for 6" and 4" Ductile Iron Pipe must be Class 53. The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179. The interior cement mortar lining shall be applied without asphalt seal coat. Pipe must be wrapped in V-Bio Polywrap encasement and shall be installed utilizing Modified Method A as recommended by DIPRA. Encasement shall be taped at each joint and around the middle of the pipe.
- Maintain 3 feet vertical separation between water and sewer pipes or 18-inch separation including 4-inch high density insulation per SPRWS Standard Plate D-10 for typical water main offsets.
- Refer to SPRWS "Standards for the Installation of Water Mains" Standard Plate D-11 for restrained pipe requirement.
- All water service valve boxes within construction area must be exposed and brought to grade upon completion of construction.
- All pipe work inside of property to be performed by a plumber licensed by the State of Minnesota and Certified by the City of Saint Paul. SPRWS requires separate outside and inside plumbing permits for each new water service. SPRWS shall inspect of all water facility work performed.
- All unused existing water services to be cut off by SPRWS at the main. Excavation and restoration by owner's contractor. New water services will not be turned on until required cutoffs have been performed.
- Water facility pipework within right of way to be installed by SPRWS. Excavation and restoration by owner's contractor.
- The contractor providing excavation is responsible for obtaining all excavation and obstruction permits required by any governing authority.

LEGEND

○	STORM MANHOLE	— CTV —	CABLE UNDERGROUND LINE
○	CATCH BASIN	— OE —	ELECTRIC OVERHEAD LINE
□	CURB INLET	— UE —	ELECTRIC UNDERGROUND LINE
▲	FLARED END	— FO —	FIBER OPTIC UNDERGROUND LINE
○	SANITARY MANHOLE	— GAS —	NATURAL GAS UNDERGROUND LINE
⊗	HYDRANT	—>—>—	SANITARY SEWER PIPE
⊗	GATE VALVE & BOX	— T —	STORM SEWER PIPE
⊗	WATER SHUTOFF	—>—>—	TELEPHONE UNDERGROUND LINE
☼	LIGHT POLE	— DT —	WATERMAIN PIPE
		— FDT —	DRAINTILE PIPE
			MULTI-FLOW
			2" INSULATION OVER UTILITY SEE DETAIL 7/C5.05

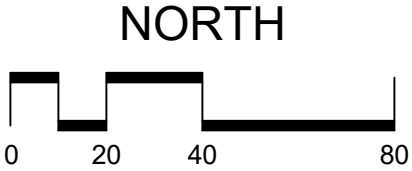
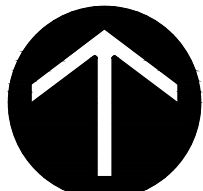
CITY OF ST. PAUL NOTES

- See Sheet C5.00 for notes.



DETAILED AREA

SCALE: 1" = 20'



SNOW KREILICH ARCHITECTS

219 NORTH SECOND STREET
SUITE 120
MINNEAPOLIS, MN 55401
612 359 9430
WWW.SNOWKREILICH.COM

NORTH END COMMUNITY CENTER

145 Lawson Avenue West
Saint Paul, MN 55117

CLIENT

Saint Paul Parks & Recreation
400 City Hall Annex
25 West 4th Street
Saint Paul, MN 55102

LANDSCAPE ARCHITECT

Saint Paul Parks & Recreation
25 West 4th Street, 400 City Hall Annex
Saint Paul, MN 55102
651.266.6410

CIVIL ENGINEER

Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
651.481.9120

STRUCTURAL ENGINEER

Studio NYL
2995 Baseline Road, Suite 314
Boulder, CO 80303
303.558.3145

MEPFP ENGINEER

Salas O'Brien
860 Blue Gentian Rd, Suite 175
Eagan, MN 55121
651.379.9120

KITCHEN EQUIPMENT CONSULTANT

Culinox
311 4th Ave South
Sartell, MN 56377
320.259.6557

COST CONSULTANT

Loeffler Construction & Consulting
20520 Kaokuk Avenue, Suite 100
Lakeville, MN 55044
952.955.9119

100% CONSTRUCTION DOCUMENTS	05/23/2022
1 ADDENDUM 03	06/22/2022

12206034 JAN
Project Number Drawn By

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 State of Minnesota.

Signature JUSTIN NIELSEN, P.E.

Typed or Printed Name

52687

Registration Number

UTILITY PLAN

C4.00