

# Environmental Assessment Worksheet

Hennepin Healthcare Purple Parking Ramp Expansion  
600 Park Avenue  
Minneapolis, Minnesota 55415

*Prepared For*

**Hennepin Healthcare System**

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# Environmental Assessment Worksheet

September 2021 version

## 1. Project Title

Hennepin Healthcare Purple Parking Ramp Expansion

## 2. Proposer

Company: Hennepin Healthcare  
Contact Person: William Howden  
Title: Sr. Director of Facilities, Master  
Campus Planning, and Real Estate  
Address: 701 Park Avenue  
City, State, ZIP: Minneapolis, MN 55415  
Phone: (612) 873-9128  
Fax: N/A  
Email: william.howden@hcmcd.org

## 3. RGU

RGU Agency: City of Minneapolis  
Contact person: Hilary Dvorak  
Title: Principal City Planner  
Address: 505 4th Avenue South, Rm 320  
City, State, ZIP: Minneapolis, MN 55415  
Phone: (612) 673-2639  
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Email: Hilary.Dvorak@minneapolismn.gov

## 4. Reason for EAW Preparation:

### Check one:

#### Required:

- EIS Scoping  
 Mandatory EAW

#### Discretionary:

- Citizen petition  
 RGU discretion  
 Proposer initiated

### If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):

4410.4300, subpart 14.B(1) Industrial, Commercial and Institutional Facilities

## 5. Project Location:

County: Hennepin  
City/Township: Minneapolis  
PLS Location (¼, ¼, Section, Township, Range): N ¼, NW 1/4, Section 26, T 29, R 24  
Watershed (81 major watershed scale): Mississippi River - Twin Cities  
GPS Coordinates: 44°58'25.091"N, 93°15'46.918"W  
Tax Parcel Numbers: 26-029-24-22-0069

## 6. Project Description:

### a. Provide the brief project summary to be published in the EQB Monitor, (approximately 50 words).

The proposed project would expand the Hennepin Healthcare Purple Parking Ramp in downtown Minneapolis. The project area is bounded by Portland Avenue, Park Avenue, 6<sup>th</sup> Street South and 7<sup>th</sup> Street South. The project includes the construction of a 501,743 square foot, multi-level parking ramp with ground level medical/office/support space, and pedestrian skyway and tunnel accesses. There would be approximately 1,000 parking spaces and approximately 84,000 square feet of medical/office/support space.



- b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.**

The proposed project would expand the existing Hennepin Healthcare Purple Parking Ramp in downtown Minneapolis, Minnesota (Figures 1 and 2). The project area is currently occupied by a parking ramp, an impervious surface parking lot and a small amount of landscaping. The project area is bounded by Portland Avenue, Park Avenue, 6<sup>th</sup> Street South and 7<sup>th</sup> Street South (Figure 3), located at 600 Park Avenue.

The existing Purple Parking Ramp has 1,375 parking spaces and the existing surface parking lot has 84 spaces. The project would consist of the expansion of the Purple Parking Ramp by approximately 1,000 parking spaces (Figures 4A and 4B), and include ground level medical/office space, underground EMS garage/storage, a pedestrian skyway, and a tunnel totaling 501,743 square feet. The project includes construction of one level below ground and nine levels above ground. The one below ground level would be climate controlled to house Emergency Medical Services (EMS) ambulance parking, medical staff parking, and a loading dock. The medical/office space would be located on the ground level (level one) of the ramp. This would include a medical/office space totaling 35,000 square feet. The skyway and additional parking would be located on level two. Level two would also provide a drop off point for patients and visitors. Levels 3 through 9, would be for general parking. Level nine would include solar panel covered parking with some open areas.

The proposed skyway would connect the west portion of the parking ramp expansion to the Thrivent building across Portland Avenue. The proposed tunnel would go from the existing Purple Parking Ramp, under Park Avenue, and connect to the Purple Building.

Physical manipulation of the environment would be necessary for removal of an existing parking lot and pavement, and soil excavation and grading for new construction.

There would be no modifications to existing equipment or industrial processes, with the exception of relocating oxygen storage tanks to a different location within the hospital complex. The relocation of bulk oxygen tanks is a separate construction and permitted project.

This project does not involve new or expanded permanent equipment or industrial processes.

The proposed project would include the following construction activities on portions of the project area from early 2022 through 2023:

- Spring 2022- Relocation of bulk O<sub>2</sub> on existing surface lot
- Late Summer/ Fall 2022 – Ramp construction and utilities
- 2023- Build out of medical office space on first floor, skyway connection to the Thrivent building, lower-level ramp service space enclosed.

**c. Project magnitude:**

**Table 6-1 Project Magnitude**

|  |  |
|--|--|
| Total Project Acreage  | 1.15 acres of the 2.51-acre Project Site                     |
| Linear project length  | Not applicable   |
| Number and type of residential units   | Not applicable   |
| Residential building area (in square feet)   | Not applicable   |
| Commercial building area (in square feet)  | Not applicable   |
| Industrial building area (in square feet)  | Not applicable   |
| Institutional building area (in square feet)(Medical/Office Space, EMS Parking and Dock, Elevators and Stairs) | 98,981 square feet of 501,743 square feet                    |
| Other uses – Open Air Parking Ramp (in square feet)  | 402,762 square feet of the 501,743 square feet               |
| Structure height(s)  | 937' – 2'' feet above mean sea level (9 <sup>th</sup> Level) |

**d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.**

The proposed Purple Parking Ramp expansion would replace a current off-project site Hennepin County Medical Center (HCMC) parking ramp of 1,375 parking spaces that is approximately 3 blocks away. This HCMC existing ramp is reaching the end of its structural life and will be demolished in the future. The new parking ramp expansion would also allow for increased office space and ambulance storage within the overall HCMC campus. Additionally, the structure would have increased pedestrian access to the skyway system, which would provide additional off-street pedestrian safety.

**e. Are future stages of this development including development on any other property planned or likely to happen? Yes No**

**If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.**

Not applicable.

**f. Is this project a subsequent stage of an earlier project? Yes No**

**If yes, briefly describe the past development, timeline and any past environmental review.**

Not applicable.

**7. Climate Adaptation and Resilience:**

- a. Describe the climate trends in the general location of the project (see guidance: *Climate Adaptation and Resilience*) and how climate change is anticipated to affect that location during the life of the project.**

The proposed project area is located within the Mississippi River – Twin Cities watershed. The Minnesota Climate Explorer (c) was used to evaluate the climate trends based on this watershed. The 1895 to 2021 profile shows a wide variability of temperature and precipitation data from year to year. The overall trends are described below:

- Average daily mean temperature of 43.9 °F and an increase of 0.22 °F per decade.
- Average daily maximum temperature of 53.83°F and an increase of 0.10 °F per decade.
- Average daily minimum temperature of 33.94 °F and an increase of 0.34 °F per decade.
- Average annual precipitation of 29.59 inches and an increase 0.3 inches per decade.

The future projected data from the Minnesota Climate Explorer was also used to evaluate the anticipated climate conditions within the Mississippi River – Twin Cities watershed during the life of the project. Thus, the mid-century (2040-2059) projections were used in this evaluation, as summarized below. This range of years is assumed at a representative concentration pathway (RCP) of 4.5 which is an intermediate scenario where emissions decline after peaking around year 2040. The values presented below are the model mean, with the upper and lower ranges from the eight general circulation global climate models obtained from CMIP5 (Coupled Model Intercomparison Project, Phase 5 (<https://pcmdi.llnl.gov/mips/cmip5/>)):

- Average daily mean temperature of 32.43 °F with an upper range of 37.91 °F and a lower range of 9.99 °F.
- Average daily maximum temperature of 55.99 °F with an upper range of 64.41 °F and a lower range of 46.72 °F.
- Average daily minimum temperature of 42.2 °F with an upper range of 50.12 °F and a lower range of 27.02 °F.
- Average annual precipitation of 48.98 inches with an upper range of 52.29 inches and a lower range of 36.94 inches.

If future climate conditions follow the projected values, the average daily mean, maximum, and minimum temperatures are each expected to rise over the life of the project. The climate models also project an increase in the average annual precipitation of approximately 19.4 inches (roughly an 60% increase) over the life of the project.

- b. For each Resource Category in the table below: Describe how the project’s proposed activities and how the project’s design will interact with those climate trends. Describe proposed adaptations to address the project effects identified.

**Table 7-1 Climate Considerations by Resource Category**

| <b>Resource Category</b>  | <b>Climate Considerations</b>   | <b>Project Information</b>  | <b>Adaptations</b>   |
|---|---|---|--|
| Project Design  | The building design includes EV charging stations, bicycle parking and a solar panel roof.              | Climate change risks and vulnerabilities identified include: <ul style="list-style-type: none"> <li>• Increased greenhouse gas emissions</li> </ul> | EV charging availability and bike parking would encourage the use of less greenhouse gas emitting alternatives to standard vehicles. |
| Land Use  | There is no change in land usage as part of this project.   |   |  |
| Water Resources   | Address in item 12  | Address in item 12  | Address in item 12   |
| Contamination/<br>Hazardous<br>Materials/Wastes                                       | Anticipated climate change is not expected to affect the hazardous waste generated at the project area. |   |  |
| Fish, wildlife, plant communities, and sensitive ecological resources (rare features) | Address in item 14.   | Address in item 14  | Address in item 14   |

**8. Cover Types:**

Estimate the acreage of the site with each of the following cover types before and after development:

**Table 8-1 Cover Types**

| Cover types                                 | Before (Acres) | After (Acres) |
|---|----------------|---------------|
| Wetlands and shallow lakes (<2 meters deep) | 0              | 0             |
| Deep lakes (>2 meters deep)                 | 0              | 0             |
| Rivers/streams                              | 0              | 0             |
| Wooded/forest                               | 0              | 0             |
| Brush/Grassland                             | 0              | 0             |
| Cropland                                    | 0              | 0             |
| Lawn/landscaping                            | 0.22           | 0             |
| Green infrastructure (from table 8-2 below) | 0              | 0.8*          |
| Impervious surface                          | 2.29           | 1.71          |
| Stormwater (wet) Pond                       | 0              | 0             |
| Other (describe)                            | 0              | 0             |
| <b>TOTAL</b>                                | <b>2.51</b>    | <b>2.51</b>   |

*\*Not included in Impervious surface calculations, although within the same footprint as impervious surface parking ramp. Refer to Figures 4A, 4B, and 5.*

**Table 8-2 Green Infrastructure**

| Green Infrastructure   | Before (Acres) | After (Acres) |
|--|----------------|---------------|
| Constructed infiltration systems (infiltration basins, infiltration trenches, rainwater gardens, bioretention areas without underdrains, swales with impermeable check dams) | 0              | 0             |
| Constructed tree trenches and tree boxes   | 0              | 0             |
| Constructed wetlands   | 0              | 0             |
| Constructed green roofs  | 0              | 0             |
| Constructed permeable pavements  | 0              | 0             |
| Solar panels   | 0              | 0.8           |
| <b>TOTAL (add to table 8-1 above)</b>  | <b>0</b>       | <b>0</b>      |

**Table 8-3 Trees**

| Trees  | Percent | Number                                      |
|--|---------|---|
| Percent tree canopy removed or number of mature trees removed during development | 100     | Approximately 25 individual boulevard trees |
| Number of new trees planted  | 0       | 0*  |

*\*Assumed. City of Minneapolis landscaping requirements may require boulevard trees at the time of plan review.*

**9. Permits and Approvals Required:**

List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

**Table 9-1 Permits and Approvals**

| Unit of Government                        | Type of Application   | Status                          |
|---|---|---------------------------------|
| City of Minneapolis                       | Land Use and Zoning   | To be applied for               |
| City of Minneapolis                       | Utilities (Water, Sanitary, and Stormwater)                     | To be applied for               |
| City of Minneapolis                       | Wrecking Permit   | To be applied for, if needed    |
| City of Minneapolis                       | Mechanical and Heating Permit                                   | To be applied for               |
| City of Minneapolis                       | Building Permit   | To be applied for               |
| City of Minneapolis                       | After hours work permit   | To be applied for, if needed    |
| City of Minneapolis                       | Commercial Building Fire Inspection                             | To be applied for               |
| City of Minneapolis                       | Lane Obstruction Permit   | To be applied for               |
| City of Minneapolis                       | Elevator  | To be applied for               |
| City of Minneapolis                       | Parking Ramp Permit   | To be applied for               |
|   |   |                                 |
| Minnesota Department of Natural Resources | Water Appropriations Permit (Temporary Construction Dewatering) | To be applied for, if necessary |
| Minnesota Department of Health            | Health care facility licensure                                  | To be applied for               |
| Minnesota Pollution Control Agency        | NPDES construction stormwater permit                            | To be applied for               |

**Table 9-2. Financial Assistance**

| Funding Source                      | Structure                       | Status  |
|-------------------------------------|---------------------------------|---------|
| Hennepin Healthcare Capital Project | Fully Funded by Hennepin County | Pending |

**10. Land Use:**

**a. Describe:**

- i. Existing land use of the site as well as areas adjacent to and near the site, including parks and open space, cemeteries, trails, prime or unique farmlands.**

The project area is currently occupied by a parking ramp, an impervious surface parking lot and a small amount of landscaping. The site is bounded by 6<sup>th</sup> Street South to the North, 7<sup>th</sup> Street South to the South, Portland Avenue to the West, and Park Avenue to the East. The project area contains some landscaping on site.

A wide variety of uses are present in the surrounding area, including office, commercial, institutional, mixed-use, and residential developments. There is also a public park one block to the north. The project site is located at the northwest edge of the Hennepin County Medical Center (HCMC) campus, which is the dominant use to the southeast.

There are no prime or unique farmlands on or near the project area.

**ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.**

The site allows for institutional use, which would include a hospital and support facilities. Although the proposed project is not a medical facility, it will include support space for the adjacent medical center. The Ground Level (Liner Building) will be leasable retail space and a portion of the space will be used for HCMC's support services. The lower level of the garage will provide parking for restocked fully operational ambulances to be stored in a controlled climate. The proposed project meets the Metropolitan Council's current policy plan *Thrive MSP 2040* (adopted May 2014).

According to *Minneapolis 2040*, the City's Comprehensive Plan, the future land use guidance for the site is Public, Office and Institutional. This land use category accommodates major office centers, public and semi-public uses, including museums, hospitals, civic uses, and college and university campuses. Entertainment uses of greater intensity such as stadiums should be focused in downtown and university campuses. Multi-story residential uses are permitted in this category, with mixed-use encouraged – particularly fronting major corridors.

Future land use guidance in the surrounding area includes Public, Office and Institutional, Destination Mixed Use and Parks and Open Space land uses. In the Destination Mixed Use future land use category, commercial retail uses are required at the street level of all development to encourage pedestrian activity beyond the typical daytime business hours. Multi-story development is required. Contiguous expansion of commercial zoning is allowed. The Parks and Open Space future land use category applies to land or water areas generally free from development. Primarily used for park and recreation, natural resource conservation, transportation, historic, or scenic purposes. Park related uses such as amphitheaters, food service, parkways, and equipment rental are also permitted. This generally does not capture privately-owned and operated open spaces and plazas.

The project is consistent with the following goals and policies within *Minneapolis 2040*:

- Improve the Skyway system connection to Downtown buildings.
- Environmental Impacts of Transportation: Reduce the energy, carbon, and health impacts of transportation through reduced single-occupancy vehicle trips and phasing out of fossil fuel vehicles.
- Proactive, accessible, and sustainable government: In 2040, Minneapolis City government will be proactive, accessible, and fiscally sustainable. Policy Access to Health, Social and Emergency Service
- Goals: Eliminate Disparities, More Residents and Jobs, Living-Wage Jobs, Healthy/Safe/Connected People, High-Quality Physical Environment, Complete Neighborhoods, Climate Change Resilience, Clean Environment, and Healthy/Sustainable/Diverse Economy

**iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.**

*Existing Zoning*

The subject property is located in the B4N Downtown Neighborhood District. The B4N Downtown Neighborhood District is established to provide an environment that promotes the development of higher density neighborhoods surrounding the Downtown office core with a variety of goods and services to support Downtown living.

*Overlay Districts*

The site is also located in the BFT30 Transit 30 Built Form Overlay District and the DP Downtown Parking Overlay District. The Transit 30 district is typically applied along high frequency transit routes, adjacent to METRO stations, in neighborhoods near downtown, and adjacent to the downtown office core. New and remodeled buildings in the Transit 30 district should reflect a variety of building types on both moderate and large sized lots. Upper floors of taller buildings should be set back to increase access to light and air. Building heights should be 10 to 30 stories. Building heights should be at least 10 stories in order to best take advantage of the access to transit, jobs, and goods and services provided by the Transit 30 district. In the BFT30 Transit 30 Built Form Overlay District, the minimum floor area ratio (FAR) is 3.0 and the maximum FAR is 10.4, unless the project qualifies for premiums for increased FAR.

The DP Downtown Parking Overlay District is established to preserve significant and useful buildings and to protect the unique character of the downtown area and the mixed-use downtown neighborhoods by restricting the establishment or expansion of surface parking lots.

*Other*

According to Federal Emergency Management Agency (FEMA) flood maps (Appendix A), the project area is in Zone X, mapped as no risk for a flood.

The project area is not located within a shoreland, floodplain, wild and scenic river, critical area or agricultural preserve.

**iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.**

Not applicable.



- b. Discuss the project’s compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.**

The proposed project would be compatible with nearby land uses. The project area is directly adjacent to office, commercial, institutional, mixed-use, and residential developments.

The increased skyway access, parking associated with the hospital, ambulance parking, and medical/office space aligns with the goal of accessibility of health and emergency services within Minneapolis.

- c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.**

No incompatibility issues are anticipated.

**11. Geology, Soils, and Topography/Land Forms:**

- a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.**

The unconsolidated sediments within the project area vicinity are postglacial and proglacial sediment which consist of gravelly sand. These deposits typically contain cobbly gravel and capped with loamy fine-grained sand. These sediments are associated with meltwater from glaciers. The surficial geology is shown on Figure 6A.

The depth to bedrock within the Site is estimated to be between 0-50 feet below ground surface (Bloomgren et al., 1989). A geotechnical investigation done by Braun Intertec in 2021, concluded that the bedrock at the project area is 47-50 feet below ground surface, well below the proposed basement slab and tunnel excavation. The uppermost bedrock units within the vicinity of the Project Area are the Middle and Upper Ordovician period Platteville and Glenwood Formations (Olsen et. al 1989). The bedrock geology is shown on Figure 6B. The uppermost bedrock unit in the Site vicinity is the Middle Ordovician, Platteville and Glenwood Formation (Olsen and Bloomgren, 1989). The Platteville Formation is described as fine-grained limestone containing thin shale partings near the top and base, underlain by green, sandy shale of the Glenwood Formation, which is very thin.

No sinkholes or karst conditions are known to be present on the Project area. A surficial water table on the project area ranges from approximately 6 to 8 feet below ground surface. The surficial water table is precipitation driven and not a significant source of groundwater within Hennepin County.

Since the proposed project involves redevelopment of a previously developed parcel, the construction of the building addition, stormwater treatment device, and utility infrastructure are not anticipated to adversely affect the geologic conditions at the Site.

- b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12.b.ii.**

According to the USDA-NRCS Web Soil Survey, the soil at the proposed project area consists of the following classifications (Figure 7):

**Table 11-1 USDS-NRCE Soil Types**

| <b>Map Unit Symbol</b> | <b>Map Unit Name</b>  | <b>% of Project Area</b> |
|------------------------|---|--------------------------|
| U4A                    | Urban land-Udipsaamments (cut and fill land) complex, 0 to 2 percent slopes | 100%                     |

The urban fill soils at the project area are classified as somewhat excessively drained and little additional information on the physical properties of the two mapped soil units was available from the USDA-NRCS Web Soil Survey.

The topography of the project area is relatively level. Elevations range from approximately 840 to 846 feet above mean sea level, as illustrated on Figure 8.

According to the 2021 Geotechnical Evaluation done by Braun Intertec, soil corrections are expected to be minimal (0-3 feet below basement floor) for structural stability. If any soil is of limited use for construction purposes, implementation of additional engineering practices may be necessary to achieve the proposed project’s goals. If any additional soil is deemed to be unsuitable for the proposed project’s construction, they may be excavated and replaced with suitable imported fill material. The earthwork contractor would be responsible for the reuse or export of any excess soil generated during construction.

Excavations will cover 1.40 acres (61,500 square feet) and total 45,175 cubic yards. Excavations include the removal of pavement, perimeter sidewalks, subgrade above the 843 elevation, and 38,425 cubic yards of material removals within the building footprint (50,000 square feet) to the bottom elevation of the lower-level footing (822.25 feet above mean sea level).

## 12. Water Resources:

- a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.
  - i. **Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/flood fringe location, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.**

There are no surface waters in the project area or in the immediate vicinity of the project area. The nearest surface water is the Mississippi River that is about 0.6 miles northeast of the project area.

No lakes, streams, wetlands, or intermittent channels are located on or directly adjacent to the project area (Figure 9). The Mississippi River is identified as a Minnesota Department of Natural Resources (DNR) Public Water. It is also identified as an Impaired Water according to the Minnesota Pollution Control Agency (MPCA) 2020 Impaired Waters list (07010206-814) for aquatic life, aquatic consumption, and aquatic recreation (Figure 9). Loring Pond is located one mile west of the project area and is on the MPCA 2020 Impaired Waters list (27-0655-02) for aquatic life. There are no impacts anticipated to either the Mississippi River or Loring Pond. Several additional wetlands and small ponds are mapped as excavated basins within 1 mile of the project area by the National Wetlands Inventory (NWI). There are no impacts anticipated to the wetland and small pond basins.

- ii. **Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.**

The expected depth to ground water ranges from 800-820 feet above sea level (20-40 feet below ground surface). Based on the geotechnical evaluation done by Braun Intertec in 2021, no permanent groundwater table was encountered within the top 50 feet below ground surface during the investigation and is not anticipated to be found during excavation of the basement and tunnel. The Minnesota Department of Health Minnesota Well Index was reviewed, there are no wells within the project area boundaries or within the vicinity of the project area as shown in Figure 10.

- b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.**
- i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.**
- 1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.**

The estimated domestic wastewater flow for the proposed project is 21,896 gallons per day (GPD). There is no industrial wastewater produced or pretreatment required. The usage is based on the Metropolitan Council 2021 Sewer Availability Charge (SAC) Procedure Manual. The proposed project's estimated wastewater flow is based on the following calculations:

- 37,500 Total Square feet of medical/office space at 274 gallons per day per 2,150 square feet = 4,779 GPD
- Estimated Total =21,896 GPD

The Site is connected to the City of Minneapolis wastewater collection system. The collection system discharges to the Metropolitan Council Metropolitan Wastewater Treatment Plant (Metro Plant) in St. Paul, Minnesota. According to the Metropolitan Council Environmental Services Plant Inflow Summary Report for the 12-month period ending November 2020, the Metro Plant treats approximately 176 million gallons per day (MGD)) and can handle up to 314 MGD. The Metro Plant would not need additions or improvements to treat the estimated discharge anticipated with this proposed project.

- 2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.**

Not applicable.

- 3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.**

No wastewater from the proposed project would be discharged to surface water.

- ii. **Stormwater – Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP) including specific best management practices (BMPs) to address erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.**

Currently, stormwater flows offsite into the city storm sewer system. Preconstruction runoff discharges into surrounding storm sewer drains along the curb line of the streets. After construction, the stormwater from the project area would be directed into underground stormwater retention tanks located under the lower level of the proposed parking ramp. The design would provide 7,500 cubic feet of storage to meet 10- and 100-year storm events. The system would meet 70 percent Total Suspended solid removal. This would allow for increased stormwater treatment before being discharged into the City's 36-inch storm sewer system near Portland Avenue South and 6<sup>th</sup> Street South. The system would be designed to handle a 1.25-inch storm event (per City of Minneapolis requirements) and meet the NPDES construction stormwater permit and City of Minneapolis' MS4 permit requirements.

Temporary erosion and sediment control best management practices (BMPs) would initially be installed (per the Project's SWPPP), maintained/repared, and amended throughout the construction phases as required to remain compliant with the NPDES construction stormwater permit. Temporary BMPs may include (but are not limited to) silt fence, bio-rolls/filter logs, rock construction entrances, mulch/hydro mulch, temporary seeding, and permanent seeding (native and turf, where appropriate)

- iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.**

Temporary short-term construction dewatering of groundwater may be required at the time of construction (depending on current field conditions) to facilitate construction activities of phased grading, placement of structural footings, and utility trenches/pits. If dewatering is anticipated to exceed 10,000 gallons per day or 1,000,000 gallons per year, the contractor performing the applicable work would be required to obtain a Temporary Construction Dewatering Water Appropriations Permit from the Minnesota Department of Natural Resources (MDNR) prior to initiating dewatering activities. Measures to avoid, minimize, or mitigate the environmental effects from construction related to dewatering are unknown at this time, and therefore would be determined when developing the dewatering plan as required by a future Stormwater Pollution Prevention Plan (SWPPP) amendment of the NPDES Construction Stormwater Permit.

An Erosion and Sediment Control Plan must be submitted and approved by the Public Works-Surface Water and Sewers (PWSWS) Division of the City of Minneapolis before an Erosion and Sediment Control Permit can be issued, which is necessary for any construction in the City of Minneapolis.

There are no identified wells within the project boundary that would require sealing (Figure 10). If wells are discovered during construction, appropriate MDH well sealing measures would be followed by a licensed well contractor.

**iv. Surface Waters**

- a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.**

There are no wetlands or surface waters on the project area or in the direct vicinity of the project area. No impacts are anticipated to wetlands. (Figure 9)

- b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration.**

**Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.**

No physical alterations or indirect effects to existing surface waters are anticipated from the proposed project. The project would not change the type or number of watercraft on nearby surface waters.

**13. Contamination/Hazardous Materials/Wastes:**

- a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.**

The Minnesota Pollution Control Agency (MPCA) "What's in My Neighborhood" (WIMN) online database was reviewed to determine if any existing contamination or potential environmental hazards exist on or near the project area. The database identified Hennepin County Medical Center Parking, Dependable Garage, and Hennepin County Medical Center as all located on the project area within the existing structure or has previously been located within the project area. Hennepin County Medical Center Parking is listed for multiple MPCA programs including Petroleum Remediation, Leak Site (LS0021233) and Underground Tanks (TS0002090). Dependable garage is listed as a Petroleum Remediation, Leak Site (LS0011187). Hennepin County Medical Center is listed as containing underground tanks (TS0019968). According to the MPCA, all the leaks and remediation sites have been closed. Numerous other sites within a quarter mile were identified in the WIMN database, the majority of which are businesses with hazardous waste generator permits, and a variety of investigation and cleanup sites, or various construction stormwater permit sites.

If any contamination is found in the process of construction, the proper steps would be taken to report and dispose of the contamination according to local and state regulations.

- b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.**

Typical construction waste from the project, such as concrete, bituminous, drywall, wood, metal, and plastic sheeting, etc., would result from construction of the building and associated facilities. The construction contractor would minimize, store, and dispose of all solid waste in accordance with local and state regulations and in compliance with the NPDES construction stormwater permit. Waste produced during construction would be disposed of by a licensed waste hauler at an appropriate facility.

Mixed municipal waste and recyclable waste would be generated by the proposed project once construction is complete. The recycling and waste would be handled by an appropriately licensed hauler and would be disposed of in accordance with applicable regulations. It is anticipated that the mixed municipal waste would be hauled to the Hennepin County Waste Incinerator in Minneapolis.

- c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that will be utilized in the project. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.**

Hazardous materials are not currently generated on the project area. Hazardous materials would not be present at the construction site, except for fuel and lubricants as necessary for the construction. Cleaning solutions and synthetic oils/lubricants may be used during project construction and as part of operations and would be stored in marked containers in accordance with applicable regulations. Required spill kits and containment materials would be present during work activities and easily accessible if needed. Any hazardous materials generated by the contractor during construction would be disposed of by the contractor at facilities licensed to dispose of such wastes. If a spill were to occur during construction, the Minnesota Duty Officer would be contacted and appropriate action to remediate would be taken immediately in accordance with MPCA guidelines and regulations in place at the time of project construction.

Following construction, the use of chemicals/hazardous materials is expected to be limited to the medical supplies that may be used in a clinic. Types, quantities, and composition of chemicals/hazardous materials would be typical of medical buildings. These chemicals and materials would be labeled, stored, and disposed of in accordance with applicable regulations.

No below ground fuel storage tanks would be present once the project is complete. A small fuel tank would be present to power an emergency back-up generator for the development once the project is complete. The generator and associated fuel tank would be installed with a secondary containment system to prevent leaks. The generator and fuel tank would also be registered and inspected regularly in accordance with all applicable MPCA and local regulations.



- d. **Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.**

Hazardous waste is not currently generated in the project area. Any hazardous materials generated by the contractor during construction would be disposed of by the contractor at facilities licensed to dispose of such wastes. After construction, medical waste may be generated from the medical/office space. This waste would be disposed of in appropriate containers and would be disposed of within the hazardous waste permit of the hospital (HCMC).

**14. Fish, Wildlife, Plant communities, and Sensitive Ecological Resources (rare features):**

- a. **Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.**

The project area is located in downtown Minneapolis. Minimal vegetation exists within the project area, which consists of isolated landscaping beds and manicured vegetation. The surrounding area is also an urban ecosystem and has little vegetation and habitat to support fish and wildlife.

The Mississippi River and Mississippi River Critical Area are located about 0.6 miles northeast of the project site and will not be impacted as a result of the proposed project.

- b. **Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-997) and/or correspondence number (ERDB) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.**

Braun Intertec holds a license agreement from the Minnesota Department of Natural Resources (MnDNR) for a local copy of the Natural Heritage Information System (NHIS) geodatabase (License #997). A query of the database was made for Element Occurrences (EO) within 1 mile and within 3 miles of the project area. Twenty-Four (24) Element Occurrences were found in the NHIS database within one mile of the project area. Eight of the EOs are for state or federally threatened or endangered species including one amphibian, one fish, one fungus, two mussels, and three plants. One entry is an animal aggregation. The remaining entries are of special concern and watchlist species, including one fish, one bird, one bat, two insects, two mussels, and three plants.

An online query was submitted to the US Fish & Wildlife (USFWS) database Information for Planning and Conservation (IPaC; <https://ecos.fws.gov/ipac/>). The IPaC results (Appendix B) indicated that the project area is within the range of six federally listed species. The IPaC results do not indicate observations of these species near or within the project area. IPaC results identified species that may occur within the project area based on the broad geographic ranges of the species (such as occurrence within the county). In contrast, the NHIS results report actual observations within a set distance (three miles was used for this report).

**Table 14-1: State and Federal Species Status within 3 miles of the Project Area**

| Scientific Name                      | Common Name               | State Status    | Federal Status | Type        |
|--------------------------------------|---------------------------|-----------------|----------------|-------------|
| <i>Emydoidea blandingii</i>          | Blanding's Turtle         | Threatened      | N/A            | Amphibian   |
| <i>Myotis septentrionalis</i>        | Northern Long-eared Bat   | Special Concern | Threatened     | Bat         |
| <i>Perimyotis subflavus</i>          | Tricolored Bat            | Special Concern | N/A            | Bat         |
| <i>Falco peregrinus</i>              | Peregrine Falcon          | Special Concern | N/A            | Bird        |
| <i>Etheostoma microperca</i>         | Least Darter              | Special Concern | N/A            | Fish        |
| <i>Notropis anogenus</i>             | Pugnose Shiner            | Threatened      | N/A            | Fish        |
| <i>Psathyrella rhodospora</i>        | A Species of Fungus       | Endangered      | N/A            | Fungus      |
| <i>Schinia lucens</i>                | Leadplant Flower Moth     | Special Concern | N/A            | Insect      |
| <i>Danaus plexippus</i>              | Monarch Butterfly         | N/A             | Candidate      | Insect      |
| <i>Bombus affinis</i>                | Rusty Patched Bumble Bee  | Watchlist       | Endangered     | Insect      |
| <i>Ligumia recta</i>                 | Black Sandshell           | Special Concern | N/A            | Mussel      |
| <i>Lampsilis higginsii</i>           | Higgins Eye(pearlymussel) | Endangered      | Endangered     | Mussel      |
| <i>Necturus maculosus</i>            | Mudpuppy                  | Special Concern | N/A            | Mussel      |
| <i>Epioblasma triquetra</i>          | Snuffbox Mussel           | Endangered      | Endangered     | Mussel      |
| <i>Euryntia dilatata</i>             | Spike                     | Threatened      | N/A            | Mussel      |
| <i>Quadrula nodulata</i>             | Wartyback                 | Threatened      | N/A            | Mussel      |
| <i>Quadrula fragosa</i>              | Winged Mapleleaf          | Endangered      | Endangered     | Mussel      |
| <i>Erythronium propullans</i>        | Dwarf Trout Lily          | Endangered      | Endangered     | Plant       |
| <i>Valeriana edulis var. ciliata</i> | Edible Valerian           | Threatened      | N/A            | Plant       |
| <i>Carex formosa</i>                 | Handsome Sedge            | Endangered      | N/A            | Plant       |
| <i>Gymnocladus dioica</i>            | Kentucky Coffee Tree      | Special Concern | N/A            | Plant       |
| <i>Crataegus calpodendron</i>        | Late Hawthorn             | Special Concern | N/A            | Plant       |
| <i>Quercus bicolor</i>               | Swamp White Oak           | Special Concern | N/A            | Plant       |
| N/A                                  | Bat Colony                | N/A             | N/A            | Aggregation |

The project area does not hold the necessary habitat required for any of the species listed. There is no aquatic habitat for the fish, turtle and mussel species, no exposed soils for plants to establish themselves and therefore no habitat for the insects that require plants, and no large undisturbed tree canopies for the bat or fungus. The Peregrine Falcon nests on buildings and bridges in urban areas, but with the lack of buildings on the project area being built on, and the structure of the existing building not changing, there is little to no concern affecting this bird. If any effect of the species habitat is necessary, it would be permitted due to the special concern status of the species. The bat colonies noted in the NHIS query were seen in and around caves which are also not within or nearby the project area.

The project area does not occur in or near designated Critical Habitat and no portion of the project area is located within or adjacent to a Minnesota Biological Survey site. The IPaC results also noted that bald eagles and migratory birds may occur on the project area and are protected under federal statutes administered by the US Fish & Wildlife Service.

- c) Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.**

Since the project area is almost entirely paved/bituminous parking lots, it has little value as habitat for fish and wildlife, native ecosystems or plant communities. Development of the project area is not anticipated to adversely affect the rare and protected species identified in federal and state databases. The treatment of stormwater within the project area would eliminate the indirect take of any species. The project area is not within a township containing known hibernacula or roosting sites of Northern long-eared bats, and suitable habitat is absent from the project area.

The listed species of fish and mussels are aquatic and occur only in the Mississippi River or small lakes outside the project area, neither of which would be affected by the proposed project. Peregrine falcon roosts are present in nearby downtown Minneapolis and the species coexists with features of the urban landscape. Additionally, grassland, prairie or savanna habitat is not present at the project area. No adverse effects to any of the listed species would occur from the proposed project.

According to the U.S. Fish and Wildlife Service (USFWS), the project area is located within a high potential zone for the Rusty Patched Bumble Bee (RPBB). Despite this location, suitable RPBB foraging habitat (abundant floral resources that bloom throughout the growing season) is not present at the project area. Overwintering/nesting habitat (dense wooded cover with abundant leaf litter and/or undisturbed soils) for the bee is also absent from the project area. Subsequently, no impacts to Rusty Patched bumble bees are anticipated from the proposed project.

There is minor risk for the introduction and spread of invasive species from the proposed project. Project plans are for construction of buildings, impervious surfaces and landscaped areas. The landscaping would be planted with native or naturalized plant species and managed to control establishment and growth of invasive vegetation.

- d) Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.**

During construction all disturbed soils would be temporarily protected by sediment and erosion control measures that would be installed and maintained for the duration of the proposed project.

**15. Historic Properties:**

**Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.**

A request was made to the State Historic Preservation Office (SHPO) regarding historic structures, archeological sites and/or traditional cultural properties that may exist on or near the project site. The SHPO response indicated that there is a low likelihood for intact archeological resources within the project site and therefore a cultural resources survey is not warranted (Appendix C).

The Minneapolis Armory is located at 500 6<sup>th</sup> Street South and is listed on the National Register of Historic Places. This is adjacent to the project site and would not be impacted by the proposed project. The project site is located in downtown Minneapolis and the existing area is fully developed.

**16. Visual:**

**Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.**

There would be an increase in the visual imprint from the building as it is a vertical expansion to the existing area. There are no scenic views or vistas on or near the project area. The expansion would be nine levels, no taller than surrounding buildings and the same height as the existing Purple Parking Ramp on the western portion of the project area. The top level of parking would be covered, per city code, with solar panels to block the project area of any cars from taller buildings surrounding the ramp. No glare is expected from the siding of the structure due to the proposed perforated metal paneling to block headlights and interior ramp lighting. No visual vapor plumes would be created from operations within the building. Exterior lighting would be minimal and would be located in pedestrian walking paths and vehicle access points for security purposes.

**17. Air:**

**a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.**

The building in the project area currently generates stationary source emissions from heating the building and would be typical for institutional developments. The heating and cooling systems for the building addition are under design but are not anticipated to significantly impact air quality.

- b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g., traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.**

Emissions produced by vehicles travelling to and from the proposed project are expected to increase due to the increase in traffic generated. Given the location of the development site within an urban area, some trips to and from the project area are expected to be completed by a non-vehicular mode. The project area allows for some walking, biking, and transit usage, which can help reduce overall per-person emissions but due to the functions of the project area, as a parking ramp, there is an expected increase in vehicle traffic to the project area and an increase in vehicle emissions.

Generally, CO evaluation is performed by evaluating the worst-operating (hot-spot) intersections in the project area. The EPA has approved a screening method to determine which intersections need hot-spot analysis. The hot-spot screening method uses a traffic volume threshold of 82,300 entering vehicles per day (vpd). Intersections with traffic volumes above this threshold must be evaluated using EPA-approved emission and dispersion models. Intersections with traffic volumes below this threshold are not expected to result in CO concentrations that exceed state or federal standards, and detailed modeling is not required.

Traffic volumes at the key study intersections are not expected to have an overall entering volume exceeding 82,300 vehicles per day (vpd), and therefore, no detailed analysis is required. It is expected that there would be minimal truck traffic generated by the development. The trucks are expected to be limited to garbage and recycling vehicles, single unit delivery (UPS/FedEx), and semi-type delivery trucks, depending on the medical/office space.

- c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.**

Construction of the proposed project would generate temporary dust and odors during construction. Construction equipment would have gasoline and diesel engine emissions and would create temporary fugitive dust emissions, especially in the areas where demolition would occur and where soil would be excavated, transported, and placed. The fugitive dust emissions would be controlled by watering, sprinkling, and/or application of calcium products as necessary and appropriate. Dust mitigation measures would include preparing and implementing a dust control plan.

Odors may be generated from operation of facility equipment engines and truck traffic. Odor mitigation measures would include minimizing equipment used on-site, minimizing idling, maintaining engines in good repair, and minimizing idling truck traffic through scheduling.

After the proposed project is constructed, the project is not anticipated to produce any ongoing substantial odors or dust.

## 18. Greenhouse gas (GHG) emissions/Carbon footprint

- a. **GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation.**

Table 18-1 includes a summary of the potential GHG emissions for this project. The supporting calculations are included in Appendix D. Emission calculations are based on conservative assumptions, and therefore likely overestimates of actual emissions that may be generated from the proposed project.

The primary greenhouse gases emitted from the buildings include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) from the combustion of fossil fuels. A common way to report emissions of these gases is to multiply the emissions of each gas (in tons) by its global warming potential (GWP) and to report the total GHG emissions as total carbon dioxide equivalents (CO<sub>2</sub>e).

The following assumptions were made in estimating the greenhouse gas emissions from the project site buildings:

- Natural gas will be used for all space heating (approximately 94,360 square feet of space). This includes Lower-Level Service/Ambulance Storage, Ground Level (Liner Building), Skyway Bridge/Walkway, Stairs, Elevator Lobby (each level), and Mechanical Spaces.
- Natural gas will be used for water heating for the shell space (approximately 33,000 square feet)
- The newly constructed structure will have a total annual electricity consumption of approximately 9,935 MWh per year.
- The project will provide accommodations for a future emergency generator once the building Ground Level (Liner Building) is fully rented or occupied. The future generator will have the rated power of approximately 250 kilowatts, which will operate no more than 500 hours per year.

The total building GHG emissions from the project site (stationary source emissions) are estimated to be approximately 408 tons per year (tpy) of CO<sub>2</sub>e.

Other direct sources of emissions added under Scope 1 include:

- Land Use Change
- Mobile Sources (vehicle tailpipe emissions) from for onsite operations
- Mobile Sources for construction

Mobile source emissions associated with onsite building operations (deliveries, building maintenance, etc.) are expected to be minimal and infrequent, and have not been quantified. Vehicle trips taken by building employees were determined to be out of scope of this greenhouse gas analysis and were not included. With emissions from these sources included, the total Scope 1 GHG emissions are approximately 611 tpy of CO<sub>2</sub>e.

Indirect Emissions include Scope 2 emissions from offsite electricity generation for electricity consumed at the newly constructed structure (approximately 5,496 tons per year of CO<sub>2</sub>e) and Scope 3 emissions from offsite waste management. Greenhouse gas emissions associated with offsite waste management are expected to be minimal and were not quantified. Actual electricity consumption will be dependent on the efficiency of the building heating systems, electrical fixtures, and appliances installed in the buildings.

**Table 18-1. Greenhouse Gas Emissions**

**Direct Emissions (Scope 1)**

| Emission Source                       |   | CO <sub>2</sub> e<br>TPY |
|---------------------------------------|---|--------------------------|
| Facility Natural Gas Use              |   | 303                      |
| Emergency Generator Engine            |   | 105                      |
| <b>Facility Total GHG Emissions</b>   |   | <b>408</b>               |
| <b>Other Scope 1 Emission Sources</b> | Mobile Sources (Onsite Operations) <sup>1</sup> | -                        |
|                                       | Mobile Sources (Construction)                   | <b>203</b>               |
|                                       | Land-Use (Construction) <sup>2</sup>            | -                        |
| <b>All Scope 1 Emissions</b>          | <b>Total Direct Emissions</b>                   | <b>611</b>               |

<sup>1</sup> Following the completion of the construction phase, mobile source emissions associated with onsite operations (deliveries, maintenance, etc.) are expected to be minimal and infrequent, and have not been quantified.

<sup>2</sup> Carbon flux associated with land-use changes is expected to be negligible and has not been quantified. The land-use category for the site prior to construction is "settlement" and will remain categorized as "settlement" after the project is completed.

**Indirect Emissions (Scope 2 and 3)**

| Scope          | Emission Source                        | CO <sub>2</sub> e<br>TPY |
|----------------|--|--------------------------|
| <b>Scope 2</b> | Off-Site Electricity Production        | <b>5,496</b>             |
| <b>Scope 3</b> | Off-Site Waste Management <sup>3</sup> | -                        |

<sup>3</sup> Greenhouse gas emissions associated with offsite waste management are expected to be minimal and were not quantified.

**Atmospheric Removal of GHGs**

| Scope | Emission Source               | CO <sub>2</sub> e<br>TPY |
|-------|-------------------------------|--------------------------|
| Other | Land-Use (Sinks) <sup>4</sup> | -                        |

<sup>4</sup> Carbon flux associated with land-use changes is expected to be negligible and has not been quantified. The land-use category for the site prior to construction is "settlement" and will remain categorized as "settlement" after the project is completed.

**Total Emissions including Sinks = Direct Emissions + Indirect Emissions + Sinks**

| Scope                    | Emission Source | CO <sub>2</sub> e<br>TPY |
|--------------------------|-----------------|--------------------------|
| <b>Scope 1, 2, and 3</b> | <b>Total</b>    | <b>6,107</b>             |

**b. GHG Assessment**

**i. Describe any mitigation considered to reduce the project's GHG emissions**

The greenhouse gas emissions mitigation strategies considered for this project include the use of solar panels, installation of electric vehicle charging stations, and construction of a bike parking area to promote the use of alternative transportation options.

**ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project's GHG emissions. Explain why the selected mitigation was preferred.**

The project includes the installation of approximately 38,840 square feet of area for solar panels. According to the University of Minnesota Extension, Minneapolis has approximately 4.7 kWh/m<sup>2</sup>/day of available solar resource (source: <https://mn.gov/commerce-stat/pdfs/solar-electricity-for-the-home-farm-and-business.pdf>). Using this estimate, 38,840 square feet (3,608 square meters) of solar panel area would have the potential to generate approximately 6,190 megawatt hours of electricity per year, which equates to a reduction of approximately 3,424 tons of CO<sub>2</sub>e emissions per year from offsite power generation. The electricity generated by the solar panels would also provide a significant cost savings to the facility.

The project also includes the installation of 168 level 2 electric vehicle charging stations. An attempt was not made to quantify the greenhouse gas emissions reduction associated with the installation of these charging stations due to the number of factors involved (e.g., utilization of charging stations, round-trip distances traveled by EV drivers using these charging stations, etc.).

The parking ramp will include a room with controlled access dedicated to bike parking on the ground level of the ramp, which may incentivize bicycling as a means of transportation instead of the use of a vehicle. An attempt was not made to quantify the greenhouse gas emissions reduction associated with the installation of the bike parking area, because it is not precisely clear how many vehicle trips might be avoided due to the availability of bike parking.

**iii. Quantify the proposed project's predicted new lifetime GHG emissions (total tons/# of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.**

It is conservatively assumed that the project lifetime is 25 years. Over this 25-year period, the estimated greenhouse gas emissions associated with this project are approximately 152,675 tons of CO<sub>2</sub>e. As discussed earlier, this estimate includes emissions from onsite natural gas combustion, construction-phase mobile source emissions, and electricity usage. This estimate does not include mobile source emissions associated with vehicle trips to and from the site.

The estimated electricity usage from the project structure is included in the overall greenhouse gas emissions from offsite energy generation provided in Table 18-1 above. As Minnesota's power generation portfolio shifts toward using more renewable power generation sources such as wind and solar, the greenhouse gas emissions from offsite power generation will continue to be reduced over the lifetime of the project.



## 19. Noise:

**Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.**

### During Construction

There would be temporary noise impacts as a result of construction of the ramp and medical/office space. Construction equipment would include pile drivers, jackhammers, cranes, scrapers, dump trucks, backhoes, bulldozers, and other construction equipment. This noise is not prohibited by Minneapolis statute Title 15 389.60 which requires noise to be no louder than 10 decibels over ambient noise during the day and 5 over at night but exempts construction noise. This noise should occur during the day with the exception to a possible need for night construction to build the tunnel under Park Avenue. Loud equipment would be in short durations. The nearby hospital is a sensitive receptor but would be blocked by the existing buildings and should not be affected by the temporary increase in noise during construction.

### Operations

During operations of the ramp and medical/office space, there would be a slight increase in noise due to the increase in vehicle traffic. Additionally, the bottom portion of the ramp would be used for ambulances, therefore the noise from the ambulances would be periodic throughout the day during the operations at the building. The area already houses these ambulances, so this increase would be for the project area, but not for the total campus and would not increase the noise for sensitive receptors or quality of life.

## 20. Transportation:

**a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.**

The existing Purple Parking Ramp has 1,375 parking spaces and the existing surface parking lot has 84 spaces. The proposed project would remove the existing surface parking lot and replace it with a 1,000-space parking ramp. The proposed project would increase parking by 1,000 parking spaces; however, this increase would be counterbalanced by the future project of demolishing the old Parkside parking ramp located at the Parkside building (1,400 parking spaces at 825 S. 8<sup>th</sup> St.), therefore total parking spaces would be reduced on the HCMC campus by approximately 400 spaces.

The current average vehicles entering the existing ramp per day is 1,365. The project would increase the vehicles entering the ramp per day by an additional 950. The anticipated total vehicles entering the ramp per day upon completion of the project would be 2,315.

According to the conducted traffic study (Appendix E), average traffic to the project area would be approximately 315 vehicles entering per hour (peak, in morning hours) and 290 vehicles exiting per hour (peak, in afternoon and evening hours) with peak traffic of 680 vehicles entering between 6:00 AM- 7:00 AM and 530 vehicles exiting between 4:00PM – 5:00 PM. The

peak hours drive the daily average up, vehicles entering and existing the expanded ramp during the day would be lower.

The project area is surrounded by public transportation which includes three bus stops about one block away and a light rail station about 0.1 miles away. The use of public transportation would not be disrupted by the construction of the project.

- b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.**

A traffic study was conducted and no major disruptions to traffic conditions or operations would be caused by the proposed project (Appendix E). The proposed project would not impact the safety or delay/level of service of the downtown area.

- c. Identify measures that will be taken to minimize or mitigate project related transportation effects.**

The project would create a new entrance for the new ramp and the existing entrance will remain unchanged to minimize traffic impacts outside of ramps as well as inside the ramps. One new entrance would be from 6<sup>th</sup> Street and one new exit would be onto 7<sup>th</sup> Street, which is similar to the current Purple Parking Ramp entrances and exits. It is also suggested that the city review the signal timing at South 7<sup>th</sup> Street and Portland Avenue to minimize queuing impacts.

## **21. Cumulative Potential Effects:**

- a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.**

The geographic area of the proposed project is small and localized in a developed area of downtown Minneapolis. The timeframe for this project review focuses on present and future projects because effects from past projects are reflected in the description of the existing condition of each resource.

- b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.**

The area of Minneapolis in which the project is located is undergoing active redevelopment and revitalization. Recently, Thrivent developed a new headquarters building to the west, new housing units are being built to the south, and HCMC has expanded other smaller buildings to the south that cumulatively did not require environmental review.

The reasonably foreseeable future projects include redevelopment that would affect traffic, population, and use of the proposed parking ramp. Additional future projects are unlikely to contribute to cumulative impacts on natural resources.

- c. **Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.**

Given the identified future projects, cumulative effects when combined with anticipated project effects are not expected for the following resources: land use, geology, soils, topography, water resources, contamination, hazardous and solid waste, fish, wildlife, plant communities, sensitive ecological resources, historic properties, and transportation.

Development of the project area would increase demands for water supply and wastewater treatment however the water distribution and wastewater treatment collection systems already have capacity for increased development. Potential cumulative effects from the proposed parking ramp would be a net increase in green energy, because of the addition of solar panels.

Future implementation of the HCMC campus plan could result in higher demands for parking due to increased campus visits. Specific projects are not developed to a level where potential effects can be projected.

**22. Other Potential Environmental Effects:**

**If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.**

No additional impacts from this project other than those discussed above are anticipated.

**RGU CERTIFICATION.** *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

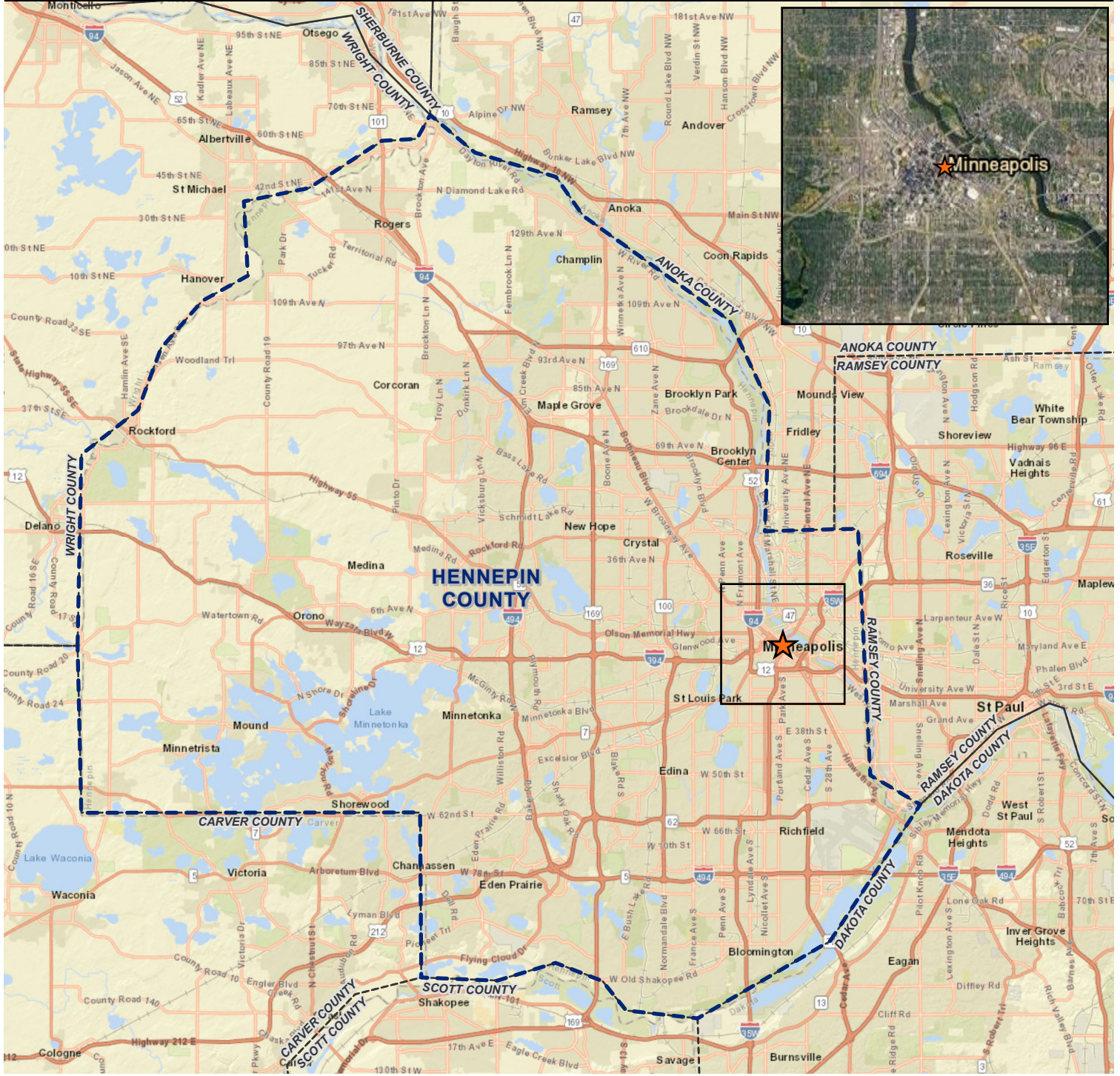
**I hereby certify that:**

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

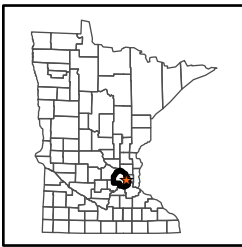
Signature \_\_\_\_\_ Date \_\_\_\_\_

Title \_\_\_\_\_

## Figures



Data Sources: Esri, USGS, OpenStreetMap



★ Project Site



0 2.5 5 Miles

Scale 1" = 5 mi

**BRAUN  
INTERTEC**  
The Science You Build On.

11001 Hampshire Avenue S  
Minneapolis, MN 55438  
952.995.2000  
braunintertec.com

Project No:  
B2110233

Drawing No:  
Fig1\_ProjSiteLocMap

Drawn By: SL  
Date Drawn: 1/28/2022  
Checked By: TF  
Last Modified: 3/7/2022

Purple Ramp Expansion

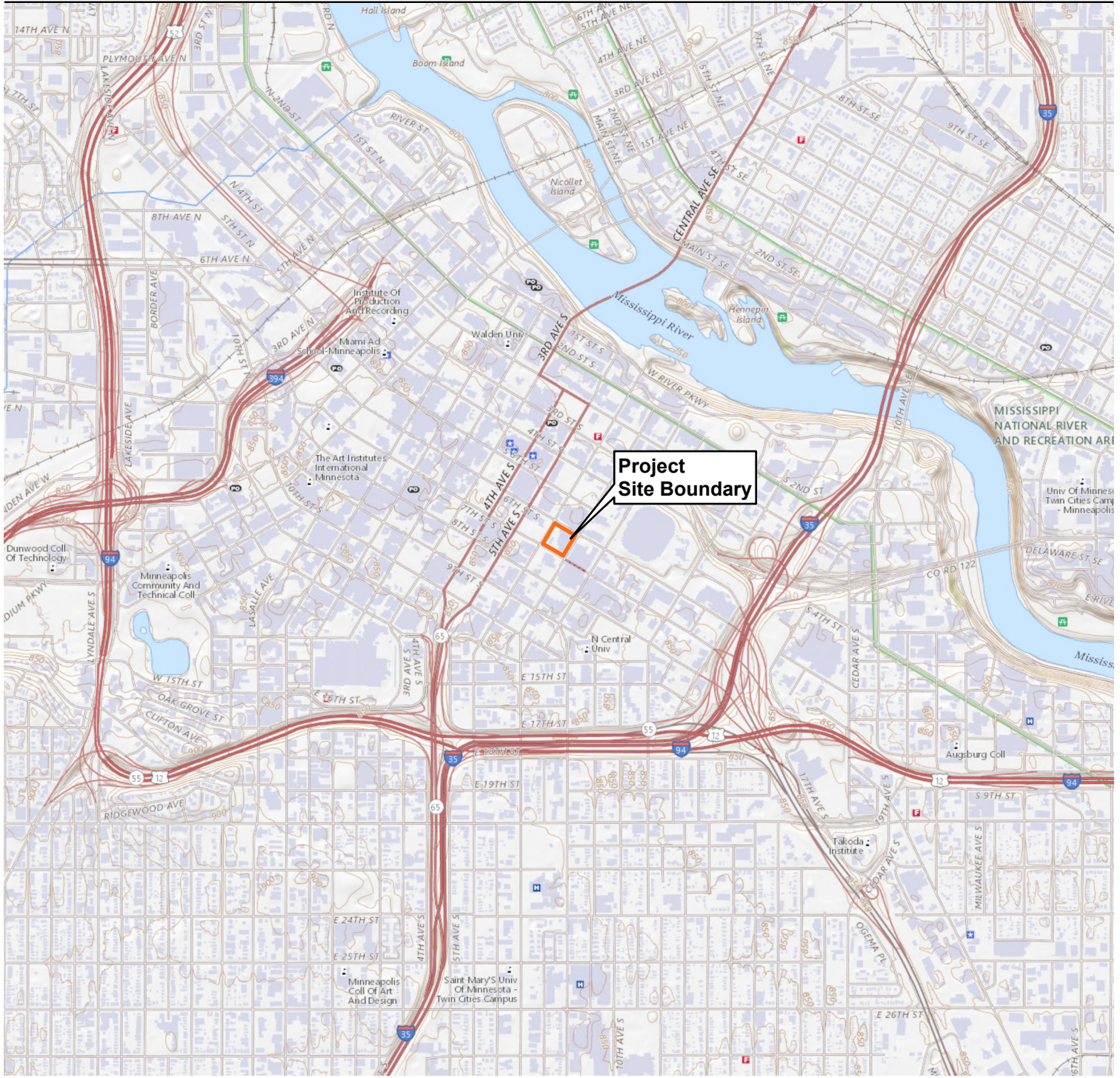
600 Park Avenue

Minneapolis, Minnesota


**Project Site  
Location Map**

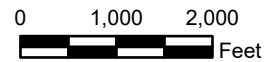
Figure 1





Data Sources: USGS National Map

 Project Site Boundary



Scale 1" = 2,000'



11001 Hampshire Avenue S  
 Minneapolis, MN 55438  
 952.995.2000  
 braunintertec.com

|                |                    |
|----------------|--------------------|
| Project No:    | B2110233           |
| Drawing No:    | Fig2_ProjectLocMap |
| Drawn By:      | SL                 |
| Date Drawn:    | 1/28/2022          |
| Checked By:    | TF                 |
| Last Modified: | 3/7/2022           |

Purple Ramp Expansion

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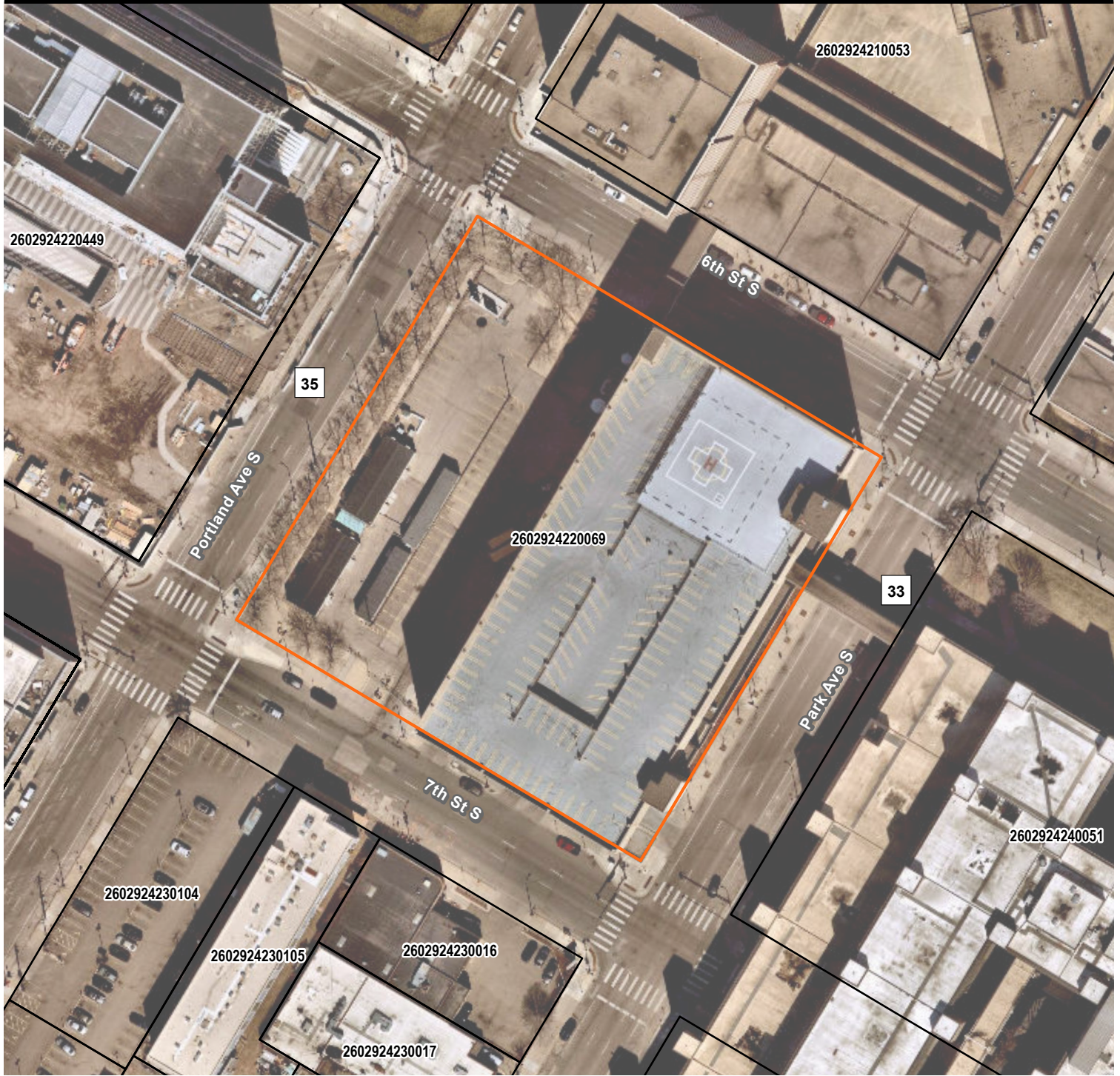
600 Park Avenue

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Minneapolis, Minnesota

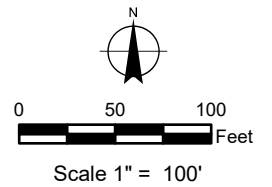
**Project Location Map**





Data Sources: Hennepin County GIS, MNDOT

- Project Area
- County Parcels



11001 Hampshire Avenue S  
 Minneapolis, MN 55438  
 952.995.2000  
 braunintertec.com

Project No:  
B2110233

---

Drawing No:  
Fig3\_ExistingConditions

---

Drawn By: SL  
 Date Drawn: 1/28/2022  
 Checked By: TF  
 Last Modified: 3/7/2022

Purple Ramp Expansion

---

600 Park Avenue

---

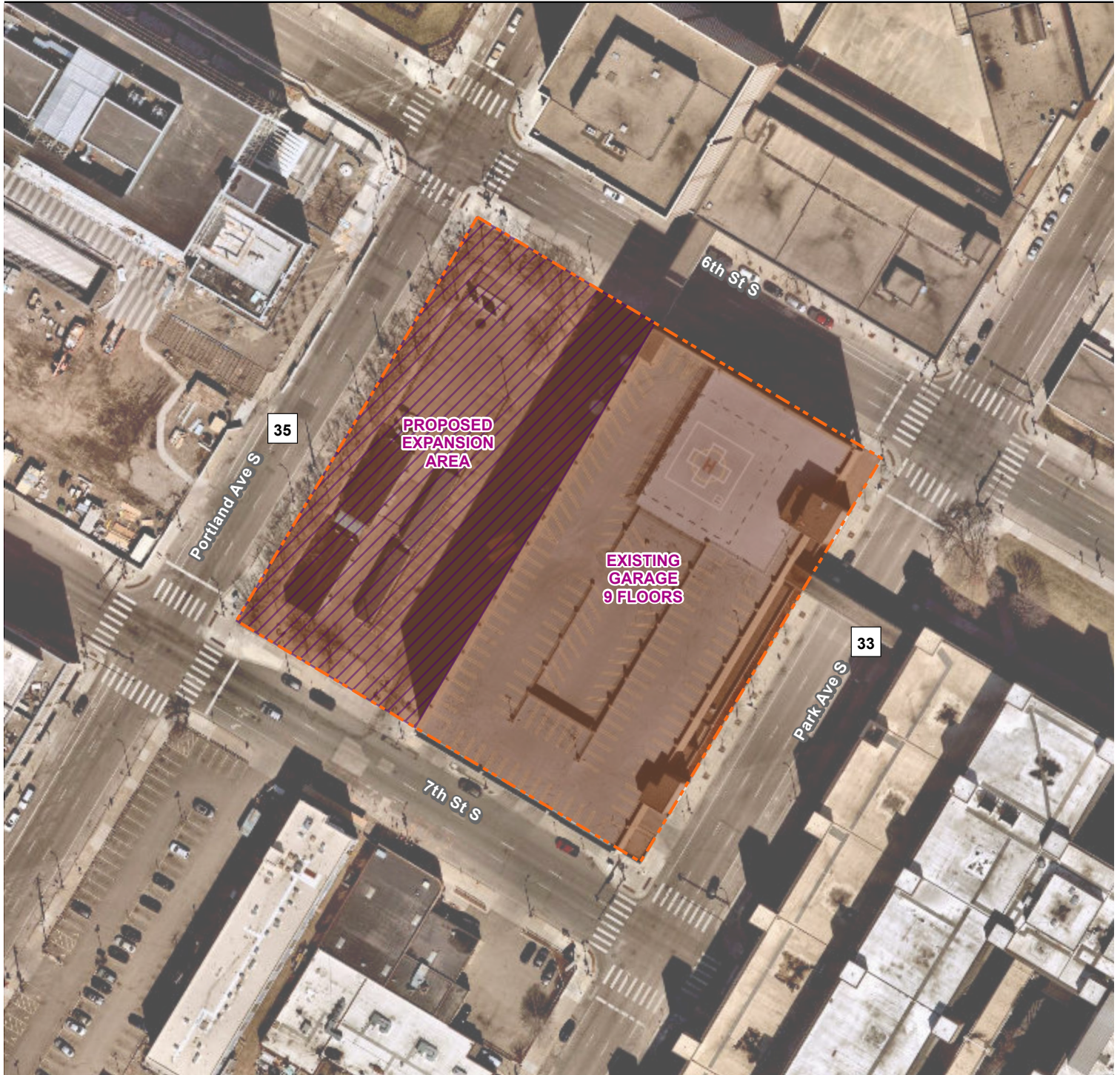
Minneapolis, Minnesota

**Existing Conditions**

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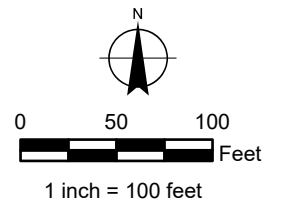
**Figure 3**





Data Sources: 201202 - Brooklyn Center - Site -with survey.dwg, Hennepin County GIS, MNDOT


- Project Area (apprx. 2.51 acres)
- Impervious Land Cover (100% / apprx. 2.51 acres)
- Proposed Expansion











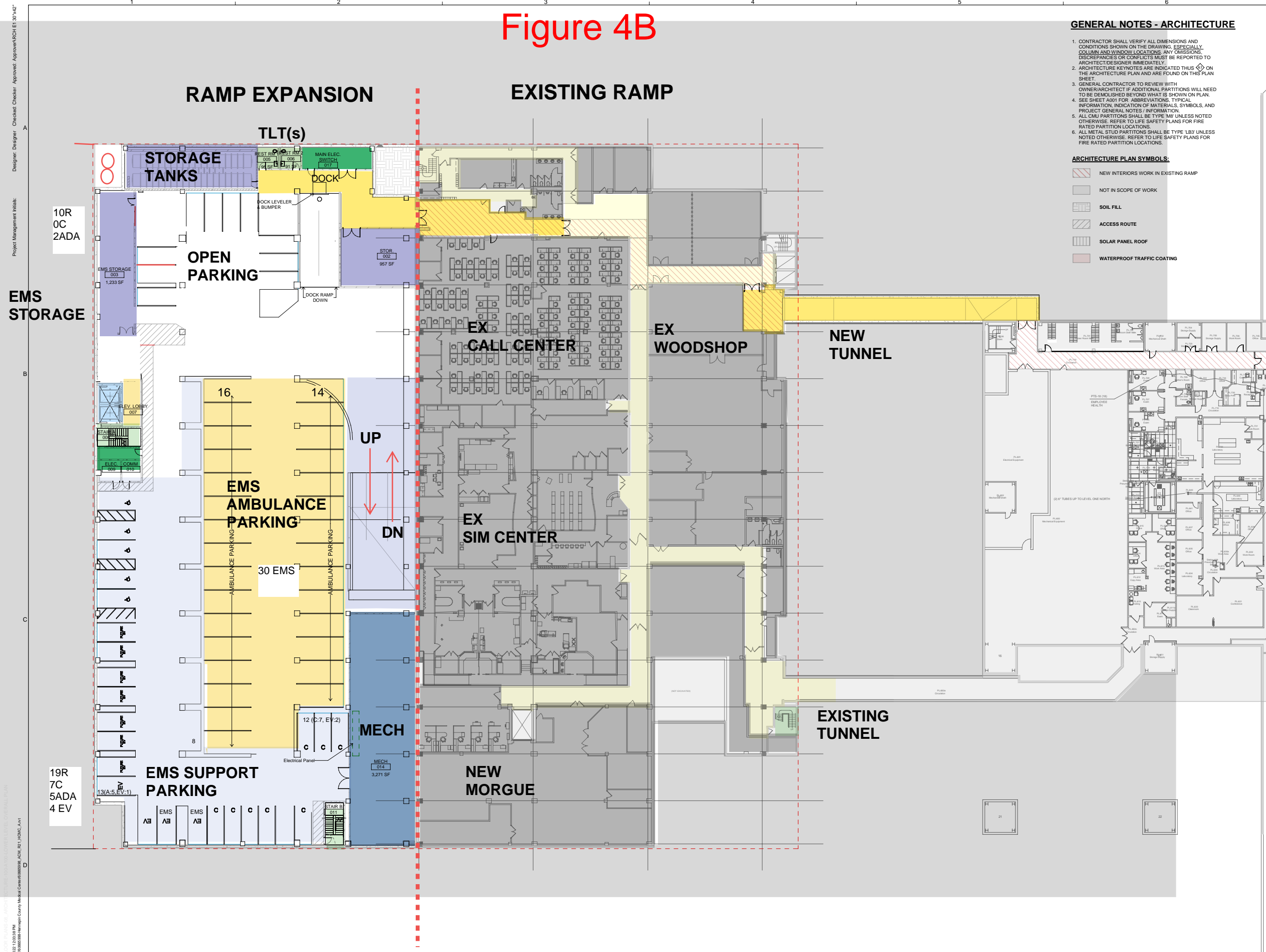
# Figure 4B

## GENERAL NOTES - ARCHITECTURE

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6. ALL METAL STUD PARTITIONS SHALL BE TYPE L83 UNLESS NOTED OTHERWISE. REFER TO LIFE SAFETY PLANS FOR FIRE RATED PARTITION LOCATIONS.

### ARCHITECTURE PLAN SYMBOLS:

-  NEW INTERIORS WORK IN EXISTING RAMP
-  NOT IN SCOPE OF WORK
-  SOIL FILL
-  ACCESS ROUTE
-  SOLAR PANEL ROOF
-  WATERPROOF TRAFFIC COATING



**PROJECT**

**HCMC Purple Ramp Expansion**  
701 Park Ave South  
Minneapolis, MN 55415

**CLIENT**



Hennepin Healthcare (HHS)  
www.hennepinhealthcare.org

Attn: **Kyal Klawitter**  
Walker & Associates, a division of MecCraft  
Vice President, Project Management  
Direct 952.746.2225 | Mobile 612.250.3895  
kklawitter@walkerusa.com | www.walkerusa.com

**ARCHITECT & ENGINEERING**

AECOM Technical Services Inc.  
800 LaSalle Avenue, Suite 1100  
Minneapolis, MN 55402  
P: (612) 376-2000 F: (612) 376-2271  
www.aecom.com

**CONSULTANTS**

**CIVIL ENGINEER & LANDSCAPE ARCHITECT**



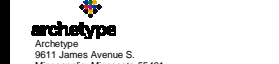
Anderson  
13625 1st Avenue N, Suite 100  
Plymouth, MN 55441  
P: (763) 412-4000  
www.ae-mn.com

**ELEVATOR**



Lerch Bates  
7625 Golden Triangle Drive  
Suite 1  
Eden Prairie, MN 55344  
P: (612) 790-3924  
minneapolis@lerchbates.com  
www.lerchbates.com/en-US/

**SIGNAGE**



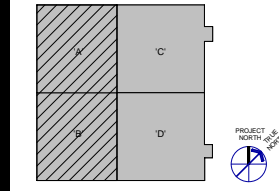
archetype  
9611 James Avenue S.  
Minneapolis, Minnesota 55431  
P: 952.841.9600 888.512.1272  
www.archetypesign.com/

**REGISTRATION**

Date: 12/21

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**KEY PLAN**



**ISSUE/REVISION**

| LR | DATE       | DESCRIPTION          |
|----|------------|----------------------|
| 1  | 04/19/2022 | For Information Only |

**PROJECT NUMBER**

60665998

**SHEET TITLE**

LOWER LEVEL OVERALL PLAN

**SHEET NUMBER**

A100

Designer: Designer Checked: Checker Approved: ARCH E: 30'x42'  
 Project Management Initials: 10R 0C 2ADA  
 EMS STORAGE  
 19R 7C 5ADA 4 EV  
 13(A) 5 EV (1)  
 12 (C) 7 EV (2)  
 16  
 14  
 30 EMS  
 MECH 014 3,271 SF  
 MECH 012 3,271 SF  
 STAIR B 011  
 STAIR A 010  
 ELEV LOBBY 007  
 ELEV COMM 009  
 ELEV 010  
 REST RM 005  
 MAIN ELEC SWITCH 017  
 DOCK  
 DOCK LEVELER BUMPER  
 DOCK RAMP DOWN  
 STORAGE TANKS  
 OPEN PARKING  
 EMS AMBULANCE PARKING  
 EMS SUPPORT PARKING  
 NEW MORGUE  
 EX CALL CENTER  
 EX WOODSHOP  
 EX SIM CENTER  
 NEW TUNNEL  
 EXISTING TUNNEL  
 00 LOWER LEVEL OVERALL PLAN  
 Scale: 1/16" = 1'-0"  
 A300  
 1  
 Printed on Recycled Content Paper







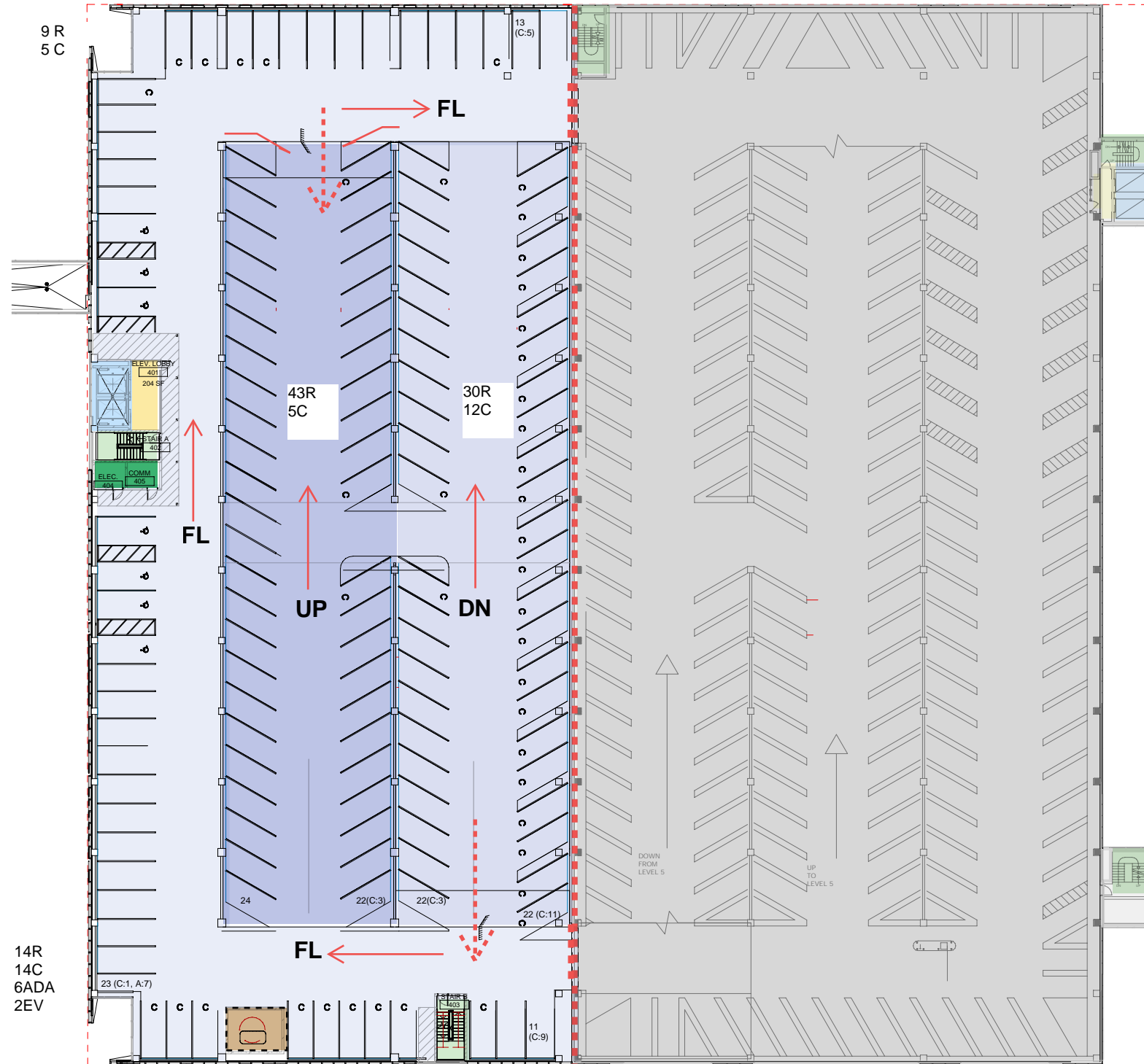




Designer: Designer Checked: Checker Approved: ARCH ET 30'x42'  
 Project Management Initials:

## RAMP EXPANSION

## EXISTING RAMP



### GENERAL NOTES - ARCHITECTURE

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### ARCHITECTURE PLAN SYMBOLS:

- NEW INTERIORS WORK IN EXISTING RAMP
- NOT IN SCOPE OF WORK
- SOIL FILL
- ACCESS ROUTE
- SOLAR PANEL ROOF
- WATERPROOF TRAFFIC COATING



### PROJECT

**HCMC Purple Ramp Expansion**  
 701 Park Ave South  
 Minneapolis, MN 55415

### CLIENT



Hennepin Healthcare (HHS)  
 www.hennepinhealthcare.org  
 Attn: Kyal Klawitter  
 Walker & Associates, a division of MecCraft  
 Vice President, Project Management  
 Direct 952.746.2225 | Mobile 612.250.3895  
 kklawitter@walkerusa.com | www.walkerusa.com

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 www.lerchbates.com/en-US/

#### SIGNAGE

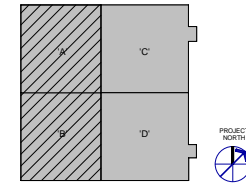


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### REGISTRATION

Date: 04/19/2022

### KEY PLAN



### ISSUE/REVISION

| LR | DATE       | DESCRIPTION          |
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| 1  | 04/19/2022 | For Information Only |

### PROJECT NUMBER

60665998

### SHEET TITLE

4TH LEVEL OVERALL PLAN

### SHEET NUMBER

A105

1 | **04 FOURTH LEVEL OVERALL PLAN**  
 A300 Scale: 1/16" = 1'-0"

SHEET: 101 - FLOOR PLANS - ARCHITECTURE - 04 - 04 FOURTH LEVEL OVERALL PLAN  
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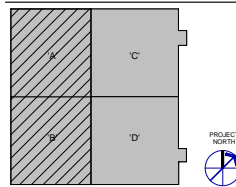
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## GENERAL NOTES - ARCHITECTURE

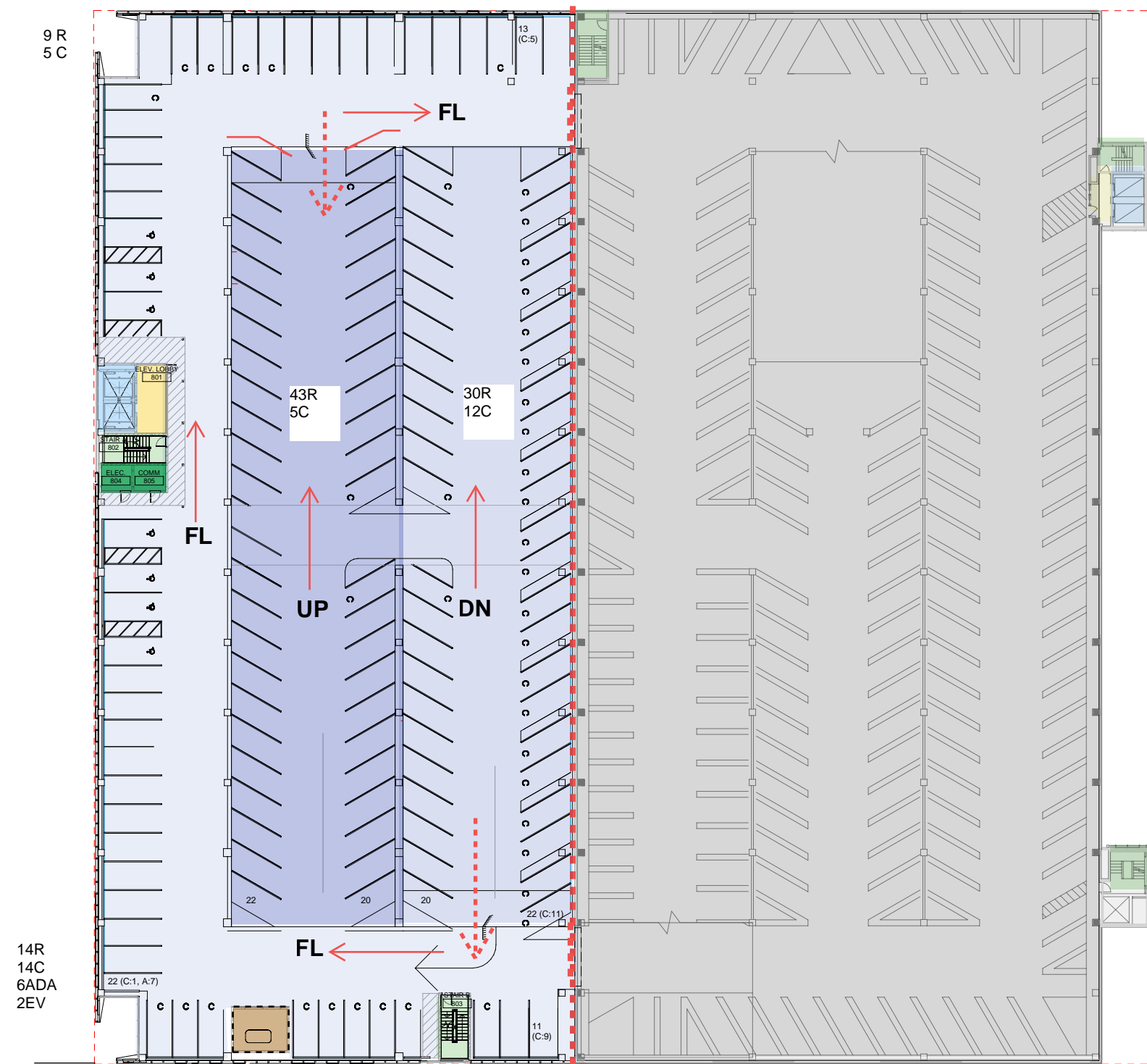
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- WATERPROOF TRAFFIC COATING

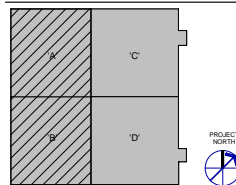
## RAMP EXPANSION

## EXISTING RAMP



08 EIGHTH LEVEL OVERALL PLAN

Scale: 1/16" = 1'-0"



| LR | DATE       | DESCRIPTION          |
|----|------------|----------------------|
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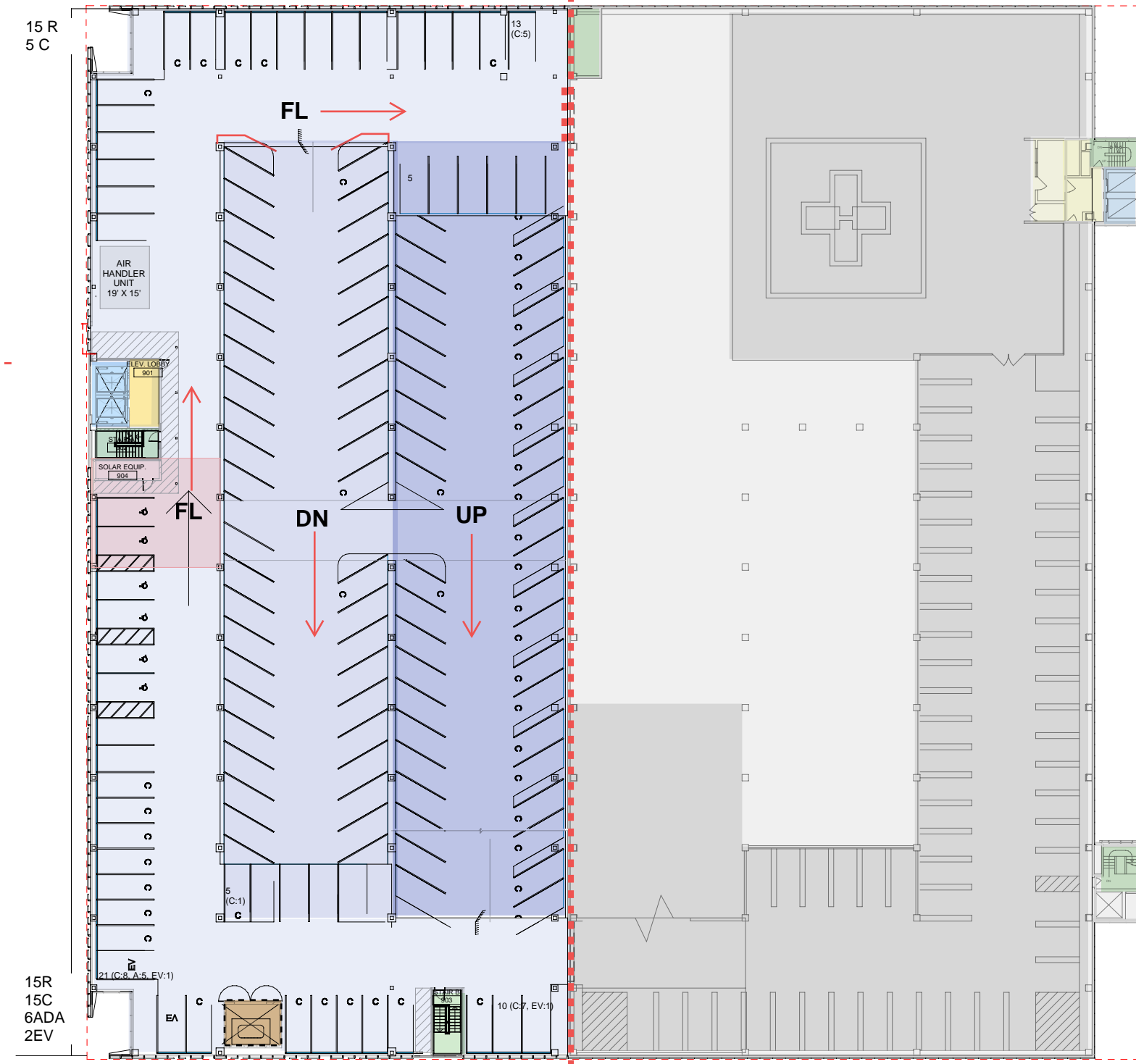
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- WATERPROOF TRAFFIC COATING

## RAMP EXPANSION

## EXISTING RAMP



15R  
5C

AIR HANDLER UNIT  
19' X 15'

ELEV. LOBBY  
901

SOLAR EQUIP.  
904

15R  
15C  
6ADA  
2EV

21 (C:8, A:5, EV:1)

EA

C

C

C

C

C

C

C

10 (C:7, EV:1)

13 (C:5)

FL

DN

UP

5 (C:1)

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|-----|------------|----------------------|
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**GENERAL NOTES:**

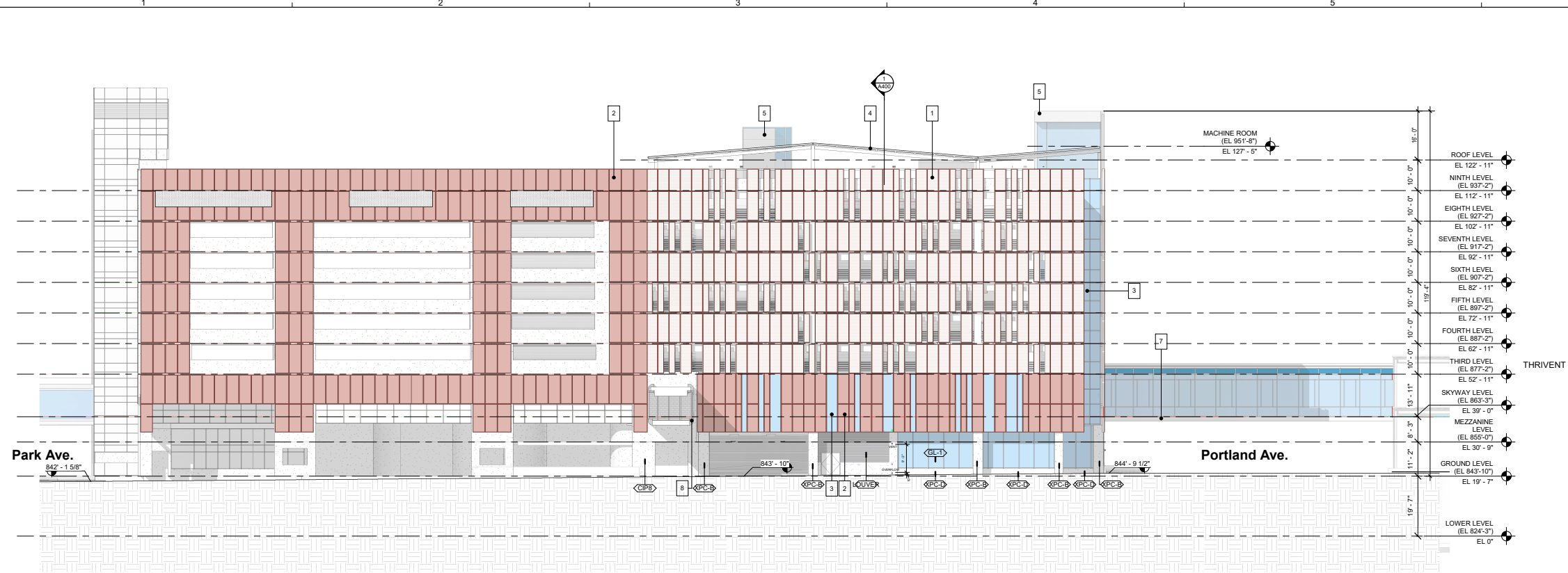
- SEE SHEET A001 FOR ABBREVIATIONS, TYPICAL INFO, INDICATION OF MATERIALS, SYMBOLS, GENERAL NOTES AND PROJECT INFORMATION.
- PAINT ALL EXISTING METAL PANEL XPT-1, (AA-5)
- REPAIR AND PAINT ALL EXISTING WINDOW MULLIONS XPT-2, (AA-5)

**EXTERIOR MATERIALS:**

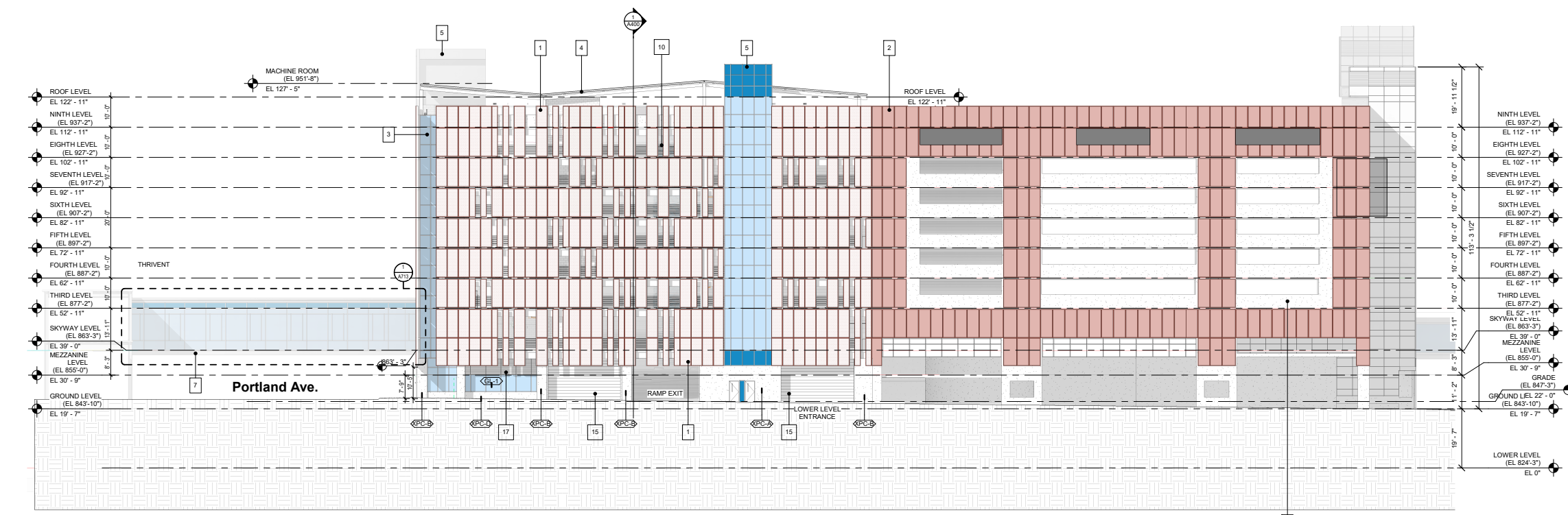
- GL-1: GLAZING WALL
- XMP-A: COMPOSITE METAL PANEL
- XMP-B: COMPOSITE METAL PANEL
- XMP-C: COMPOSITE METAL PANEL
- XCMU-A: CMU WALL
- XCMU-B: CMU WALL
- XPC-A: PC WALL
- XPC-B: PC WALL
- XPC-C: PC WALL
- XPC-D: PC WALL
- CMU: 8" CONCRETE MASONRY UNIT
- CIP: CAST IN PLACE CONCRETE
- XMP-S: SCREEN WALL

**EXTERIOR KEY NOTES:**

- 1 PERFORATED METAL PANEL
- 2 SOLID ALUM. METAL PANEL
- 3 CURTAIN WALL SYSTEM
- 4 SOLAR ROOF PANEL W/ STRUCTURE
- 5 STAR & ELEVATOR TOWER
- 6 EXISTING PC PANEL
- 7 NEW SKYWAY
- 8 EXISTING SKYWAY
- 9 DIGITAL SCREEN
- 10 CABLE BARRIER
- 11 SNOW CHUTE
- 12 NEW TUNNEL
- 13 EXISTING TUNNEL
- 14 EMERGENCY GENERATOR
- 15 OVERHEAD DOOR
- 16 GATE DOOR
- 17 LOUVER



**1**  
A100  
**Elevation - 6th st(North)**  
Scale: 1/16" = 1'-0"



**2**  
A100  
**Elevation - 7th st(South)**  
Scale: 1/16" = 1'-0"

FOR INFORMATION ONLY  
NOT FOR CONSTRUCTION

Designer: Designer Checked: Checker Approved: ARCH E: 30"x42"  
 Project Management Initials:  
 04/19/2022 1:27:49 PM  
 04/19/2022 1:27:49 PM  
 Printed on Recycled Content Paper





| NO. | DATE       | DESCRIPTION          |
|-----|------------|----------------------|
| 1   | 04/19/2022 | For Information Only |

**GENERAL NOTES:**

- SEE SHEET A001 FOR ABBREVIATIONS, TYPICAL INFO, INDICATION OF MATERIALS, SYMBOLS, GENERAL NOTES AND PROJECT INFORMATION
- PAINT ALL EXISTING METAL PANEL XPT-1, (AA-5)
- REPAIR AND PAINT ALL EXISTING WINDOW MULLIONS XPT-2, (AA-5)

**EXTERIOR MATERIALS:**

- GL-1: GLAZING WALL
- XMP-A: COMPOSITE METAL PANEL
- XMP-B: COMPOSITE METAL PANEL
- XMP-C: COMPOSITE METAL PANEL
- XCMU-A: CMU WALL
- XCMU-B: CMU WALL
- XPC-A: PC WALL
- XPC-B: PC WALL
- XPC-C: PC WALL
- XPC-D: PC WALL
- CMU: 8" CONCRETE MASONRY UNIT
- CIP: CAST IN PLACE CONCRETE
- XMP-S: SCREEN WALL

**EXTERIOR KEY NOTES:**

- 1 PERFORATED METAL PANEL
- 2 SOLID ALUM. METAL PANEL
- 3 CURTAIN WALL SYSTEM
- 4 SOLAR ROOF PANEL W/ STRUCTURE
- 5 STAIR & ELEVATOR TOWER
- 6 EXISTING PC PANEL
- 7 NEW SKYWAY
- 8 EXISTING SKYWAY
- 9 DIGITAL SCREEN
- 10 CABLE BARRIER
- 11 SNOW CHUTE
- 12 NEW TUNNEL
- 13 EXISTING TUNNEL
- 14 EMERGENCY GENERATOR
- 15 OVERHEAD DOOR
- 16 GATE DOOR
- 17 LOUVER



SEVENTH STREET & PARK AVENUE VIEW



PORTLAND AVENUE & SIXTH STREET VIEW

Designer: Designer Checked: Checker Approved: Approver: ARCH ET 30"x42"

Project Management Initials:

REVISIONS: 001 - EXTERIOR VIEWS REVISED TO REFLECT ARCHITECTURAL CHANGES TO EXTERIOR VIEWS  
User Printed: 04/19/2022 1:39:53 PM  
Filename: 04/19/2022 1:39:53 PM - HCMC Purple Ramp Expansion - County: Hennepin - County: Hennepin - Job: HCMC\_Park







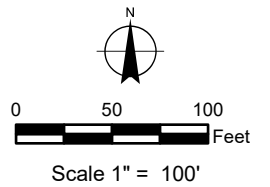






Data Sources: Hennepin County Geologic Atlas (2018), Hennepin County GIS, MNDOT

- Project Area
- Surficial Geology (MN Geological Survey)
- Sand



**BRAUN  
INTERTEC**  
The Science You Build On.

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Minneapolis, MN 55438  
952.995.2000  
braunintertec.com

Project No:  
B2110233

---

Drawing No:  
Fig6A\_SurficialGeol

---

Drawn By: SL  
Date Drawn: 1/31/2022  
Checked By: TF  
Last Modified: 3/7/2022

Purple Ramp Expansion

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600 Park Avenue

---

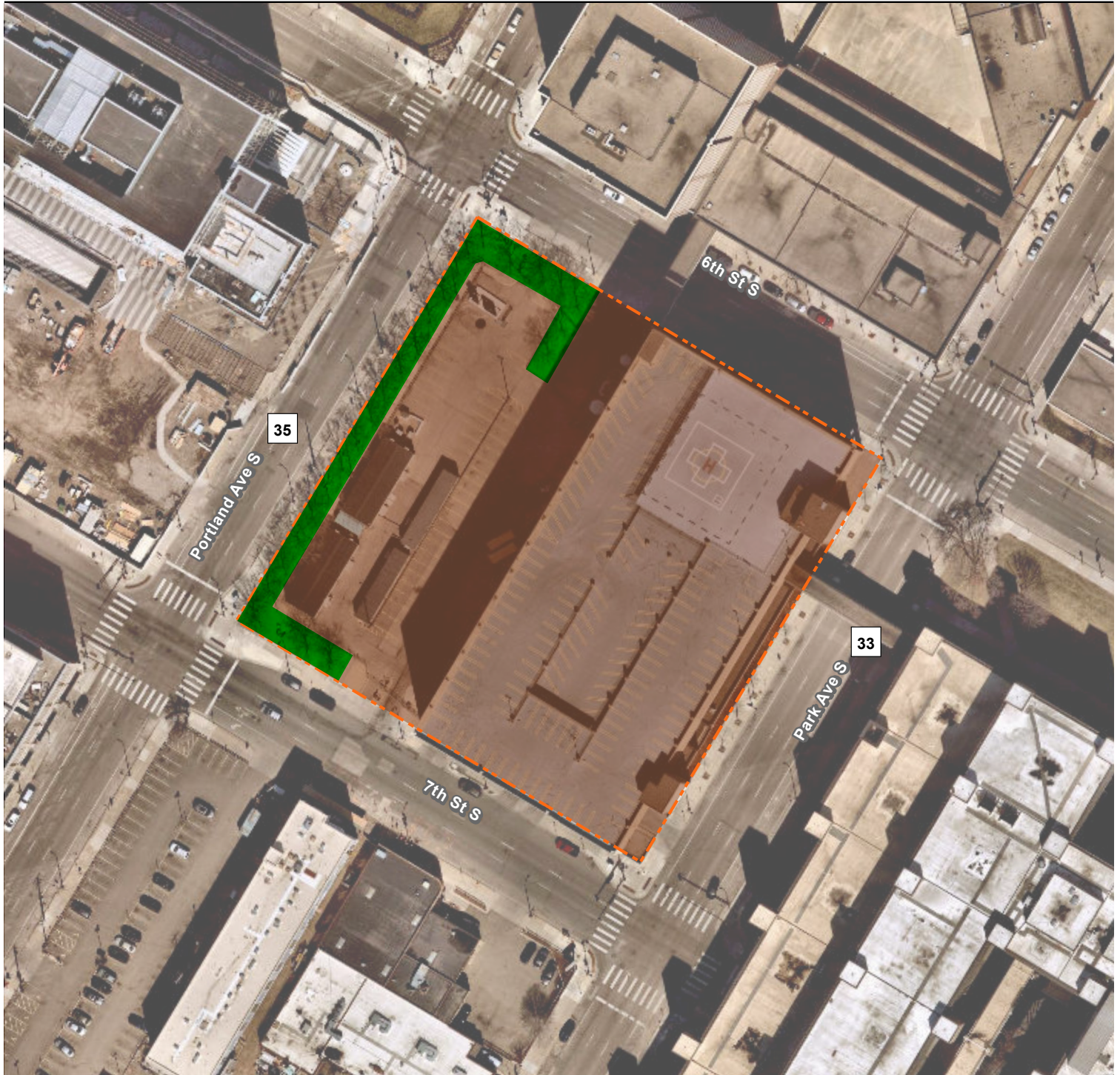
Minneapolis, Minnesota

**Surficial  
Geology**

---

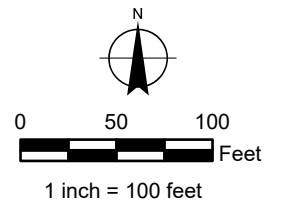
Figure 6A





Data Sources: Hennepin County GIS, MNDOT

- Project Area (apprx. 2.51 acres)
- Impervious Land Cover (100% / apprx. 2.29 acres)
- Lawn/Landscaping (apprx. 0.22 acres)

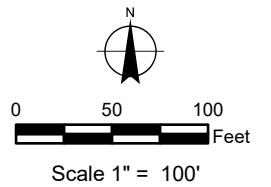






Data Sources: Hennepin County Geologic Atlas (2018), Hennepin County GIS, MNDOT

- Project Area
- Hennepin County Bedrock Geology
- Platteville and Glenwood Formations



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Project No:  
B2110233

---

Drawing No:  
Fig6B\_BedrockGeol

---

Drawn By: SL  
Date Drawn: 1/31/2022  
Checked By: TF  
Last Modified: 3/7/2022

Purple Ramp Expansion

---

600 Park Avenue

---

Minneapolis, Minnesota

**Bedrock  
Geology**

---

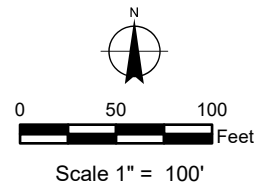
Figure 6B





Data Sources: USDA NRCS Web Soil Survey, MNDOT

- Project Area
- Soil Classification
- Entisols



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Project No:  
B2110233

---

Drawing No:  
Fig7\_CountySoilSurvey

---

Drawn By: SL  
Date Drawn: 1/31/2022  
Checked By: TF  
Last Modified: 3/7/2022

Purple Ramp Expansion

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600 Park Avenue

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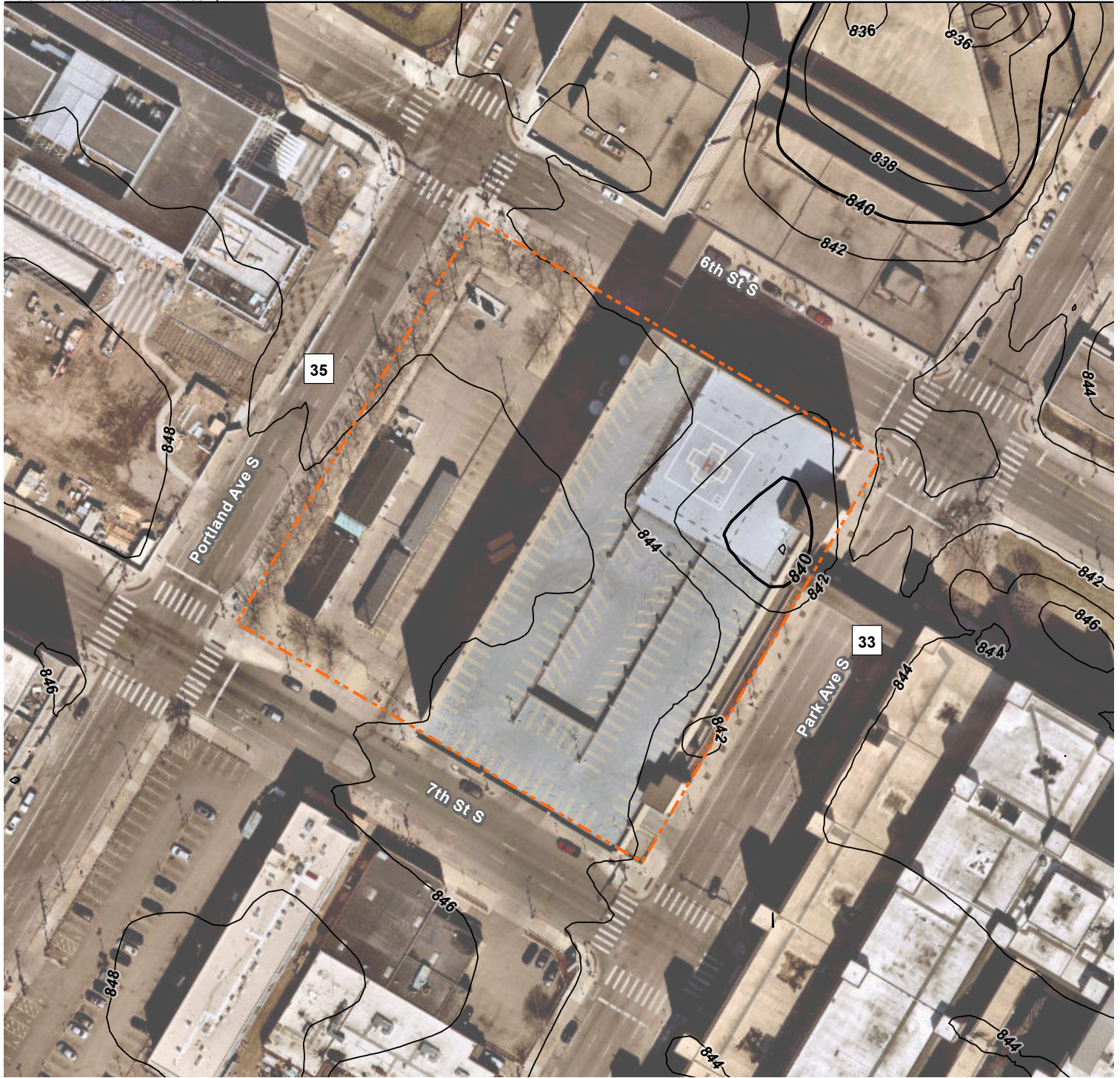
Minneapolis, Minnesota

**County Soil  
Survey**

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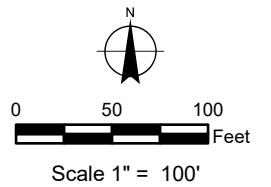
**Figure 7**





Data Sources: USDA NRCS Web Soil Survey, MNDOT

- Project Area
- MnTOPO Surface Contours
- 2' Intermediate Contour
- 10' Index Contour



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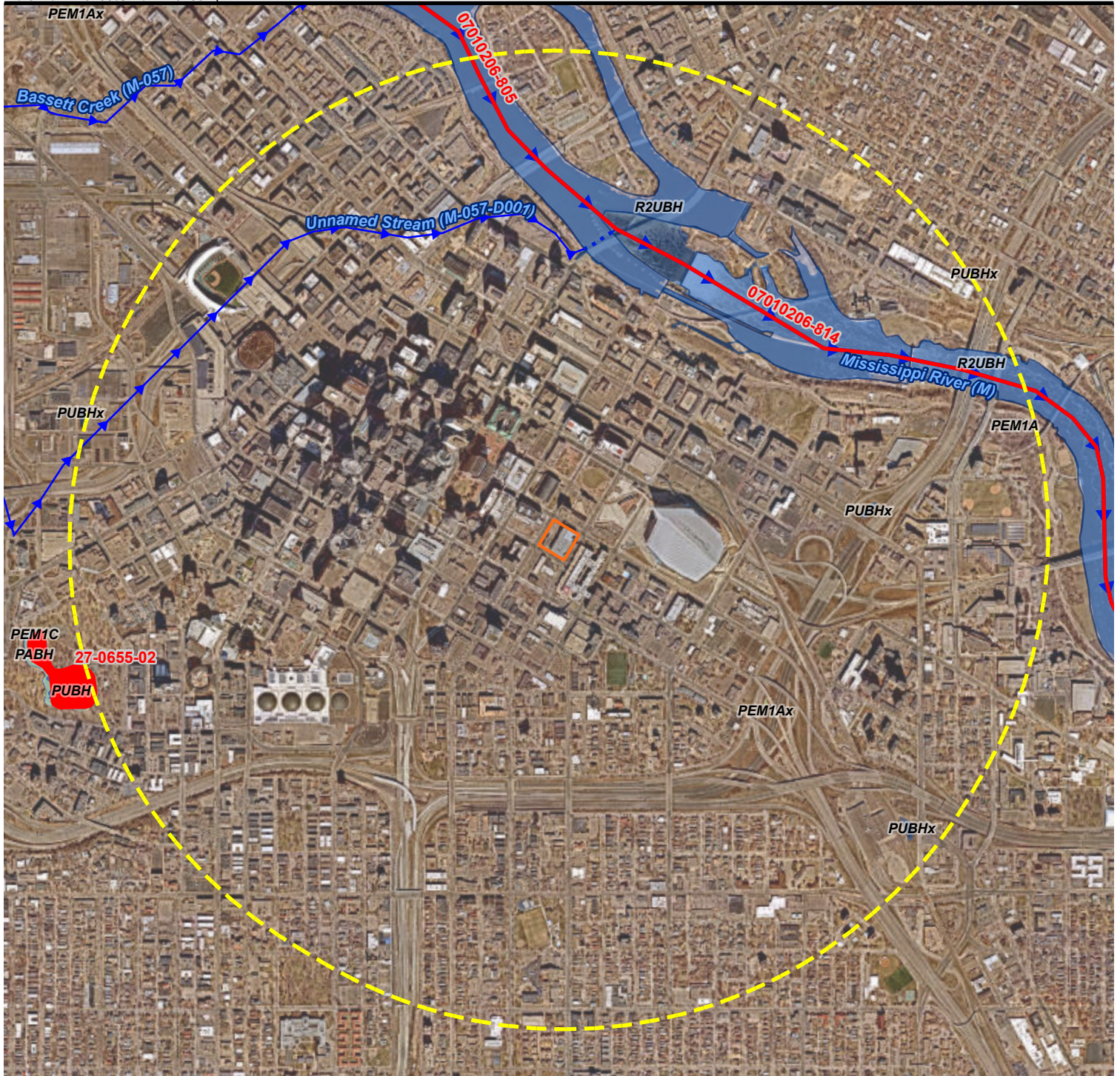
|                                |           |
|--------------------------------|-----------|
| Project No:<br>B2110233        |           |
| Drawing No:<br>Fig8_Topography |           |
| Drawn By:                      | SL        |
| Date Drawn:                    | 1/31/2022 |
| Checked By:                    | TF        |
| Last Modified:                 | 3/7/2022  |

|                        |
|------------------------|
| Purple Ramp Expansion  |
| 600 Park Avenue        |
| Minneapolis, Minnesota |

**Topography Map**

Figure 8





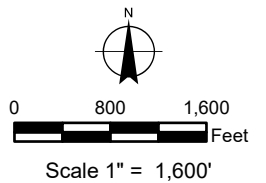
Data Sources: MnDNR, MNDOT, USGS

- Project Area
- 1 Mile Radius
- MPCA Impaired Stream
- MPCA Impaired Lake

- DNR Rivers and Streams Type**
- Centerline (River)
  - - - Connector
  - · - · - Stream (Intermittent)
  - Stream (Perennial)
  - · - Stream (Unknown)

- DNR PWI**
- Island or Land
  - Lake or Pond
  - Riverine island
  - Riverine polygon

- NWI Cowardin Class**
- Aquatic Bed/Nonpersistent Emergent
  - Emergent
  - Forested
  - Unconsolidated Bottom (Open Water)



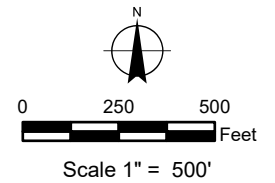




Data Sources: MN Dept. of Health, Hennepin County GIS, MNDOT

- Project Area
- Quarter Mile Radius
- Wellhead Protection Areas

- Minnesota Well Index
- Commercial
  - Elevator
  - Industrial
  - Public Supply/Non-Community
  - Piezometer
  - Unknown



**Note: There are no Wellhead Protection Areas within one mile of the Project Area.**



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Project No:  
B2110233

---

Drawing No:  
Fig10\_WellsWHPA

---

Drawn By: SL  
Date Drawn: 1/31/2022  
Checked By: TF  
Last Modified: 3/7/2022

Purple Ramp Expansion

---

600 Park Avenue

---

Minneapolis, Minnesota

**Wells & Wellhead Protection Areas**

Figure 10

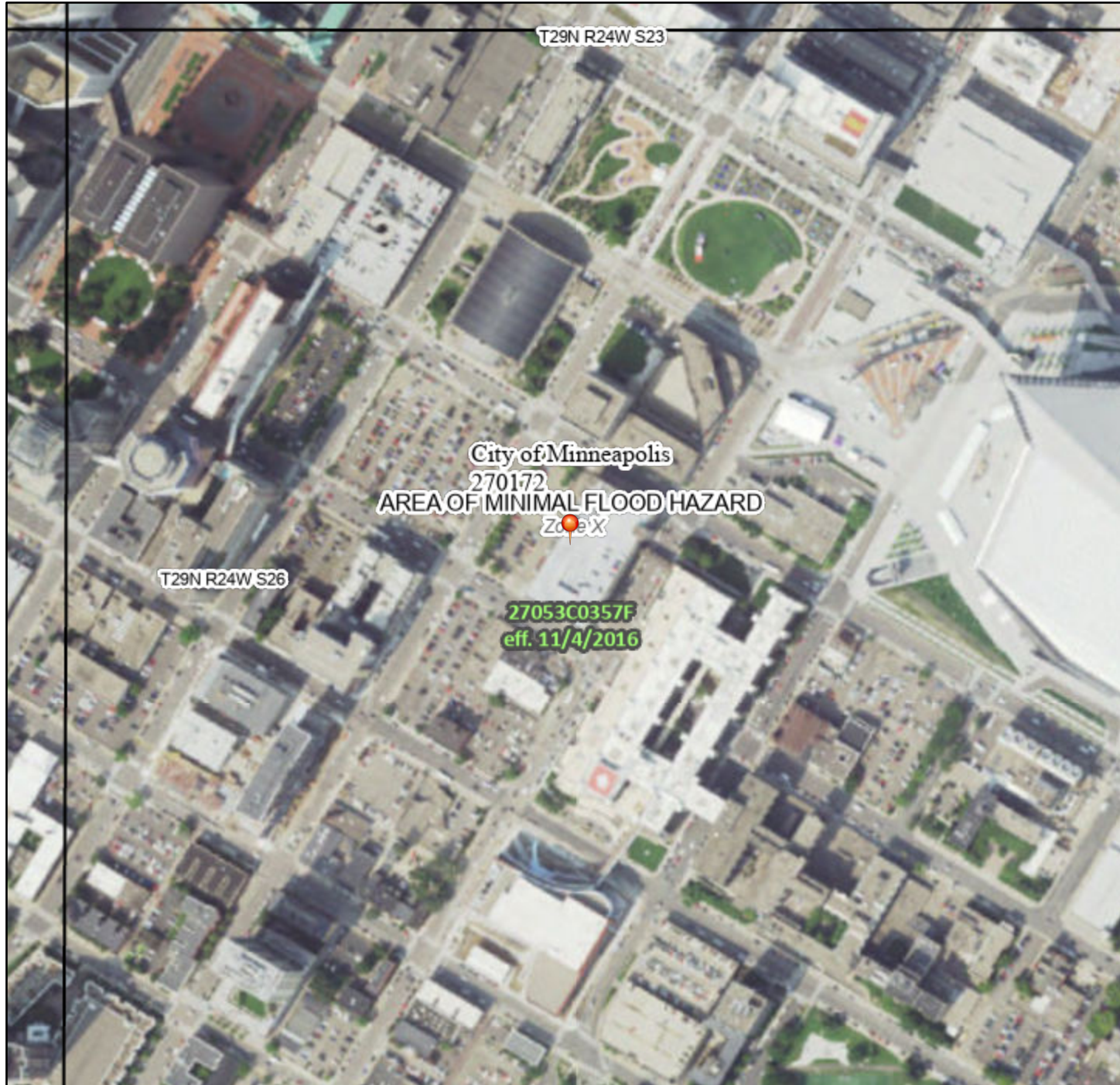


**Appendix A**  
**FEMA Flood Map**

# National Flood Hazard Layer FIRMette



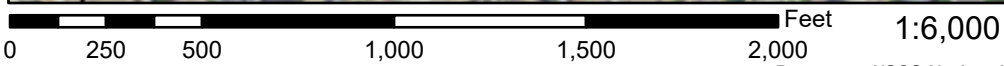
93°16'5"W 44°58'38"N



## Legend

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

- |                                    |  |  |
|------------------------------------|--|--|
| <b>SPECIAL FLOOD HAZARD AREAS</b>  |  | Without Base Flood Elevation (BFE)<br><i>Zone A, V, A99</i>  |
|                                    |  | With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>   |
|                                    |  | Regulatory Floodway  |
| <b>OTHER AREAS OF FLOOD HAZARD</b> |  | 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 <i>Zone X</i> |
|                                    |  | Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>  |
|                                    |  | Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>  |
|                                    |  | Area with Flood Risk due to Levee <i>Zone D</i>  |
| <b>OTHER AREAS</b>                 |  | NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>   |
|                                    |  | Effective LOMRs  |
| <b>GENERAL STRUCTURES</b>          |  | Area of Undetermined Flood Hazard <i>Zone D</i>  |
|                                    |  | Channel, Culvert, or Storm Sewer   |
|                                    |  | Levee, Dike, or Floodwall  |
| <b>OTHER FEATURES</b>              |  | 20.2 Cross Sections with 1% Annual Chance  |
|                                    |  | 17.5 Water Surface Elevation   |
|                                    |  | Coastal Transect   |
|                                    |  | Base Flood Elevation Line (BFE)  |
|                                    |  | Limit of Study   |
| <b>MAP PANELS</b>                  |  | Jurisdiction Boundary  |
|                                    |  | Coastal Transect Baseline  |
|                                    |  | Profile Baseline   |
|                                    |  | Hydrographic Feature   |
|                                    |  | Digital Data Available   |
|                                    |  | No Digital Data Available  |
|                                    |  | Unmapped   |
|                                    |  | The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.                                     |



93°15'28"W 44°58'12"N

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

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 **3/7/2022 at 5:58 PM** 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.

## **Appendix B**

### **USFWS IPaC Trust Resources Report**



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Minnesota-Wisconsin Ecological Services Field Office

4101 American Blvd E

Bloomington, MN 55425-1665

Phone: (952) 252-0092 Fax: (952) 646-2873

<http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html>

In Reply Refer To:

January 18, 2022

Consultation Code: 03E19000-2022-SLI-1392

Event Code: 03E19000-2022-E-04680

Project Name: HCMC Purple Ramp Expansion

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

### **Threatened and Endangered Species**

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS IPaC website at regular intervals during project planning and implementation

for updates to species lists and information. An updated list may be requested through the ECOS IPaC system by completing the same process used to receive the enclosed list.

### Consultation Technical Assistance

Please refer to the Midwest Region [S7 Technical Assistance](#) website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

### Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example ["No Effect" document](#) also can be found on the S7 Technical Assistance website.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain [Life History Information for Listed and Candidate Species](#) through the S7 Technical Assistance website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **No Effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example ["No Effect" document](#) also can be found on the S7 Technical Assistance website.
3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

### Northern Long-Eared Bats

---



Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

This species hibernates in caves or mines only during the winter. In Minnesota and Wisconsin, the hibernation season is considered to be November 1 to March 31. During the active season (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags  $\geq 3$  inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
  - Any activity in or near the entrance to a cave or mine,
  - Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
  - Construction of one or more wind turbines, or
-

- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

*If none of the above activities are proposed*, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "[No Effect](#)" [document](#) also can be found on the S7 Technical Assistance website.

*If any of the above activities are proposed*, please use the northern long-eared bat determination key in IPaC. This tool streamlines consultation under the 2016 rangewide programmatic biological opinion for the 4(d) rule. The key helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. No further review by us is necessary. Please visit the links below for additional information about "may affect" determinations for the northern long-eared bat.

[NLEB Section 7 consultation](#)

[Key to the NLEB 4\(d\) rule for federal actions that may affect](#)

[Instructions for the NLEB 4\(d\) assisted d-key](#)

[Maternity tree and hibernaculum locations by state](#)

### **Other Trust Resources and Activities**

*Bald and Golden Eagles* - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

*Migratory Birds* - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

---



*Communication Towers* - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed [voluntary guidelines for minimizing impacts](#).

*Transmission Lines* - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to [guidelines](#) developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

*Wind Energy* - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's [Wind Energy Guidelines](#). In addition, please refer to the Service's [Eagle Conservation Plan Guidance](#), which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

### **State Department of Natural Resources Coordination**

While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.

#### *Minnesota*

[Minnesota Department of Natural Resources - Endangered Resources Review Homepage](#)

Email: [Review.NHIS@state.mn.us](mailto:Review.NHIS@state.mn.us)

#### *Wisconsin*

[Wisconsin Department of Natural Resources - Endangered Resources Review Homepage](#)

Email: [DNRERReview@wi.gov](mailto:DNRERReview@wi.gov)

---

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
  - Migratory Birds
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Minnesota-Wisconsin Ecological Services Field Office**

4101 American Blvd E

Bloomington, MN 55425-1665

(952) 252-0092

---



## Project Summary

Consultation Code: 03E19000-2022-SLI-1392

Event Code: Some(03E19000-2022-E-04680)

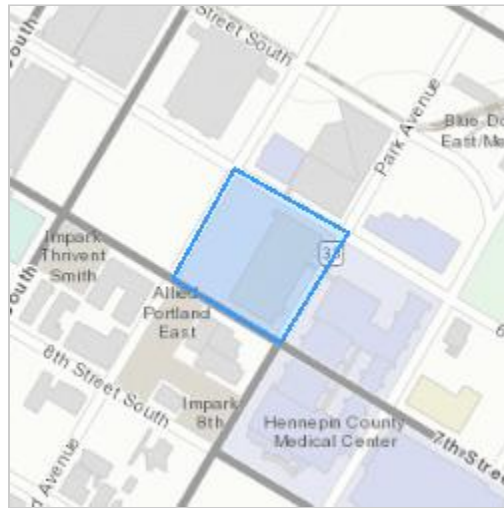
Project Name: HCMC Purple Ramp Expansion

Project Type: DEVELOPMENT

Project Description: The proposed project will include expansion of the existing parking ramp. Construction is anticipated to begin later in 2022 or 2023.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.97363325,-93.26297968211564,14z>



Counties: Hennepin County, Minnesota

---

## Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Mammals

| NAME   | STATUS     |
|--|------------|
| Northern Long-eared Bat <i>Myotis septentrionalis</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a> | Threatened |

### Clams

| NAME   | STATUS     |
|--|------------|
| Higgins Eye (pearlymussel) <i>Lampsilis higginsii</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/5428">https://ecos.fws.gov/ecp/species/5428</a>   | Endangered |
| Snuffbox Mussel <i>Epioblasma triquetra</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/4135">https://ecos.fws.gov/ecp/species/4135</a>   | Endangered |
| Winged Mapleleaf <i>Quadrula fragosa</i><br>Population: Wherever found, except where listed as an experimental population<br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/4127">https://ecos.fws.gov/ecp/species/4127</a> | Endangered |

---

## Insects

| NAME  | STATUS     |
|---|------------|
| <b>Monarch Butterfly <i>Danaus plexippus</i></b><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>   | Candidate  |
| <b>Rusty Patched Bumble Bee <i>Bombus affinis</i></b><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/9383">https://ecos.fws.gov/ecp/species/9383</a><br>General project design guidelines:<br><a href="https://ecos.fws.gov/ipac/project/BUDQ6TW5T5HZ3PSH22L7GS33WM/documents/generated/5967.pdf">https://ecos.fws.gov/ipac/project/BUDQ6TW5T5HZ3PSH22L7GS33WM/documents/generated/5967.pdf</a> | Endangered |

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



## Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

- 
1. The [Migratory Birds Treaty Act](#) of 1918.
  2. The [Bald and Golden Eagle Protection Act](#) of 1940.
  3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME   | BREEDING SEASON         |
|--|-------------------------|
| Bald Eagle <i>Haliaeetus leucocephalus</i><br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br><a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a> | Breeds Dec 1 to Aug 31  |
| Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br><a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a>  | Breeds May 15 to Oct 10 |

| NAME  | BREEDING SEASON         |
|---|-------------------------|
| Canada Warbler <i>Cardellina canadensis</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.   | Breeds May 20 to Aug 10 |
| Cerulean Warbler <i>Dendroica cerulea</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br><a href="https://ecos.fws.gov/ecp/species/2974">https://ecos.fws.gov/ecp/species/2974</a>          | Breeds Apr 22 to Jul 20 |
| Eastern Whip-poor-will <i>Antrostomus vociferus</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.   | Breeds May 1 to Aug 20  |
| Golden-winged Warbler <i>Vermivora chrysoptera</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br><a href="https://ecos.fws.gov/ecp/species/8745">https://ecos.fws.gov/ecp/species/8745</a> | Breeds May 1 to Jul 20  |
| Lesser Yellowlegs <i>Tringa flavipes</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br><a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a>           | Breeds elsewhere        |
| Red-headed Woodpecker <i>Melanerpes erythrocephalus</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.   | Breeds May 10 to Sep 10 |
| Rusty Blackbird <i>Euphagus carolinus</i><br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  | Breeds elsewhere        |
| Short-billed Dowitcher <i>Limnodromus griseus</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br><a href="https://ecos.fws.gov/ecp/species/9480">https://ecos.fws.gov/ecp/species/9480</a>  | Breeds elsewhere        |
| Wood Thrush <i>Hylocichla mustelina</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.   | Breeds May 10 to Aug 31 |

## Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

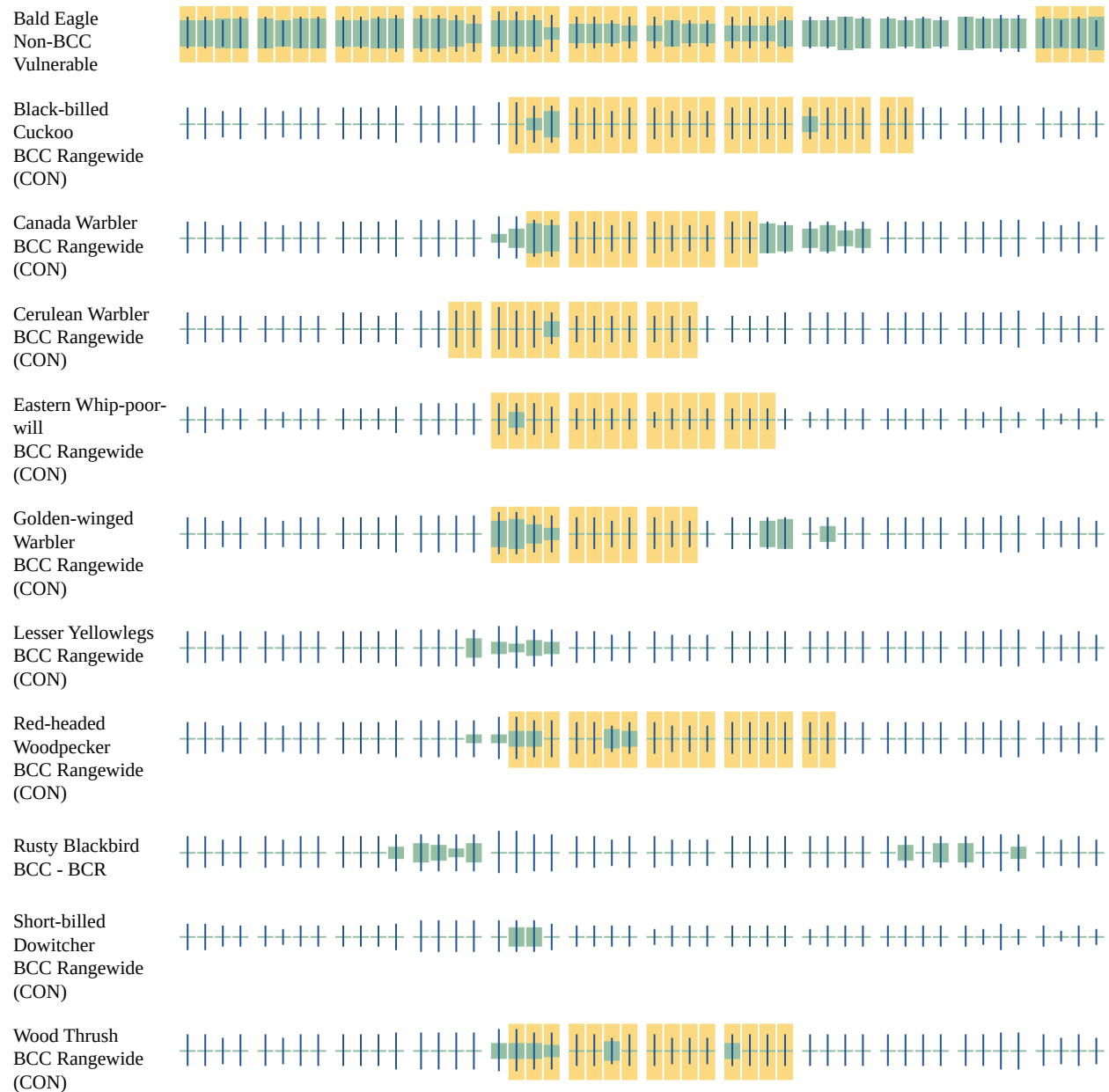
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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■ probability of presence   ■ breeding season   | survey effort   — no data

SPECIES    JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC

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Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>



## Migratory Birds FAQ

**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your

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project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### **What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### **Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### **What if I have eagles on my list?**

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### **Proper Interpretation and Use of Your Migratory Bird Report**

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no

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data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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**Appendix C**  
**SHPO Correspondence**



March 2, 2022

Megan Ullery  
Braun Intertec  
11001 Hampshire Ave S  
Minneapolis, MN 55438

RE: HCMC Purple Ramp Expansion  
Construction of a ground level clinic and parking ramp  
Portland Avenue between 6<sup>th</sup> Street South and 7<sup>th</sup> Street South  
Minneapolis, Hennepin County  
SHPO Number: 2022-0811

Dear Megan Ullery:

Thank you for consulting with our office during the preparation of an Environmental Assessment Worksheet for the above-referenced project.

Based on the information provided, it is our opinion that there is a low likelihood for intact archaeological resources being present within the proposed project area. Therefore, we do not believe that an archaeological survey is warranted for the project as it is currently proposed. The Minneapolis Armory, located at 500 6<sup>th</sup> Street South, is listed in the National Register of Historic Places. This property is located at the NW corner of Portland Avenue and 6<sup>th</sup> Street South, kitty-corner from the proposed parking ramp expansion. Based on information that is available to us at this time, we conclude that there are **no properties** listed in the National or State Registers of Historic Places and no known or suspected archaeological properties in the area that will be affected by this project.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

Please contact Kelly Gragg-Johnson in our Environmental Review Program at [kelly.graggjohnson@state.mn.us](mailto:kelly.graggjohnson@state.mn.us) if you have any questions regarding our review of this project.

Sincerely,



Sarah J. Beimers  
Environmental Review Program Manager

**Appendix D**  
**Greenhouse Gas Calculations**

Hennepin Healthcare Purple Ramp Expansion Project  
 Project: B2110233  
 Greenhouse Gas Emissions Summary

**Direct Emissions**

| <b>Operations - Facility Fuel Combustion Sources</b> |                 |                 |                  |            |                   |
|--|-----------------|-----------------|------------------|------------|-------------------|
|  | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Mass Sum   | CO <sub>2</sub> e |
|  | TPY             | TPY             | TPY              | TPY        | TPY               |
| Facility Natural Gas Use                             | 303             | 5.71E-03        | 5.71E-04         | 303        | 303               |
| Emergency Generator Engine                           | 105             | 4.19E-03        | 8.38E-04         | 105        | 105               |
| <b>Facility Total</b>                                | <b>407</b>      | <b>0.010</b>    | <b>1.41E-03</b>  | <b>407</b> | <b>408</b>        |

| <b>Operations - Mobile Source Combustion</b>    |  | CO <sub>2</sub> e |
|---|--|-------------------|
|   |  | TPY               |
| Mobile Sources (Onsite Operations) <sup>1</sup> |  | 0                 |

| <b>Construction - Mobile Source Combustion</b> |                 |                 |                  |          |                   |
|--|-----------------|-----------------|------------------|----------|-------------------|
|  | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Mass Sum | CO <sub>2</sub> e |
|  | TPY             | TPY             | TPY              | TPY      | TPY               |
| Mobile Sources (Construction)                  | 200             | 3.92E-03        | 9.20E-03         | 200      | 203               |

| <b>Construction - Land-Use</b>       |  | CO <sub>2</sub> e |
|--------------------------------------|--|-------------------|
|                                      |  | TPY               |
| Land-Use (Construction) <sup>2</sup> |  | 0                 |

|                               | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Mass Sum   | CO <sub>2</sub> e |
|-------------------------------|-----------------|-----------------|------------------|------------|-------------------|
|                               | TPY             | TPY             | TPY              | TPY        | TPY               |
| <b>Total Direct Emissions</b> | <b>607</b>      | <b>0.0138</b>   | <b>1.06E-02</b>  | <b>607</b> | <b>611</b>        |

**Indirect Emissions**

| <b>Operations - Off-Site Electricity Production</b> |                 |                 |                  |          |                   |
|---|-----------------|-----------------|------------------|----------|-------------------|
|   | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Mass Sum | CO <sub>2</sub> e |
|   | TPY             | TPY             | TPY              | TPY      | TPY               |
| Off-Site Electricity Production                     | 5,456           | 0.591           | 0.0844           | 5,457    | 5,496             |

| <b>Operations - Off-Site Waste Management</b> |  | CO <sub>2</sub> e |
|---|--|-------------------|
|   |  | TPY               |
| Off-Site Waste Management <sup>3</sup>        |  | 0                 |

|                                 | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Mass Sum     | CO <sub>2</sub> e |
|---------------------------------|-----------------|-----------------|------------------|--------------|-------------------|
|                                 | TPY             | TPY             | TPY              | TPY          | TPY               |
| <b>Total Indirect Emissions</b> | <b>5,456</b>    | <b>0.591</b>    | <b>0.0844</b>    | <b>5,457</b> | <b>5,496</b>      |

**Atmospheric Removals of GHGs**

| <b>Construction/Operations - Land-Use</b> |  | CO <sub>2</sub> e |
|---|--|-------------------|
|   |  | TPY               |
| Land-Use (Sinks) <sup>2</sup>             |  | 0                 |

|                    | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Mass Sum | CO <sub>2</sub> e |
|--------------------|-----------------|-----------------|------------------|----------|-------------------|
|                    | TPY             | TPY             | TPY              | TPY      | TPY               |
| <b>Total Sinks</b> | <b>0</b>        | <b>0</b>        | <b>0</b>         | <b>0</b> | <b>0</b>          |

**Total Emissions including Sinks = Direct Emissions + Indirect Emissions + Sinks**

|              | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Mass Sum     | CO <sub>2</sub> e |
|--------------|-----------------|-----------------|------------------|--------------|-------------------|
|              | TPY             | TPY             | TPY              | TPY          | TPY               |
| <b>Total</b> | <b>6,063</b>    | <b>0.605</b>    | <b>0.095</b>     | <b>6,064</b> | <b>6,107</b>      |

<sup>1</sup> Following the completion of the construction phase, emissions from vehicle traffic associated with onsite operations (deliveries, maintenance, etc.) are expected to be minimal and infrequent, and have not been quantified.

<sup>2</sup> Carbon flux associated with land-use changes is expected to be negligible and has not been quantified. The land-use category for the site prior to construction is "settlement" and will remain categorized as "settlement" after the project is completed.

**Hennepin Healthcare Purple Ramp Expansion Project**  
**Project: B2110233**  
**Source: Natural Gas Use**

| Natural Gas Use  |        |
|--|--------|
| <b>Assumptions:</b>  |        |
| <u>Enclosed stairwells, elevator lobby, and new skyway</u>   |        |
| Typical annual natural gas usage for space heating per square foot of commercial building floorspace <sup>5</sup> , cf/(year*ft <sup>2</sup> ) | 37.4   |
| Maximum enclosed stairwells, elevator lobby, and new skyway building floorspace, ft <sup>2</sup>   | 94,360 |
| Estimated natural gas use for stairwells, elevator lobby, and new skyway space heating, MMcf/year  | 3.5    |
| <u>Shell Space</u>   |        |
| Typical annual natural gas usage for water heating per square foot of commercial building floorspace <sup>5</sup> , cf/(year*ft <sup>2</sup> ) | 9.5    |
| Maximum shell space building floorspace, ft <sup>2</sup>   | 33,000 |
| Estimated natural gas use for shell space water heating, MMcf/year   | 0.31   |
| Typical annual natural gas usage for space heating per square foot of commercial building floorspace <sup>5</sup> , cf/(year*ft <sup>2</sup> ) | 37.4   |
| Estimated natural gas use for shell space building space heating, MMcf/year  | 1.23   |
| <u>Total Project</u>   |        |
| Estimated total annual natural gas use, MMcf/year  | 5.1    |
| Heating Value of Natural Gas <sup>1</sup> , Btu/scf  | 1,020  |
| <b>Conversion Factors:</b>   |        |
| lb/ton   | 2,000  |
| lb/kg  | 2.204  |
| cf/Therm   | 73.0   |
| CO <sub>2</sub> to CO <sub>2</sub> e   | 1      |
| CH <sub>4</sub> to CO <sub>2</sub> e   | 25     |
| N <sub>2</sub> O to CO <sub>2</sub> e  | 298    |

| Pollutant                      | EPA Pollutant Type | 40 CFR Part 98 <sup>2,3</sup> (lb/MMBtu) | Estimated Annual Emissions From Natural Gas Combustion (TPY) |
|--------------------------------|--------------------|--|--|
| CO <sub>2</sub> e <sup>4</sup> | GHG                | 117.07                                   | 303  |
| CO <sub>2</sub> <sup>2</sup>   | GHG                | 116.94                                   | 303  |
| CH <sub>4</sub> <sup>3</sup>   | GHG                | 0.0022                                   | 5.71E-03   |
| N <sub>2</sub> O <sup>3</sup>  | GHG                | 0.0002                                   | 5.71E-04   |

1 Heating value of natural gas taken from AP-42 Appendix A. Typical Parameters of Various Fuels.

2 CO<sub>2</sub> emission factor from 40 CFR 98 Subpart C, Table C-1 (natural gas 53.06 kg CO<sub>2</sub>/MMBtu), November 29, 2013.

3 CH<sub>4</sub> and N<sub>2</sub>O emission factors from 40 CFR 98 Subpart C, Table C-2 (natural gas CH<sub>4</sub> = 0.001 kg CH<sub>4</sub>/MMBtu and N<sub>2</sub>O = 0.0001 kg N<sub>2</sub>O/MMBtu), November 29, 2013.

4 CO<sub>2</sub>e emissions are based on global warming potential from 40 CFR 98 Subpart A, Table A-1 (CO<sub>2</sub>=1, CH<sub>4</sub>=25, and N<sub>2</sub>O=298), November 29, 2013.

5 U.S. Energy Information Administration (US EIA), "Commercial Buildings Energy Consumption Survey, Table C30. Natural gas consumption and conditional energy intensity by climate region, 2012," May 2016 <https://www.eia.gov/consumption/commercial/data/2012/c&e/cfm/c30.php> ("Very cold/Cold" climate region)

6 U.S. Energy Information Administration (US EIA), "Natural gas consumption and conditional energy intensities (cubic feet) by end use, 2012," May 2016 <https://www.eia.gov/consumption/commercial/data/2012/c&e/cfm/e8.php>. It is assumed that natural gas will be used for water heating.

**Sample Calculations**

Natural gas usage for space heating in stairwells/lobby/skyway (million standard cubic feet per year (MMscf/yr)) = Typical commercial space heating natural gas usage (37.4 cf/year\*ft<sup>2</sup>) x square footage (94,360 ft<sup>2</sup>) x (1 MMcf / 10<sup>6</sup> cf) = 3.5 MMcf/year

Estimated total annual natural gas use (MMcf/year) = natural gas use from stairwell/lobby/skyway space heating (3.5 MMcf/year) + natural gas use from water heating (0.31 MMcf/year) + natural gas use from shell space space heating (1.23 MMcf/year) = 5.1 MMcf/year

CO<sub>2</sub> emissions from natural gas combustion (tons/year) = estimated annual natural gas usage (5.1 MMcf/year) x heating value of natural gas (1,020 Btu/cf) x CO<sub>2</sub> emission factor (116.94 lb/MMBtu) x (1 ton/2000 lb) = 303 tons per year

CO<sub>2</sub>e emissions from natural gas combustion (tons/year) = {CO<sub>2</sub> emissions (303 tons/year) x CO<sub>2</sub> global warming potential (1)} + {CH<sub>4</sub> emissions (5x10<sup>-3</sup> tons/year) x CH<sub>4</sub> global warming potential (25)} + {N<sub>2</sub>O emissions (5x10<sup>-4</sup> tons/year) x N<sub>2</sub>O global warming potential (298)} = 303 tons per year



Hennepin Healthcare Purple Ramp Expansion Project  
 Project: B2110233  
 Source: Emergency Generator

| Emergency Generator                                 |           |
|---|-----------|
| <b>Assumptions:</b>                                 |           |
| Rated Capacity, Brake Horsepower (BHP) <sup>4</sup> | 389       |
| Diesel Fuel Consumption Rate, gal/hr <sup>4</sup>   | 18.5      |
| Rated Capacity, MMBtu/hr                            | 2.5       |
| Hours of Operation                                  | 500       |
| Fuel  | Diesel    |
| Density of diesel (lb/gal)                          | 7.1       |
| Heating value of diesel (Btu/lb)                    | 19,300    |
| <b>Conversion Factors:</b>                          |           |
| lb/ton  | 2,000     |
| lb/kg   | 2.204     |
| CO <sub>2</sub> to CO <sub>2</sub> e                | 1         |
| CH <sub>4</sub> to CO <sub>2</sub> e                | 25        |
| N <sub>2</sub> O to CO <sub>2</sub> e               | 298       |
| Btu/MMBtu   | 1,000,000 |

| Pollutant                     | EPA Pollutant Type | AP-42 Emission Factors <sup>1</sup> (lb/MMBtu) | 40 CFR Part 98 <sup>2,3</sup> (lb/MMBtu) | Hourly Emissions (lb/hr) | Annual Emissions (TPY) |
|-------------------------------|--------------------|--|--|--------------------------|------------------------|
| CO <sub>2</sub> e             | GHG                | -  | 166                                      | 420                      | 105                    |
| CO <sub>2</sub> <sup>1</sup>  | GHG                | 165  | -  | 418                      | 105                    |
| CH <sub>4</sub> <sup>2</sup>  | GHG                | -  | 0.007                                    | 0.0168                   | 4.19E-03               |
| N <sub>2</sub> O <sup>2</sup> | GHG                | -  | 0.0013                                   | 3.35E-03                 | 8.38E-04               |

1 The CO<sub>2</sub> emission factor is based on diesel fuel, AP-42 Chapter 3.4 Large Stationary Diesel And All Stationary Dual-fuel Engines, Table 3.4-1, October 1996.

2 CH<sub>4</sub> and N<sub>2</sub>O emission factors from 40 CFR 98 Subpart C, Table C-2. (CH<sub>4</sub> = 0.003 kg CH<sub>4</sub>/MMBtu and N<sub>2</sub>O = 0.0006 kg N<sub>2</sub>O/MMBtu), November 29, 2013.

3 CO<sub>2</sub>e emissions are based on global warming potential from 40 CFR 98 Subpart A, Table A-1 (CO<sub>2</sub>=1, CH<sub>4</sub>=25, and N<sub>2</sub>O=298), November 29, 2013.

4 Assumed engine power (389 hp) and fuel consumption rate (18.5 gal/hr) based on specifications of a typical 250 kW generator (Generac model SD250)

**Sample Calculations**

CO<sub>2</sub> emissions (tons/year) = rated capacity (2.5 MMBtu/hr) x CO<sub>2</sub> emission factor (165 lb/MMBtu) x operating hours (500 hours/year) x (1 ton/2000 lbs) = 105 tons/year

CO<sub>2</sub>e emissions (tons/year) = {CO<sub>2</sub> emissions (105 tons/year) x CO<sub>2</sub> global warming potential (1)} + {CH<sub>4</sub> emissions (4.19x10<sup>-3</sup> tons/year) x CH<sub>4</sub> global warming potential (25)} + {N<sub>2</sub>O emissions (8.38x10<sup>-4</sup> tons/year) x N<sub>2</sub>O global warming potential (298)} = 105 tons per year

Hennepin Healthcare Purple Ramp Expansion Project  
 Project: B2110233  
 Source: Mobile Sources - Construction Activities

Estimated Project Life 25 years  
 Project Total Floorspace: 501,743 ft<sup>2</sup>

| Vehicle Types  | Fuel type | Estimated Fuel Usage Per Square Foot of Building Floorspace (gal/sq. ft) <sup>1</sup> | Estimated Total Fuel Usage During Construction Period (gallons) | CO <sub>2</sub> Emission Factor (kg/gal) <sup>2</sup> | CO <sub>2</sub> Emissions During Construction Period (ton) | CH <sub>4</sub> Emission Factor (g/gal) <sup>2</sup> | CH <sub>4</sub> Emissions During Construction Period (ton) | N <sub>2</sub> O Emission Factor (g/gal) <sup>2</sup> | N <sub>2</sub> O Emissions During Construction Period (ton) | CO <sub>2</sub> e Emissions During Construction Period (ton) |
|--|-----------|---|---|---|--|--|--|---|---|--|
| Crawler tractors/dozers                                | Diesel    | 0.0555  | 27,833  | 10.21   | 313  | 0.2  | 6.14E-03   | 0.47  | 1.44E-02  | 318  |
| Excavators   | Diesel    | 0.650   | 326,139   | 10.21   | 3,671  | 0.2  | 7.19E-02   | 0.47  | 1.69E-01  | 3,723  |
| Graders  | Diesel    | 0.0363  | 18,190  | 10.21   | 205  | 0.2  | 4.01E-03   | 0.47  | 9.42E-03  | 208  |
| Pavers   | Diesel    | 2.03E-03  | 1,021   | 10.21   | 11   | 0.2  | 2.25E-04   | 0.47  | 5.29E-04  | 12   |
| Rollers  | Diesel    | 0.0354  | 17,780  | 10.21   | 200  | 0.2  | 3.92E-03   | 0.47  | 9.21E-03  | 203  |
| Rough terrain forklifts                                | Diesel    | 0.104   | 52,405  | 10.21   | 590  | 0.2  | 1.16E-02   | 0.47  | 2.72E-02  | 598  |
| Rubber tire loaders                                    | Diesel    | 1.03E-04  | 52  | 10.21   | 1  | 0.2  | 1.14E-05   | 0.47  | 2.67E-05  | 1  |
| Skid steer loaders                                     | Diesel    | 1.19E-03  | 596   | 10.21   | 7  | 0.2  | 1.31E-04   | 0.47  | 3.09E-04  | 7  |
| <b>Total (tons)</b>                                    |           |   |   |   | <b>4,997</b>   |  | <b>0.098</b>   |   | <b>0.230</b>  | <b>5,068</b>   |
| <b>Total (tons/year, annualized over project life)</b> |           |   |   |   | <b>200</b>   |  | <b>3.92E-03</b>  |   | <b>9.20E-03</b>   | <b>203</b>   |

<sup>1</sup> A rough estimate of vehicle types and fuel consumption was made using data from "Oregon Nonroad Diesel Equipment Survey and Emissions Inventory," August 26, 2020 (<https://www.oregon.gov/deq/daq/Documents/orNonroadDieselRep.pdf>). An estimate of gallons of diesel per square footage of floorspace (gal/ft<sup>2</sup>) was estimated by dividing the Table 4-18 annual fuel use estimates for each vehicle type by the survey total building square footage of 3,700,000 ft<sup>2</sup>.

<sup>2</sup> CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emission factors taken from Table 2 and Table 5 of EPA's "Emission Factors for Greenhouse Gas Inventories", April 2021 ([https://www.epa.gov/sites/default/files/2021-04/documents/emission-factors\\_apr2021.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/emission-factors_apr2021.pdf)), vehicle type: Construction/Mining Equipment.

**Sample Calculations**

Estimated fuel usage in crawler tractors/dozers during construction period (gallons) = estimated fuel usage per square foot (0.0555 gal/ft<sup>2</sup>) x project total floorspace (501,743 ft<sup>2</sup>) = 27,833 gallons

CO<sub>2</sub> emissions from crawler tractors/dozers during construction period (tons) = estimated fuel usage (27,833 gallons) x CO<sub>2</sub> emission factor (10.21 kg/gal) x (1 ton/907.2 kg) = 313 tons

CO<sub>2</sub>e emissions from crawler tractors/dozers during construction period (tons) = {CO<sub>2</sub> emissions (313 tons) x CO<sub>2</sub> global warming potential (1)} + {CH<sub>4</sub> emissions (6.14x10<sup>-3</sup> tons) x CH<sub>4</sub> global warming potential (25)} + {N<sub>2</sub>O emissions (1.44x10<sup>-2</sup> tons) x N<sub>2</sub>O global warming potential (298)} = 318 tons

Annualized CO<sub>2</sub>e emissions from all equipment (tons/year) = total CO<sub>2</sub>e emissions during construction period (5,068 tons) / estimated project life (25 years) = 203 tons per year

Hennepin Healthcare Purple Ramp Expansion Project  
 Project: B2110233  
 Source: Off-Site Emissions from Electricity Generation

| Off-Site Electricity  |         |
|---|---------|
| <b>Assumptions:</b>   |         |
| <b>Total Project</b>  |         |
| Typical annual electricity usage per square foot of clinic building floorspace <sup>3</sup> , kWh/(year*ft <sup>2</sup> ) | 19.8    |
| Total Building Floorspace, ft <sup>2</sup>  | 501,743 |
| Estimated total project site annual electricity use, MWh/year   | 9,935   |
| <b>Conversion Factors:</b>  |         |
| lb/ton  | 2,000   |
| lb/kg   | 2.204   |
| CO <sub>2</sub> to CO <sub>2</sub> e  | 1       |
| CH <sub>4</sub> to CO <sub>2</sub> e  | 25      |
| N <sub>2</sub> O to CO <sub>2</sub> e   | 298     |

| Pollutant                      | EPA Pollutant Type | Emission Factor <sup>1</sup> (lb/MWh) | Off-Site Emissions From Electricity Generation (TPY) |
|--------------------------------|--------------------|---------------------------------------|--|
| CO <sub>2</sub> e <sup>2</sup> | GHG                | 1,106.4                               | 5,496  |
| CO <sub>2</sub>                | GHG                | 1,098.4                               | 5,456  |
| CH <sub>4</sub>                | GHG                | 0.119                                 | 0.591  |
| N <sub>2</sub> O               | GHG                | 0.017                                 | 8.44E-02   |

<sup>1</sup> CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emission factors taken from Table 6 of EPA's "Emission Factors for Greenhouse Gas Inventories", April 2021 ([https://www.epa.gov/sites/default/files/2021-04/documents/emission-factors\\_apr2021.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/emission-factors_apr2021.pdf)). "Total Output" emission factors were used as directed in the Table 6 footnote.

<sup>2</sup> CO<sub>2</sub>e emissions are based on global warming potential from 40 CFR 98 Subpart A, Table A-1 (CO<sub>2</sub>=1, CH<sub>4</sub>=25, and N<sub>2</sub>O=298), November 29, 2013.

<sup>3</sup> U.S. Energy Information Administration (US EIA), "Electricity consumption totals and conditional intensities by building activity subcategories, 2012," December 2016 <https://www.eia.gov/consumption/commercial/data/2012/c&e/cfm/pba4.php>. No energy use data was available for parking ramps, so electricity usage for the parking ramp was estimated based on average electricity usage at clinic buildings.

**Sample Calculations**

Estimated total project site annual electricity use (MWh/year) = typical annual electricity usage per square foot (19.8 kWh/year\*ft<sup>2</sup>) x square footage (501,743 ft<sup>2</sup>) x (1 MWh/1000 kWh) = 9,935 MWh/year

CO<sub>2</sub> emissions from off-site electricity use (tons/year) = annual electricity use (9,935 MWh/year) x CO<sub>2</sub> emission factor (1,098.4 lb/MWh) x (1 ton/2000 lb) = 5,456 tons per year

CO<sub>2</sub>e emissions (tons/year) = {CO<sub>2</sub> emissions (5,456 tons/year) x CO<sub>2</sub> global warming potential (1)} + {CH<sub>4</sub> emissions (0.591 tons/year) x CH<sub>4</sub> global warming potential (25)} + {N<sub>2</sub>O emissions (8.44x10<sup>-2</sup> tons/year) x N<sub>2</sub>O global warming potential (298)} = 5,496 tons per year

**Appendix E**  
**Traffic Study**





Hennepin County Medical Center Purple Ramp Expansion  
**Traffic Study**

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**Project Number:**

60665998

**Date:**

January 10, 2022

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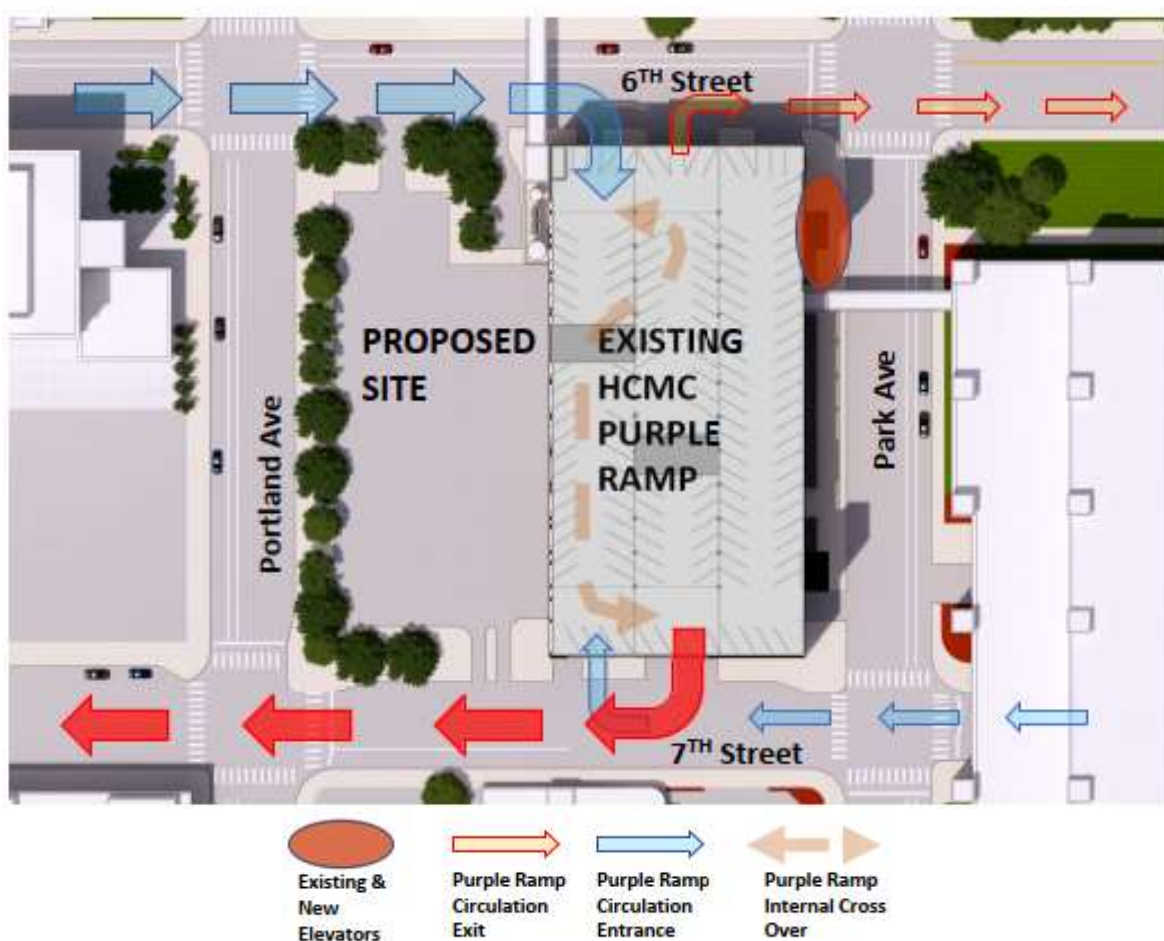
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# 1. Overview & Background

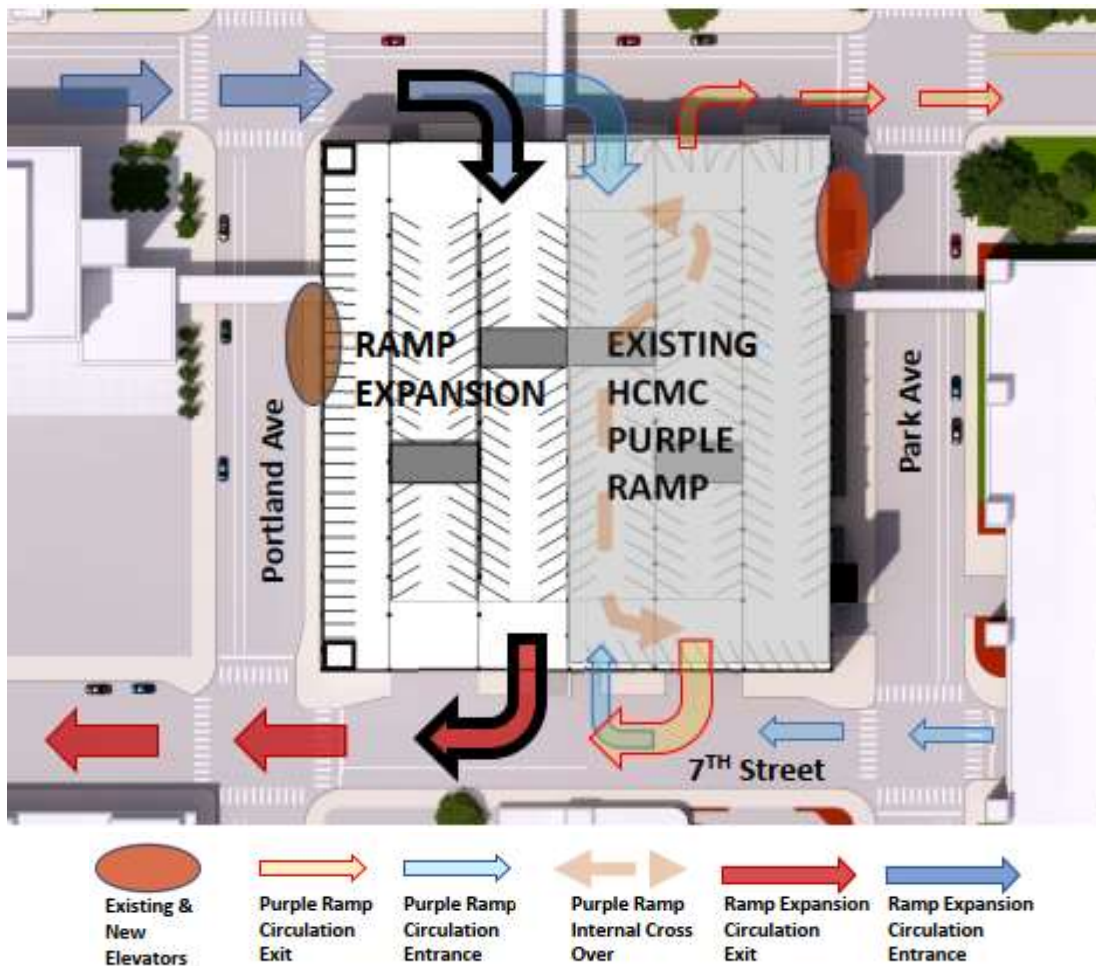
## 1.1 Project Overview

The Hennepin County Medical Center (HCMC) is planning to build a new parking ramp next to the existing HCMC Purple Ramp. The existing Purple Ramp is located in the eastern half of a city block bounded by 6<sup>th</sup> Street, 7<sup>th</sup> Street, Park Avenue, and Portland Avenue. The layout of the existing Purple Ramp is shown in **Figure 1**. Note that curved arrows represent entries/exits into and out of the Purple Ramp.



**Figure 1 – Existing Purple Ramp Site Layout**

The existing Purple Ramp has a capacity of 1,375 spaces with the primary entrance on 7<sup>th</sup> Street and primary exit on 6<sup>th</sup> Street (noting an internal crossover within the ramp). The Proposed Ramp will be designed as an independent ramp and have a capacity of approximately 1,000 spaces. It will be built on the west side of the existing Purple Ramp, with the site still bounded by 6<sup>th</sup> Street, 7<sup>th</sup> Street, Park Avenue, and Portland Avenue. The Proposed Ramp layout, along with the existing ramp, is shown in **Figure 2**. Note again that curved arrows represent entries/exits into and out of the Purple Ramp and the Proposed Ramp.



**Figure 2 – Proposed Ramp & Existing Purple Ramp Site Layout**

The purpose of this traffic study is to evaluate potential impacts to traffic operations pertaining to the existing Purple Ramp, the Proposed Ramp, and the adjacent downtown street area.

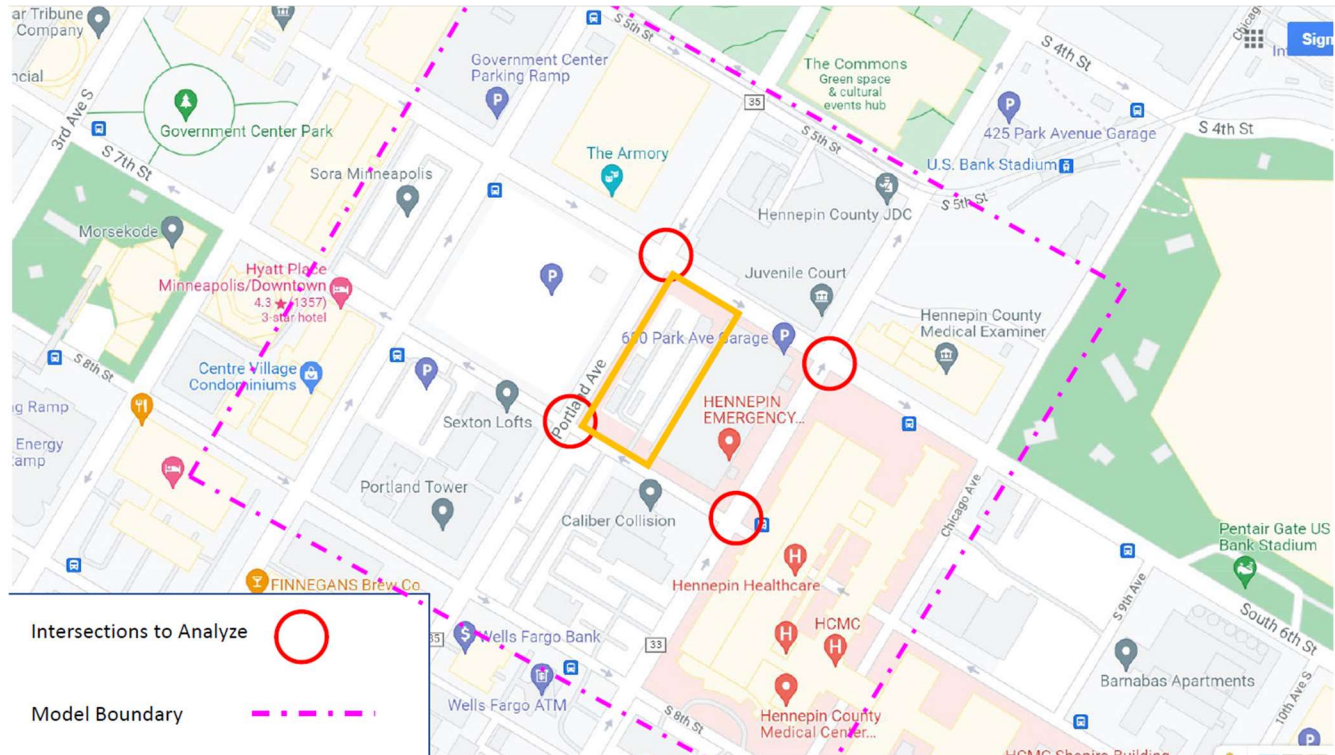
## 1.2 Study Area

The traffic study area, shown in **Figure 3**, includes the entrances and exits to the existing and proposed ramps as well as the following intersections, adjacent to the project area:

- 6<sup>th</sup> Street & Portland Avenue
- 6<sup>th</sup> Street & Park Avenue
- 7<sup>th</sup> Street & Portland Avenue
- 7<sup>th</sup> Street & Park Avenue

The study area was discussed with the City and it was determined the study boundary would be a larger area (typically a block) with the study intersections consisting of the four adjacent intersections.





**Figure 3 – Project Study Area**

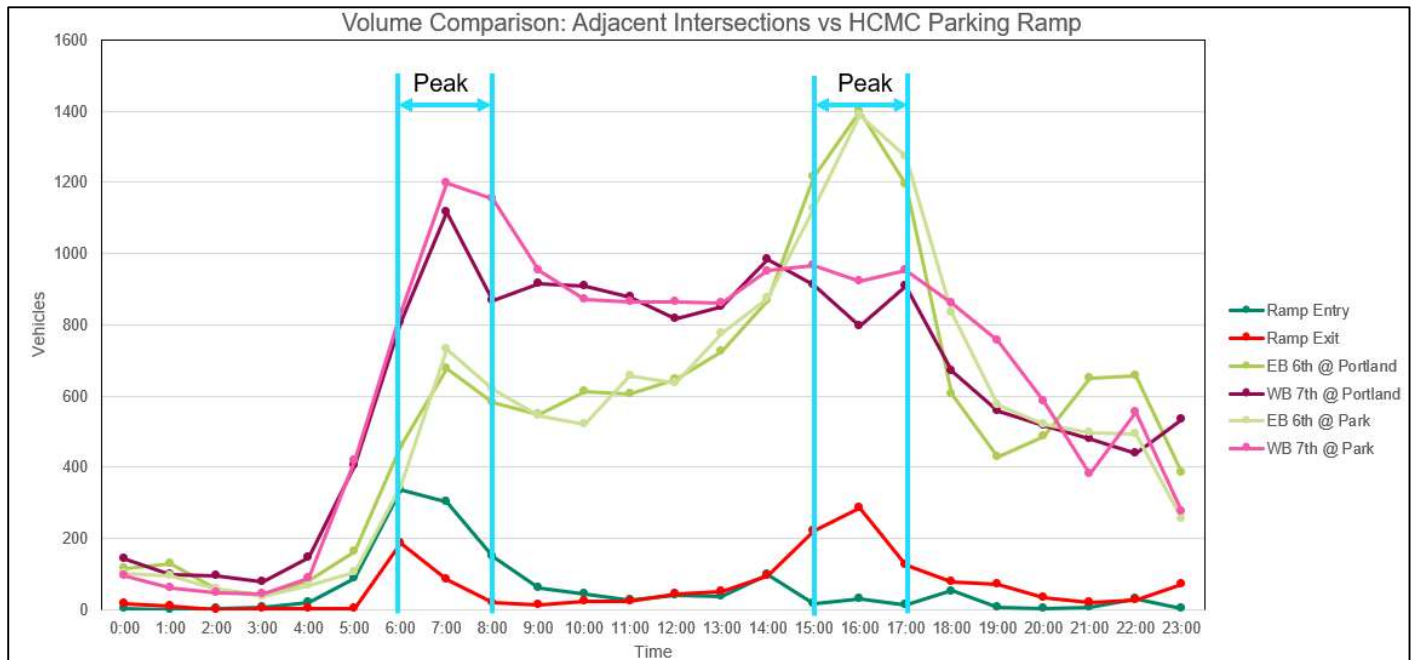
## 2. Data Collection

### 2.1 Traffic Data

24-hour traffic counts at intersections in the study area, taken by the City of Minneapolis on Wednesday's throughout 2018, were provided to AECOM. The City of Minneapolis also provided AECOM with traffic signal timing data for traffic signals located in the study area. Alliant Engineering provided AECOM with a previously developed Synchro model of the Downtown Minneapolis area that included the new bus lane on 7<sup>th</sup> Street. AECOM trimmed down the Synchro model to encompass the model boundary area shown in **Figure 3**. Traffic count data and signal timing data was cross referenced with the Synchro model to ensure consistency. Traffic count data was also used to develop peak hours to be used for the traffic operations analysis, further discussed in **Section 2.2**.

### 2.2 Ramp Data

Existing Purple Ramp data was provided to AECOM and includes the number of entries to and exits from the Purple Ramp by hour between August 4<sup>th</sup>, 2021 and August 30<sup>th</sup>, 2021. The data shows a total number of entries and exits by hour and did not specify whether the entries and exits occurred at 6<sup>th</sup> Street or 7<sup>th</sup> Street. By comparing ramp entries and exits to eastbound traffic on 6<sup>th</sup> Street and westbound traffic on 7<sup>th</sup> Street, peak hours for analysis were determined, shown in **Figure 4**.



**Figure 4 – Ramp Entry/Exit Volumes vs. EB 6<sup>th</sup> St. & WB 7<sup>th</sup> St Volumes**

Additional parking ramp data was provided for the existing HCMC Hospital Parking Ramp located on Chicago Avenue, approximately 3 blocks from the project site. The Hospital Parking Ramp has a capacity of 1,400 vehicles. The current HCMC plan calls for the demolition of the Hospital Parking Ramp after the completion of the Proposed Ramp next to the Existing Purple Ramp and for current users of the Hospital Parking Ramp to instead use the Proposed Ramp. As such, current Hospital Parking Ramp entry/exit data was used to determine the expected number of entries/exits at the Proposed Ramp to be used in the Future Build analysis. Parking ramp data for the Purple Ramp and the Hospital Ramp is provided in **Appendix C**.

### 3. Existing Conditions

#### 3.1 Field Visit

Field visits were conducted on October 15, 2021, November 4, 2021, and November 9, 2021. It was noted during these field visits that traffic operated efficiently along 6<sup>th</sup> Street. It was also observed that traffic operations along 7<sup>th</sup> Street were not as efficient as along 6<sup>th</sup> Street, with queues from the traffic signal at 7<sup>th</sup> Street & Portland Avenue sometimes blocking exits from the Purple Ramp (causing further queues to develop inside of the ramp) and occasionally nearly stretching back to the intersection of 7<sup>th</sup> Avenue & Park Avenue. It should be noted that these queues could be attributed to recent developments/changes in the project area: the westbound travel lane closest to the Purple Ramp was recently designated a bus-only lane (by red paint) and an under-construction development located just beyond the 7<sup>th</sup> Street & Portland Avenue intersection has closed one of the westbound travel lanes along 7<sup>th</sup> Street to use as a construction staging area. It is recommended that the site be revisited and observed once the adjacent development completes construction and the lane reopens and more time has passed for drivers to become accustomed to the bus-only lane. If queues continue to be present, there is potential that a retiming of the signal to allot additional green time to the westbound 7<sup>th</sup> Street movement at 7<sup>th</sup> Street & Portland Avenue could alleviate some of the queuing. Pictures of some of these observations are presented in **Figures 5 & 6**. A diagram of the bus-only lane along 7<sup>th</sup> Street, between Park Avenue & Portland Avenue is shown in **Figure 7**.

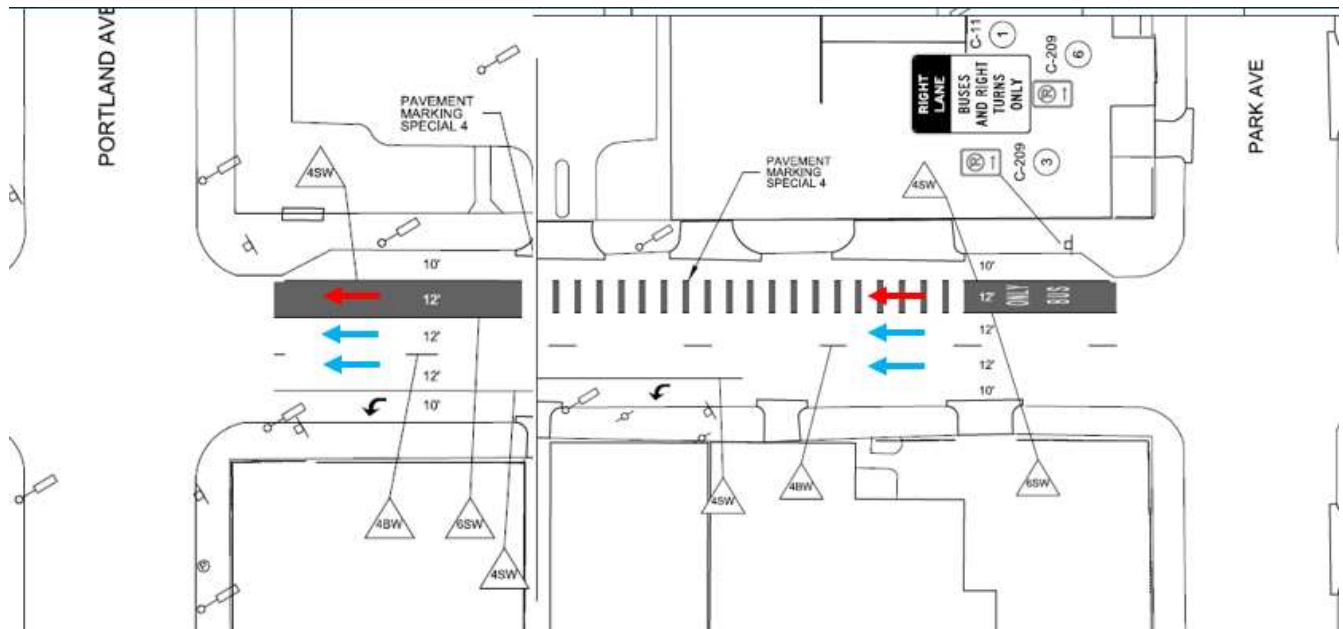




**Figure 5 – Traffic Queue at 7<sup>th</sup> St. & Portland Ave and Bus-Only Pavement Marking**



**Figure 6 – Traffic Exiting Purple Ramp to 7<sup>th</sup> St. and Temporary Lane Closure Beyond**



**Figure 7 – Diagram of Bus-Only Lane along 7<sup>th</sup> Street between Park Avenue & Portland Avenue**

### 3.2 Synchro & SimTraffic Analysis

The Existing Conditions analysis was completed using Synchro, with the existing Purple Ramp entries and exits modeled as two-way streets with stop-control. The model took into account the recently implemented bus-only lane along 7<sup>th</sup> Street and no changes to existing intersection geometrics were applied. SimTraffic results were reported, showing acceptable operations at all Purple Ramp entries/exits and intersections in the study area. Synchro / SimTraffic are effective tools for intersection analysis; however, the software has limited capability in simulating the “entrance/ exit gate” operations at the Purple Ramp and new ramp facilities.

Traffic operations analyses were conducted to determine the level of service (LOS), delay, and queuing information for the AM and PM peak-hour conditions. LOS is a qualitative rating system used to describe the efficiency of traffic operations at an intersection. Six LOS are defined, designated by letters A through F. LOS A represents the best operating conditions (no congestion), and LOS F represents the worst operating conditions (severe congestion).

LOS for intersections is determined by the average control delay per vehicle. The range of control delay for each LOS is different for signalized and unsignalized intersections. The expectation is that a signalized intersection is designed to carry higher traffic volumes and will experience greater delays than an unsignalized intersection; driver tolerance for delay is greater at a signal than at a stop sign. Therefore, the LOS thresholds for each LOS category are lower for unsignalized intersections than for signalized intersections. LOS D is commonly taken as an acceptable design year LOS. **Table 1** presents the LOS criteria for signalized intersections, while **Table 2** presents the LOS criteria for unsignalized intersections, which was applied to the parking ramp entries & exits for this analysis.

**Table 1 – Signalized Intersection LOS Criteria**

| LOS | Control Delay per Vehicle (sec) |
|-----|---------------------------------|
| A   | ≤ 10                            |
| B   | > 10 – 20                       |
| C   | > 20 - 35                       |
| D   | > 35 – 55                       |
| E   | > 55 – 80                       |
| F   | > 80                            |

**Table 2 – Unsignalized Intersection LOS Criteria**

| LOS | Control Delay per Vehicle (sec) |
|-----|---------------------------------|
| A   | 0 – 10                          |
| B   | > 10 – 15                       |
| C   | > 15 – 25                       |
| D   | > 25 – 35                       |
| E   | > 35 – 50                       |
| F   | > 50                            |

The signalized traffic operations analyses were performed using the Synchro/SimTraffic software package for the analysis. SimTraffic microsimulation modeling was used to determine the average control delay per vehicle, which was then applied to the LOS criteria.

SimTraffic results from the existing conditions Synchro analysis are shown in **Tables 3, 4, & 5**.



**Table 3 – Existing Conditions SimTraffic Results for 6<sup>th</sup> Street & 7<sup>th</sup> Street Purple Ramp Entries and Exits**

|                | AM Peak                       |     |     |                               |     |     |
|----------------|-------------------------------|-----|-----|-------------------------------|-----|-----|
|                | 7th St Purple Ramp Entry/Exit |     |     | 6th St Purple Ramp Entry/Exit |     |     |
|                | SBR                           | WBT | WBR | NBR                           | EBT | EBR |
| LOS            | B                             | A   | A   | A                             | A   | A   |
| Delay (s/veh)  | 12.0                          | 1.7 | 1.4 | 3.1                           | 0.8 | 0.9 |
| 95% Queue (ft) | 100                           | 50  | 50  | 50                            | 25  | 0   |
|                | PM Peak                       |     |     |                               |     |     |
|                | 7th St Purple Ramp Entry/Exit |     |     | 6th St Purple Ramp Entry/Exit |     |     |
|                | SBR                           | WBT | WBR | NBR                           | EBT | EBR |
| LOS            | A                             | A   | A   | C                             | A   | A   |
| Delay (s/veh)  | 6.5                           | 0.6 | 0.4 | 18.3                          | 1.3 | 0.6 |
| 95% Queue (ft) | 75                            | 0   | 0   | 150                           | 50  | 50  |

**Table 4 – Existing Conditions SimTraffic Results for Portland Avenue & 6<sup>th</sup> Street and Portland Avenue & 7<sup>th</sup> Street Intersections**

|                | AM Peak        |     |      |      |                |      |     |     |
|----------------|----------------|-----|------|------|----------------|------|-----|-----|
|                | Portland & 7th |     |      |      | Portland & 6th |      |     |     |
|                | SBT            | SBR | WBL  | WBT  | SBL            | SBT  | EBT | EBR |
| LOS            | B              | A   | A    | B    | A              | B    | A   | A   |
| Delay (s/veh)  | 11.7           | 5.9 | 6.3  | 14.4 | 6.8            | 16.8 | 6.8 | 4.7 |
| 95% Queue (ft) | 75             | 50  | 150  | 300  | 100            | 100  | 50  | 100 |
|                | PM Peak        |     |      |      |                |      |     |     |
|                | Portland & 7th |     |      |      | Portland & 6th |      |     |     |
|                | SBT            | SBR | WBL  | WBT  | SBL            | SBT  | EBT | EBR |
| LOS            | A              | A   | B    | C    | C              | C    | A   | A   |
| Delay (s/veh)  | 9.0            | 4.1 | 10.8 | 22.2 | 20.3           | 26.6 | 8.8 | 7.4 |
| 95% Queue (ft) | 125            | 50  | 150  | 175  | 175            | 300  | 150 | 125 |

**Table 5 – Existing Conditions SimTraffic Results for Park Avenue & 6<sup>th</sup> Street and Park Avenue & 7<sup>th</sup> Street Intersections**

|                | AM Peak    |     |     |     |            |     |      |      |
|----------------|------------|-----|-----|-----|------------|-----|------|------|
|                | Park & 7th |     |     |     | Park & 6th |     |      |      |
|                | NBL        | NBT | WBT | WBR | NBT        | NBR | EBL  | EBT  |
| LOS            | A          | A   | A   | A   | A          | A   | B    | B    |
| Delay (s/veh)  | 7.8        | 4.7 | 5.7 | 2.8 | 7.0        | 3.1 | 13.8 | 13.2 |
| 95% Queue (ft) | 100        | 50  | 125 | 25  | 25         | 75  | 150  | 150  |
|                | PM Peak    |     |     |     |            |     |      |      |
|                | Park & 7th |     |     |     | Park & 6th |     |      |      |
|                | NBL        | NBT | WBT | WBR | NBT        | NBR | EBL  | EBT  |
| LOS            | A          | A   | A   | A   | A          | A   | C    | C    |
| Delay (s/veh)  | 6.4        | 6.2 | 8.7 | 3.5 | 9.4        | 7.5 | 22.2 | 23.0 |
| 95% Queue (ft) | 75         | 50  | 125 | 25  | 75         | 150 | 200  | 200  |

## 4. Future Build – Opening Day

### 4.1 Synchro & SimTraffic Results

The Future Build – Opening Day analysis was also completed using Synchro. For this scenario, two additional two-way, stop controlled streets were added to the model represent the new entries/exits to the proposed ramp. Ramp/traffic volumes at these Proposed Ramp entries/exits were applied based on the process described in **Section 2.2**. All other aspects of the model remained the same as the Existing Conditions analysis model. After consultation with the City, it was determined that a growth rate should not be applied to the traffic volumes on the street network. The City planning process is projecting a mode shift in the downtown network. This plans for level vehicle traffic and an increase in transit and non-motorized traffic in downtown.

SimTraffic results showed acceptable operations at almost all intersections and ramp entries/exits. The SimTraffic results showed a LOS F at the 6<sup>th</sup> Street Purple Ramp entry/exit during the PM peak; however, a 95% queue of 200 feet is equal to or less than the maximum observed queue during field visits, so it is not expected that opening of the Proposed Ramp will significantly worsen traffic operations within the Purple Ramp.

SimTraffic results from the existing conditions Synchro analysis are shown in **Tables 6, 7, 8, & 9**.

**Table 6 – Future Build (Opening Day) SimTraffic Results for 6<sup>th</sup> Street & 7<sup>th</sup> Street Purple Ramp Entries and Exits**

|                | AM Peak                       |     |     |                               |     |     |
|----------------|-------------------------------|-----|-----|-------------------------------|-----|-----|
|                | 7th St Purple Ramp Entry/Exit |     |     | 6th St Purple Ramp Entry/Exit |     |     |
|                | SBR                           | WBT | WBR | NBR                           | EBT | EBR |
| LOS            | B                             | A   | A   | A                             | A   | A   |
| Delay (s/veh)  | 13.4                          | 1.6 | 1.3 | 4.8                           | 1.1 | 0.3 |
| 95% Queue (ft) | 100                           | 50  | 75  | 50                            | 25  | 25  |
|                | PM Peak                       |     |     |                               |     |     |
|                | 7th St Purple Ramp Entry/Exit |     |     | 6th St Purple Ramp Entry/Exit |     |     |
|                | SBR                           | WBT | WBR | NBR                           | EBT | EBR |
| LOS            | B                             | A   | A   | F                             | A   | A   |
| Delay (s/veh)  | 15.0                          | 1.1 | 0.6 | 58.1                          | 7.0 | 5.3 |
| 95% Queue (ft) | 100                           | 50  | 75  | 200                           | 75  | 75  |

**Table 7 – Future Build (Opening Day) SimTraffic Results for 6<sup>th</sup> Street & 7<sup>th</sup> Street Proposed Ramp Entries and Exits**

|                | AM Peak                         |     |     |                                 |      |      |
|----------------|---------------------------------|-----|-----|---------------------------------|------|------|
|                | 7th St Proposed Ramp Entry/Exit |     |     | 6th St Proposed Ramp Entry/Exit |      |      |
|                | SBR                             | WBT | WBR | NBR                             | EBT  | EBR  |
| LOS            | A                               | A   | A   | A                               | A    | A    |
| Delay (s/veh)  | 9.6                             | 2.5 | 1.6 | 2.7                             | 0.6  | 1.0  |
| 95% Queue (ft) | 50                              | 75  | 75  | 25                              | 25   | 25   |
|                | PM Peak                         |     |     |                                 |      |      |
|                | 7th St Proposed Ramp Entry/Exit |     |     | 6th St Proposed Ramp Entry/Exit |      |      |
|                | SBR                             | WBT | WBR | NBR                             | EBT  | EBR  |
| LOS            | C                               | A   | A   | D                               | B    | B    |
| Delay (s/veh)  | 15.1                            | 2.1 | 1.6 | 27.4                            | 14.8 | 12.9 |
| 95% Queue (ft) | 100                             | 100 | 150 | 125                             | 100  | 125  |

**Table 8 – Future Build (Opening Day) SimTraffic Results for Portland Avenue & 6<sup>th</sup> Street and Portland Avenue & 7<sup>th</sup> Street Intersections**

|                | AM Peak        |     |     |      |                |      |      |      |
|----------------|----------------|-----|-----|------|----------------|------|------|------|
|                | Portland & 7th |     |     |      | Portland & 6th |      |      |      |
|                | SBT            | SBR | WBL | WBT  | SBL            | SBT  | EBT  | EBR  |
| LOS            | B              | A   | A   | B    | A              | B    | A    | A    |
| Delay (s/veh)  | 10.3           | 6.1 | 5.3 | 12.0 | 7.1            | 17.4 | 5.9  | 4.7  |
| 95% Queue (ft) | 75             | 50  | 150 | 200  | 100            | 125  | 50   | 100  |
|                | PM Peak        |     |     |      |                |      |      |      |
|                | Portland & 7th |     |     |      | Portland & 6th |      |      |      |
|                | SBT            | SBR | WBL | WBT  | SBL            | SBT  | EBT  | EBR  |
| LOS            | B              | A   | A   | A    | C              | C    | E    | D    |
| Delay (s/veh)  | 14.7           | 6.6 | 8.7 | 9.9  | 26.7           | 21.0 | 57.8 | 45.0 |
| 95% Queue (ft) | 150            | 75  | 175 | 200  | 175            | 250  | 250  | 300  |

**Table 9 – Future Build (Opening Day) SimTraffic Results for Portland Avenue & 6<sup>th</sup> Street and Portland Avenue & 7<sup>th</sup> Street Intersections**

|                | AM Peak    |      |     |     |            |     |      |      |
|----------------|------------|------|-----|-----|------------|-----|------|------|
|                | Park & 7th |      |     |     | Park & 6th |     |      |      |
|                | NBL        | NBT  | WBT | WBR | NBT        | NBR | EBL  | EBT  |
| LOS            | A          | A    | A   | A   | A          | A   | B    | B    |
| Delay (s/veh)  | 8.9        | 4.5  | 6.5 | 3.3 | 5.9        | 2.9 | 11.0 | 12.7 |
| 95% Queue (ft) | 75         | 50   | 150 | 50  | 25         | 75  | 150  | 150  |
|                | PM Peak    |      |     |     |            |     |      |      |
|                | Park & 7th |      |     |     | Park & 6th |     |      |      |
|                | NBL        | NBT  | WBT | WBR | NBT        | NBR | EBL  | EBT  |
| LOS            | B          | B    | A   | A   | A          | A   | B    | B    |
| Delay (s/veh)  | 12.0       | 14.5 | 6.6 | 3.6 | 5.6        | 5.2 | 14.0 | 16.7 |
| 95% Queue (ft) | 125        | 150  | 125 | 50  | 50         | 75  | 125  | 150  |

## 5. Conclusions & Observations

The Hennepin County Medical Center (HCMC) plan to build a new parking ramp next to the existing HCMC Purple Ramp was evaluated for the potential traffic impacts to the adjacent downtown streets (6<sup>th</sup> Street, Park Avenue, 7<sup>th</sup> Street and Portland Avenue). Analysis was completed for the AM and PM peak periods under the existing conditions and build conditions. The study found no major disruptions to traffic operations for existing and build conditions.

The following conclusions are made from the traffic evaluation:

- The downtown grid is generally busy and does have reserve capacity. The traffic increase from the ramp does not create safety issues on the street network.
- With a new facility, much of the new ramp volume is absorbed by the external traffic network and does not create a traffic concern on the street system.
- There appears to be minimal degradation of delay/ LOS between the existing and build conditions. This indicates there are no significant impacts associated with the new ramp addition on the downtown grid.
- There may be some internal ramp operations issues at peak periods that may require further investigation by HCMC. These are likely limited to shift changes or other event peaks.
- AECOM would recommend the City of Minneapolis Traffic Division review the signal timing at 7<sup>th</sup> Street and Portland Avenue. Field observations indicated there is more north-south green time that may be able to shift to the westbound movement.



## **Appendix A**

### **Existing Conditions SimTraffic Results**

765: Portland Av S & 7th St S Performance by movement

| Movement           | WBL | WBT  | SBT  | SBR | All  |
|--------------------|-----|------|------|-----|------|
| Denied Del/Veh (s) | 0.0 | 0.0  | 0.0  | 0.0 | 0.0  |
| Total Del/Veh (s)  | 6.3 | 14.4 | 11.7 | 5.9 | 12.8 |

766: Portland Av S & 6th St S Performance by movement

| Movement           | EBT | EBR | SBL | SBT  | All |
|--------------------|-----|-----|-----|------|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 3.5 | 0.2  | 0.5 |
| Total Del/Veh (s)  | 6.8 | 4.7 | 6.8 | 16.4 | 8.9 |

774: Park Av S & 7th St S Performance by movement

| Movement           | WBT | WBR | NBL | NBT | All |
|--------------------|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 5.7 | 2.8 | 7.8 | 4.7 | 5.3 |

775: Park Av S & 6th St S Performance by movement

| Movement           | EBL  | EBT  | WBR  | NBT | NBR | All  |
|--------------------|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.1  | 0.0 | 0.0 | 0.0  |
| Total Del/Veh (s)  | 13.8 | 13.2 | 40.3 | 7.0 | 3.1 | 11.6 |

1031: 7th St S Performance by movement ← 7th St Ramp Entry/Exit

| Movement           | WBT | WBR | SBR  | All |
|--------------------|-----|-----|------|-----|
| Denied Del/Veh (s) | 0.1 | 0.3 | 0.2  | 0.2 |
| Total Del/Veh (s)  | 1.7 | 1.4 | 12.0 | 2.7 |

1032: 6th St S Performance by movement ← 6th St Ramp Entry/Exit

| Movement           | EBT | EBR | NBR | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s)  | 0.8 | 0.9 | 3.1 | 1.0 |

Total Zone Performance

|                    |      |
|--------------------|------|
| Denied Del/Veh (s) | 0.8  |
| Total Del/Veh (s)  | 30.0 |

Queuing and Blocking Report  
AM Peak

11/17/2021

Intersection: 765: Portland Av S & 7th St S

| Movement              | WB  | WB  | WB  | SB  | SB  | SB  | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|----|
| Directions Served     | L   | T   | T   | T   | T   | T   | R  |
| Maximum Queue (ft)    | 160 | 290 | 288 | 86  | 67  | 71  | 51 |
| Average Queue (ft)    | 65  | 173 | 199 | 37  | 16  | 24  | 13 |
| 95th Queue (ft)       | 156 | 277 | 293 | 78  | 49  | 59  | 41 |
| Link Distance (ft)    |     | 204 | 204 | 313 | 313 | 313 |    |
| Upstream Blk Time (%) |     | 3   | 7   |     |     |     |    |
| Queuing Penalty (veh) |     | 17  | 33  |     |     |     |    |
| Storage Bay Dist (ft) | 100 |     |     |     |     |     | 75 |
| Storage Blk Time (%)  | 0   | 15  |     |     |     | 0   | 0  |
| Queuing Penalty (veh) | 0   | 20  |     |     |     | 0   | 0  |

Intersection: 766: Portland Av S & 6th St S

| Movement              | EB  | EB  | EB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | TR  | L   | T   | T   | T   |
| Maximum Queue (ft)    | 63  | 76  | 113 | 101 | 139 | 92  | 88  |
| Average Queue (ft)    | 16  | 17  | 49  | 44  | 64  | 27  | 24  |
| 95th Queue (ft)       | 47  | 53  | 94  | 82  | 118 | 70  | 65  |
| Link Distance (ft)    | 290 | 290 | 290 |     | 706 | 706 | 706 |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     |     | 75  |     |     |     |
| Storage Blk Time (%)  |     |     |     | 0   | 8   |     |     |
| Queuing Penalty (veh) |     |     |     | 0   | 11  |     |     |

Intersection: 774: Park Av S & 7th St S

| Movement              | WB  | WB  | WB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | R   | LT  | T   | T   |
| Maximum Queue (ft)    | 147 | 183 | 38  | 93  | 75  | 68  |
| Average Queue (ft)    | 60  | 79  | 5   | 39  | 18  | 15  |
| 95th Queue (ft)       | 114 | 145 | 24  | 79  | 52  | 52  |
| Link Distance (ft)    | 311 | 311 |     | 378 | 378 | 378 |
| Upstream Blk Time (%) |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     | 100 |     |     |     |
| Storage Blk Time (%)  |     | 4   |     |     |     |     |
| Queuing Penalty (veh) |     | 2   |     |     |     |     |

# Queuing and Blocking Report

## AM Peak

11/17/2021

### Intersection: 775: Park Av S & 6th St S

| Movement              | EB  | EB  | EB  | WB | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|----|-----|-----|-----|
| Directions Served     | LT  | T   | T   | R  | T   | T   | TR  |
| Maximum Queue (ft)    | 180 | 163 | 172 | 58 | 37  | 39  | 88  |
| Average Queue (ft)    | 81  | 75  | 81  | 13 | 4   | 5   | 31  |
| 95th Queue (ft)       | 148 | 133 | 143 | 43 | 21  | 24  | 70  |
| Link Distance (ft)    | 172 | 172 | 172 |    | 305 | 305 | 305 |
| Upstream Blk Time (%) | 0   | 0   | 0   |    |     |     |     |
| Queuing Penalty (veh) | 1   | 0   | 0   |    |     |     |     |
| Storage Bay Dist (ft) |     |     |     |    |     |     |     |
| Storage Blk Time (%)  |     |     |     |    |     |     |     |
| Queuing Penalty (veh) |     |     |     |    |     |     |     |

### Intersection: 1031: 7th St S

| Movement              | WB  | WB  | SB  |
|-----------------------|-----|-----|-----|
| Directions Served     | T   | TR  | R   |
| Maximum Queue (ft)    | 81  | 107 | 124 |
| Average Queue (ft)    | 8   | 14  | 55  |
| 95th Queue (ft)       | 42  | 66  | 95  |
| Link Distance (ft)    | 118 | 118 | 163 |
| Upstream Blk Time (%) | 0   | 0   |     |
| Queuing Penalty (veh) | 0   | 0   |     |
| Storage Bay Dist (ft) |     |     |     |
| Storage Blk Time (%)  |     |     |     |
| Queuing Penalty (veh) |     |     |     |

### Intersection: 1032: 6th St S

| Movement              | EB  | EB  | NB  |
|-----------------------|-----|-----|-----|
| Directions Served     | T   | TR  | R   |
| Maximum Queue (ft)    | 23  | 6   | 66  |
| Average Queue (ft)    | 1   | 0   | 29  |
| 95th Queue (ft)       | 10  | 4   | 55  |
| Link Distance (ft)    | 145 | 145 | 149 |
| Upstream Blk Time (%) |     |     |     |
| Queuing Penalty (veh) |     |     |     |
| Storage Bay Dist (ft) |     |     |     |
| Storage Blk Time (%)  |     |     |     |
| Queuing Penalty (veh) |     |     |     |

### Zone Summary

Zone wide Queuing Penalty: 85



765: Portland Av S & 7th St S Performance by movement

| Movement           | WBL  | WBT  | SBT | SBR | All  |
|--------------------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0 | 0.0 | 0.0  |
| Total Del/Veh (s)  | 10.8 | 22.2 | 9.0 | 4.1 | 12.8 |

766: Portland Av S & 6th St S Performance by movement

| Movement           | EBT | EBR | SBL  | SBT  | All  |
|--------------------|-----|-----|------|------|------|
| Denied Del/Veh (s) | 0.1 | 0.1 | 2.7  | 0.2  | 0.3  |
| Total Del/Veh (s)  | 8.8 | 7.4 | 20.3 | 26.6 | 15.7 |

774: Park Av S & 7th St S Performance by movement

| Movement           | WBT | WBR | NBL | NBT | All |
|--------------------|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 8.7 | 3.5 | 6.4 | 6.2 | 7.3 |

775: Park Av S & 6th St S Performance by movement

| Movement           | EBL  | EBT  | WBR  | NBT | NBR | All  |
|--------------------|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 2.1  | 1.6  | 0.1  | 0.0 | 0.0 | 1.0  |
| Total Del/Veh (s)  | 22.2 | 23.0 | 41.9 | 9.4 | 7.5 | 18.0 |

1031: 7th St S Performance by movement ← 7th St Ramp Entry/Exit

| Movement           | WBT | WBR | SBR | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.2 | 0.0 |
| Total Del/Veh (s)  | 0.6 | 0.4 | 6.5 | 1.2 |

1032: 6th St S Performance by movement ← 6th St Ramp Entry/Exit

| Movement           | EBT | EBR | NBR  | All |
|--------------------|-----|-----|------|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.6  | 0.1 |
| Total Del/Veh (s)  | 1.3 | 0.6 | 18.3 | 3.3 |

Total Zone Performance

|                    |       |
|--------------------|-------|
| Denied Del/Veh (s) | 1.8   |
| Total Del/Veh (s)  | 166.9 |

Intersection: 765: Portland Av S & 7th St S

| Movement              | WB  | WB  | WB  | SB  | SB  | SB  | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|----|
| Directions Served     | L   | T   | T   | T   | T   | T   | R  |
| Maximum Queue (ft)    | 158 | 202 | 183 | 146 | 131 | 136 | 77 |
| Average Queue (ft)    | 82  | 91  | 113 | 69  | 51  | 59  | 15 |
| 95th Queue (ft)       | 146 | 166 | 175 | 126 | 104 | 105 | 48 |
| Link Distance (ft)    |     | 204 | 204 | 313 | 313 | 313 |    |
| Upstream Blk Time (%) |     | 0   | 0   |     |     |     |    |
| Queuing Penalty (veh) |     | 1   | 1   |     |     |     |    |
| Storage Bay Dist (ft) | 100 |     |     |     |     |     | 75 |
| Storage Blk Time (%)  | 5   | 8   |     |     |     | 3   | 0  |
| Queuing Penalty (veh) | 12  | 24  |     |     |     | 3   | 0  |

Intersection: 766: Portland Av S & 6th St S

| Movement              | EB  | EB  | EB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | TR  | L   | T   | T   | T   |
| Maximum Queue (ft)    | 167 | 139 | 158 | 134 | 382 | 326 | 197 |
| Average Queue (ft)    | 99  | 65  | 83  | 89  | 222 | 174 | 90  |
| 95th Queue (ft)       | 161 | 119 | 137 | 169 | 329 | 279 | 173 |
| Link Distance (ft)    | 290 | 290 | 290 |     | 623 | 623 | 623 |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     |     | 75  |     |     |     |
| Storage Blk Time (%)  |     |     |     | 4   | 45  |     |     |
| Queuing Penalty (veh) |     |     |     | 11  | 57  |     |     |

Intersection: 774: Park Av S & 7th St S

| Movement              | WB  | WB  | WB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | R   | LT  | T   | T   |
| Maximum Queue (ft)    | 128 | 128 | 40  | 77  | 70  | 89  |
| Average Queue (ft)    | 67  | 61  | 6   | 40  | 23  | 26  |
| 95th Queue (ft)       | 114 | 110 | 25  | 75  | 58  | 68  |
| Link Distance (ft)    | 311 | 311 |     | 378 | 378 | 378 |
| Upstream Blk Time (%) |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     | 100 |     |     |     |
| Storage Blk Time (%)  |     | 2   |     |     |     |     |
| Queuing Penalty (veh) |     | 1   |     |     |     |     |

Intersection: 775: Park Av S & 6th St S

| Movement              | EB  | EB  | EB  | WB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | LT  | T   | T   | R   | T   | T   | TR  |
| Maximum Queue (ft)    | 189 | 198 | 190 | 78  | 73  | 71  | 176 |
| Average Queue (ft)    | 163 | 157 | 160 | 18  | 32  | 21  | 65  |
| 95th Queue (ft)       | 202 | 198 | 205 | 56  | 64  | 57  | 135 |
| Link Distance (ft)    | 172 | 172 | 172 | 313 | 305 | 305 | 305 |
| Upstream Blk Time (%) | 13  | 8   | 11  |     |     |     |     |
| Queuing Penalty (veh) | 54  | 32  | 45  |     |     |     |     |
| Storage Bay Dist (ft) |     |     |     |     |     |     |     |
| Storage Blk Time (%)  |     |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |

Intersection: 1031: 7th St S

| Movement              | SB  |
|-----------------------|-----|
| Directions Served     | R   |
| Maximum Queue (ft)    | 89  |
| Average Queue (ft)    | 41  |
| 95th Queue (ft)       | 71  |
| Link Distance (ft)    | 163 |
| Upstream Blk Time (%) | 0   |
| Queuing Penalty (veh) | 0   |
| Storage Bay Dist (ft) |     |
| Storage Blk Time (%)  |     |
| Queuing Penalty (veh) |     |

Intersection: 1032: 6th St S

| Movement              | EB  | EB  | EB  | NB  |
|-----------------------|-----|-----|-----|-----|
| Directions Served     | T   | T   | TR  | R   |
| Maximum Queue (ft)    | 83  | 70  | 76  | 168 |
| Average Queue (ft)    | 13  | 6   | 4   | 75  |
| 95th Queue (ft)       | 50  | 34  | 34  | 142 |
| Link Distance (ft)    | 145 | 145 | 145 | 149 |
| Upstream Blk Time (%) | 0   |     | 0   | 3   |
| Queuing Penalty (veh) | 0   |     | 0   | 0   |
| Storage Bay Dist (ft) |     |     |     |     |
| Storage Blk Time (%)  |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |

Zone Summary

Zone wide Queuing Penalty: 242

## **Appendix B**

### **Future Build – Opening Day SimTraffic Results**

1: 7th St S Performance by movement ← New 7th St Ramp Entry/Exit

| Movement           | WBT | WBR | SBR | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.2 | 0.2 | 0.1 | 0.2 |
| Total Del/Veh (s)  | 2.5 | 1.6 | 9.6 | 2.4 |

11: 6th St S Performance by movement ← New 6th St Ramp Entry/Exit

| Movement           | EBT | EBR | NBR | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.1 | 0.0 |
| Total Del/Veh (s)  | 1.0 | 0.6 | 2.7 | 0.9 |

765: Portland Av S & 7th St S Performance by movement

| Movement           | WBL | WBT  | SBT  | SBR | All  |
|--------------------|-----|------|------|-----|------|
| Denied Del/Veh (s) | 0.0 | 0.0  | 0.0  | 0.0 | 0.0  |
| Total Del/Veh (s)  | 5.3 | 12.0 | 10.3 | 6.1 | 10.8 |

766: Portland Av S & 6th St S Performance by movement

| Movement           | EBT | EBR | SBL | SBT  | All |
|--------------------|-----|-----|-----|------|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 3.5 | 0.2  | 0.5 |
| Total Del/Veh (s)  | 5.9 | 4.7 | 7.1 | 17.4 | 8.9 |

774: Park Av S & 7th St S Performance by movement

| Movement           | WBT | WBR | NBL | NBT | All |
|--------------------|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 6.5 | 3.3 | 8.9 | 4.5 | 5.8 |

775: Park Av S & 6th St S Performance by movement

| Movement           | EBL  | EBT  | WBR  | NBT | NBR | All  |
|--------------------|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.1  | 0.0 | 0.0 | 0.0  |
| Total Del/Veh (s)  | 11.0 | 12.7 | 44.3 | 5.9 | 2.9 | 10.9 |

1031: 7th St S Performance by movement ← 7th St Ramp Entry/Exit

| Movement           | WBT | WBR | SBR  | All |
|--------------------|-----|-----|------|-----|
| Denied Del/Veh (s) | 0.2 | 0.3 | 0.2  | 0.2 |
| Total Del/Veh (s)  | 1.6 | 1.3 | 13.4 | 2.8 |

1032: 6th St S Performance by movement ← 6th St Ramp Entry/Exit

| Movement           | EBT | EBR | NBR | All |
|--------------------|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s)  | 1.1 | 0.3 | 4.8 | 1.3 |



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Total Zone Performance

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|                    |      |
|--------------------|------|
| Denied Del/Veh (s) | 0.9  |
| Total Del/Veh (s)  | 29.9 |

Queuing and Blocking Report  
AM Peak

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Intersection: 1: 7th St S

| Movement              | WB  | WB  | SB |
|-----------------------|-----|-----|----|
| Directions Served     | T   | TR  | R  |
| Maximum Queue (ft)    | 155 | 138 | 48 |
| Average Queue (ft)    | 50  | 59  | 12 |
| 95th Queue (ft)       | 135 | 132 | 41 |
| Link Distance (ft)    | 55  | 55  | 94 |
| Upstream Blk Time (%) | 6   | 6   | 0  |
| Queuing Penalty (veh) | 28  | 32  | 0  |
| Storage Bay Dist (ft) |     |     |    |
| Storage Blk Time (%)  |     |     |    |
| Queuing Penalty (veh) |     |     |    |

Intersection: 11: 6th St S

| Movement              | EB | EB | EB | NB  |
|-----------------------|----|----|----|-----|
| Directions Served     | T  | T  | TR | R   |
| Maximum Queue (ft)    | 55 | 38 | 61 | 30  |
| Average Queue (ft)    | 4  | 1  | 4  | 4   |
| 95th Queue (ft)       | 27 | 16 | 28 | 21  |
| Link Distance (ft)    | 94 | 94 | 94 | 106 |
| Upstream Blk Time (%) | 0  |    | 0  |     |
| Queuing Penalty (veh) | 0  |    | 0  |     |
| Storage Bay Dist (ft) |    |    |    |     |
| Storage Blk Time (%)  |    |    |    |     |
| Queuing Penalty (veh) |    |    |    |     |

Intersection: 765: Portland Av S & 7th St S

| Movement              | WB  | WB  | WB  | SB  | SB  | SB  | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|----|
| Directions Served     | L   | T   | T   | T   | T   | T   | R  |
| Maximum Queue (ft)    | 154 | 167 | 183 | 98  | 69  | 72  | 74 |
| Average Queue (ft)    | 55  | 135 | 148 | 35  | 15  | 22  | 18 |
| 95th Queue (ft)       | 132 | 190 | 190 | 78  | 50  | 58  | 54 |
| Link Distance (ft)    |     | 154 | 154 | 313 | 313 | 313 |    |
| Upstream Blk Time (%) | 0   | 5   | 7   |     |     |     |    |
| Queuing Penalty (veh) | 0   | 26  | 38  |     |     |     |    |
| Storage Bay Dist (ft) | 100 |     |     |     |     |     | 75 |
| Storage Blk Time (%)  | 0   | 13  |     |     |     | 0   | 0  |
| Queuing Penalty (veh) | 0   | 18  |     |     |     | 0   | 0  |

Queuing and Blocking Report  
AM Peak

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Intersection: 766: Portland Av S & 6th St S

| Movement              | EB  | EB  | EB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | TR  | L   | T   | T   | T   |
| Maximum Queue (ft)    | 50  | 61  | 100 | 134 | 184 | 129 | 96  |
| Average Queue (ft)    | 13  | 12  | 46  | 48  | 76  | 30  | 27  |
| 95th Queue (ft)       | 40  | 40  | 91  | 103 | 145 | 80  | 71  |
| Link Distance (ft)    | 290 | 290 | 290 |     | 706 | 706 | 706 |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     |     | 75  |     |     |     |
| Storage Blk Time (%)  |     |     |     | 0   | 10  |     |     |
| Queuing Penalty (veh) |     |     |     | 0   | 14  |     |     |

Intersection: 774: Park Av S & 7th St S

| Movement              | WB  | WB  | WB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | R   | LT  | T   | T   |
| Maximum Queue (ft)    | 138 | 204 | 120 | 89  | 68  | 79  |
| Average Queue (ft)    | 58  | 87  | 11  | 37  | 16  | 17  |
| 95th Queue (ft)       | 117 | 156 | 56  | 76  | 50  | 54  |
| Link Distance (ft)    | 311 | 311 |     | 378 | 378 | 378 |
| Upstream Blk Time (%) |     | 0   |     |     |     |     |
| Queuing Penalty (veh) |     | 0   |     |     |     |     |
| Storage Bay Dist (ft) |     |     | 100 |     |     |     |
| Storage Blk Time (%)  |     | 7   |     |     |     |     |
| Queuing Penalty (veh) |     | 3   |     |     |     |     |

Intersection: 775: Park Av S & 6th St S

| Movement              | EB  | EB  | EB  | WB | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|----|-----|-----|-----|
| Directions Served     | LT  | T   | T   | R  | T   | T   | TR  |
| Maximum Queue (ft)    | 126 | 120 | 121 | 58 | 32  | 53  | 78  |
| Average Queue (ft)    | 79  | 68  | 77  | 15 | 3   | 4   | 28  |
| 95th Queue (ft)       | 137 | 122 | 135 | 46 | 18  | 23  | 67  |
| Link Distance (ft)    | 113 | 113 | 113 |    | 305 | 305 | 305 |
| Upstream Blk Time (%) | 5   | 1   | 3   |    |     |     |     |
| Queuing Penalty (veh) | 9   | 2   | 6   |    |     |     |     |
| Storage Bay Dist (ft) |     |     |     |    |     |     |     |
| Storage Blk Time (%)  |     |     |     |    |     |     |     |
| Queuing Penalty (veh) |     |     |     |    |     |     |     |

Queuing and Blocking Report  
AM Peak

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Intersection: 1031: 7th St S

| Movement              | WB  | WB  | SB  |
|-----------------------|-----|-----|-----|
| Directions Served     | T   | TR  | R   |
| Maximum Queue (ft)    | 119 | 137 | 138 |
| Average Queue (ft)    | 17  | 35  | 59  |
| 95th Queue (ft)       | 66  | 101 | 108 |
| Link Distance (ft)    | 56  | 56  | 168 |
| Upstream Blk Time (%) | 1   | 2   | 0   |
| Queuing Penalty (veh) | 5   | 10  | 0   |
| Storage Bay Dist (ft) |     |     |     |
| Storage Blk Time (%)  |     |     |     |
| Queuing Penalty (veh) |     |     |     |

Intersection: 1032: 6th St S

| Movement              | EB | EB | EB | NB  |
|-----------------------|----|----|----|-----|
| Directions Served     | T  | T  | TR | R   |
| Maximum Queue (ft)    | 65 | 25 | 66 | 64  |
| Average Queue (ft)    | 14 | 2  | 8  | 33  |
| 95th Queue (ft)       | 51 | 20 | 39 | 59  |
| Link Distance (ft)    | 54 | 54 | 54 | 150 |
| Upstream Blk Time (%) | 2  | 0  | 1  |     |
| Queuing Penalty (veh) | 4  | 1  | 2  |     |
| Storage Bay Dist (ft) |    |    |    |     |
| Storage Blk Time (%)  |    |    |    |     |
| Queuing Penalty (veh) |    |    |    |     |

Zone Summary

|                                |
|--------------------------------|
| Zone wide Queuing Penalty: 200 |
|--------------------------------|

1: 7th St S Performance by movement

New 7th St Ramp Entry/Exit

| Movement           | WBT | WBR | SBR  | All |
|--------------------|-----|-----|------|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.4  | 0.1 |
| Total Del/Veh (s)  | 2.1 | 1.6 | 15.1 | 3.0 |

11: 6th St S Performance by movement

New 6th St Ramp Entry/Exit

| Movement           | EBT  | EBR  | NBR  | All  |
|--------------------|------|------|------|------|
| Denied Del/Veh (s) | 0.4  | 0.2  | 1.1  | 0.4  |
| Total Del/Veh (s)  | 14.8 | 12.9 | 27.4 | 16.1 |

765: Portland Av S & 7th St S Performance by movement

| Movement           | WBL | WBT | SBT  | SBR | All  |
|--------------------|-----|-----|------|-----|------|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0  | 0.0 | 0.0  |
| Total Del/Veh (s)  | 8.7 | 9.9 | 14.7 | 6.6 | 11.6 |

766: Portland Av S & 6th St S Performance by movement

| Movement           | EBT   | EBR   | SBL  | SBT  | All   |
|--------------------|-------|-------|------|------|-------|
| Denied Del/Veh (s) | 410.3 | 423.2 | 2.7  | 0.2  | 244.5 |
| Total Del/Veh (s)  | 57.8  | 45.0  | 26.7 | 21.0 | 40.1  |

774: Park Av S & 7th St S Performance by movement

| Movement           | WBT | WBR | NBL  | NBT  | All |
|--------------------|-----|-----|------|------|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 6.6 | 3.6 | 12.0 | 14.5 | 9.7 |

775: Park Av S & 6th St S Performance by movement

| Movement           | EBL  | EBT  | WBR  | NBT | NBR | All  |
|--------------------|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.1  | 0.0 | 0.0 | 0.0  |
| Total Del/Veh (s)  | 14.0 | 16.7 | 51.9 | 5.6 | 5.2 | 12.9 |

1031: 7th St S Performance by movement

7th St Ramp Entry/Exit

| Movement           | WBT | WBR | SBR  | All |
|--------------------|-----|-----|------|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.2  | 0.0 |
| Total Del/Veh (s)  | 1.1 | 0.6 | 15.0 | 2.5 |

1032: 6th St S Performance by movement

6th St Ramp Entry/Exit

| Movement           | EBT | EBR | NBR  | All  |
|--------------------|-----|-----|------|------|
| Denied Del/Veh (s) | 0.2 | 0.1 | 13.4 | 1.9  |
| Total Del/Veh (s)  | 7.0 | 5.3 | 58.1 | 13.6 |



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Total Zone Performance

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|                    |       |
|--------------------|-------|
| Denied Del/Veh (s) | 245.0 |
| Total Del/Veh (s)  | 172.2 |

Queuing and Blocking Report  
PM Peak

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Intersection: 1: 7th St S

| Movement              | WB  | WB  | SB  |
|-----------------------|-----|-----|-----|
| Directions Served     | T   | TR  | R   |
| Maximum Queue (ft)    | 153 | 147 | 102 |
| Average Queue (ft)    | 31  | 69  | 46  |
| 95th Queue (ft)       | 106 | 152 | 82  |
| Link Distance (ft)    | 55  | 55  | 94  |
| Upstream Blk Time (%) | 2   | 8   | 1   |
| Queuing Penalty (veh) | 13  | 48  | 0   |
| Storage Bay Dist (ft) |     |     |     |
| Storage Blk Time (%)  |     |     |     |
| Queuing Penalty (veh) |     |     |     |

Intersection: 11: 6th St S

| Movement              | EB  | EB  | EB  | NB  |
|-----------------------|-----|-----|-----|-----|
| Directions Served     | T   | T   | TR  | R   |
| Maximum Queue (ft)    | 123 | 145 | 145 | 141 |
| Average Queue (ft)    | 100 | 104 | 106 | 80  |
| 95th Queue (ft)       | 111 | 126 | 127 | 133 |
| Link Distance (ft)    | 94  | 94  | 94  | 106 |
| Upstream Blk Time (%) | 30  | 30  | 30  | 6   |
| Queuing Penalty (veh) | 132 | 133 | 133 | 0   |
| Storage Bay Dist (ft) |     |     |     |     |
| Storage Blk Time (%)  |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |

Intersection: 765: Portland Av S & 7th St S

| Movement              | WB  | WB  | WB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | T   | T   | T   | T   | T   | R   |
| Maximum Queue (ft)    | 154 | 193 | 174 | 180 | 198 | 213 | 109 |
| Average Queue (ft)    | 95  | 128 | 148 | 98  | 85  | 88  | 27  |
| 95th Queue (ft)       | 170 | 199 | 189 | 156 | 149 | 158 | 80  |
| Link Distance (ft)    |     | 154 | 154 | 313 | 313 | 313 |     |
| Upstream Blk Time (%) | 1   | 3   | 8   |     |     |     | 0   |
| Queuing Penalty (veh) | 0   | 16  | 48  |     |     |     | 0   |
| Storage Bay Dist (ft) | 100 |     |     |     |     |     | 75  |
| Storage Blk Time (%)  | 5   | 7   |     |     |     | 9   | 0   |
| Queuing Penalty (veh) | 13  | 19  |     |     |     | 8   | 1   |

Queuing and Blocking Report  
PM Peak

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Intersection: 766: Portland Av S & 6th St S

| Movement              | EB  | EB  | EB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | TR  | L   | T   | T   | T   |
| Maximum Queue (ft)    | 273 | 290 | 323 | 135 | 342 | 291 | 203 |
| Average Queue (ft)    | 203 | 207 | 229 | 89  | 213 | 162 | 81  |
| 95th Queue (ft)       | 255 | 268 | 298 | 167 | 310 | 256 | 164 |
| Link Distance (ft)    | 290 | 290 | 290 |     | 706 | 706 | 706 |
| Upstream Blk Time (%) | 0   | 0   | 2   |     |     |     |     |
| Queuing Penalty (veh) | 0   | 0   | 5   |     |     |     |     |
| Storage Bay Dist (ft) |     |     |     | 75  |     |     |     |
| Storage Blk Time (%)  |     |     |     | 8   | 38  |     |     |
| Queuing Penalty (veh) |     |     |     | 21  | 49  |     |     |

Intersection: 774: Park Av S & 7th St S

| Movement              | WB  | WB  | WB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | R   | LT  | T   | T   |
| Maximum Queue (ft)    | 147 | 158 | 59  | 163 | 182 | 183 |
| Average Queue (ft)    | 76  | 76  | 8   | 81  | 70  | 79  |
| 95th Queue (ft)       | 131 | 138 | 37  | 136 | 137 | 152 |
| Link Distance (ft)    | 311 | 311 |     | 378 | 378 | 378 |
| Upstream Blk Time (%) |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     | 100 |     |     |     |
| Storage Blk Time (%)  |     | 5   |     |     |     |     |
| Queuing Penalty (veh) |     | 2   |     |     |     |     |

Intersection: 775: Park Av S & 6th St S

| Movement              | EB  | EB  | EB  | WB | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|----|-----|-----|-----|
| Directions Served     | LT  | T   | T   | R  | T   | T   | TR  |
| Maximum Queue (ft)    | 153 | 158 | 150 | 65 | 46  | 44  | 81  |
| Average Queue (ft)    | 121 | 125 | 122 | 19 | 14  | 11  | 36  |
| 95th Queue (ft)       | 138 | 146 | 138 | 53 | 39  | 36  | 73  |
| Link Distance (ft)    | 113 | 113 | 113 |    | 305 | 305 | 305 |
| Upstream Blk Time (%) | 31  | 33  | 37  |    |     |     |     |
| Queuing Penalty (veh) | 172 | 179 | 200 |    |     |     |     |
| Storage Bay Dist (ft) |     |     |     |    |     |     |     |
| Storage Blk Time (%)  |     |     |     |    |     |     |     |
| Queuing Penalty (veh) |     |     |     |    |     |     |     |

Queuing and Blocking Report  
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Intersection: 1031: 7th St S

| Movement              | WB | WB  | SB  |
|-----------------------|----|-----|-----|
| Directions Served     | T  | TR  | R   |
| Maximum Queue (ft)    | 89 | 120 | 132 |
| Average Queue (ft)    | 7  | 17  | 54  |
| 95th Queue (ft)       | 42 | 72  | 103 |
| Link Distance (ft)    | 56 | 56  | 168 |
| Upstream Blk Time (%) | 0  | 2   | 0   |
| Queuing Penalty (veh) | 2  | 8   | 0   |
| Storage Bay Dist (ft) |    |     |     |
| Storage Blk Time (%)  |    |     |     |
| Queuing Penalty (veh) |    |     |     |

Intersection: 1032: 6th St S

| Movement              | EB  | EB  | EB  | NB  |
|-----------------------|-----|-----|-----|-----|
| Directions Served     | T   | T   | TR  | R   |
| Maximum Queue (ft)    | 98  | 80  | 100 | 189 |
| Average Queue (ft)    | 57  | 57  | 59  | 125 |
| 95th Queue (ft)       | 73  | 69  | 78  | 204 |
| Link Distance (ft)    | 54  | 54  | 54  | 150 |
| Upstream Blk Time (%) | 31  | 32  | 35  | 28  |
| Queuing Penalty (veh) | 154 | 156 | 171 | 0   |
| Storage Bay Dist (ft) |     |     |     |     |
| Storage Blk Time (%)  |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |

Zone Summary

Zone wide Queuing Penalty: 1685

## **Appendix C**

### **Parking Ramp Volumes**



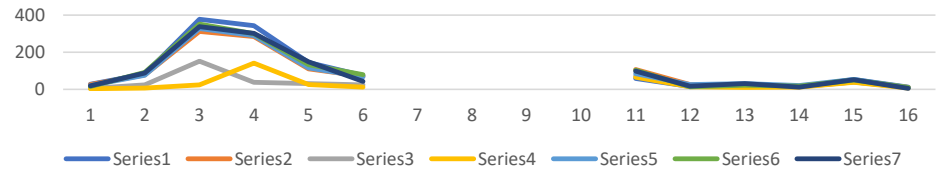
# PARKING RAMP VOLUMES

## Purple Ramp – Entry/Exit



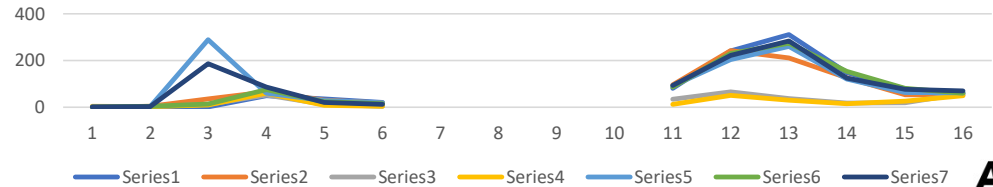
| ENTRY      | 4    | 5     | 6     | 7    | 8     | 9     |  |  |  |  | 2   | 3  | 4  | 5  | 6  | 7  |
|------------|------|-------|-------|------|-------|-------|--|--|--|--|-----|----|----|----|----|----|
| Thu        | 28   | 82    | 377   | 342  | 144   | 73    |  |  |  |  | 58  | 15 | 19 | 14 | 53 | 12 |
| Fri        | 26   | 77    | 311   | 283  | 110   | 71    |  |  |  |  | 106 | 26 | 18 | 13 | 40 | 11 |
| Sat        | 6    | 24    | 152   | 37   | 30    | 23    |  |  |  |  | 72  | 17 | 16 | 17 | 40 | 10 |
| Sun        | 3    | 6     | 23    | 141  | 26    | 12    |  |  |  |  | 65  | 13 | 10 | 11 | 38 | 7  |
| Mon        | 20   | 75    | 327   | 289  | 115   | 66    |  |  |  |  | 84  | 26 | 30 | 20 | 53 | 8  |
| Tue        | 15   | 91    | 351   | 300  | 132   | 78    |  |  |  |  | 103 | 14 | 22 | 16 | 49 | 10 |
| Wed        | 18   | 87    | 337   | 301  | 148   | 43    |  |  |  |  | 97  | 17 | 31 | 12 | 52 | 6  |
|            | 107  | 412   | 1703  | 1515 | 649   | 331   |  |  |  |  |     |    |    |    |    |    |
| 5 Days Ave | 21.4 | 82.4  | 340.6 | 303  | 129.8 | 66.2  |  |  |  |  |     |    |    |    |    |    |
| Projection | 42.8 | 164.8 | 681.2 | 606  | 259.6 | 132.4 |  |  |  |  |     |    |    |    |    |    |

Daily Average:



| EXIT | 4 | 5 | 6   | 7  | 8  | 9  |  |  |  |  | 2   | 3     | 4     | 5     | 6     | 7     |
|------|---|---|-----|----|----|----|--|--|--|--|-----|-------|-------|-------|-------|-------|
| Thu  | 1 | 0 | 2   | 50 | 36 | 21 |  |  |  |  | 81  | 241   | 312   | 148   | 78    | 59    |
| Fri  | 1 | 4 | 36  | 66 | 30 | 18 |  |  |  |  | 96  | 243   | 211   | 126   | 54    | 53    |
| Sat  | 3 | 3 | 13  | 53 | 12 | 5  |  |  |  |  | 34  | 66    | 37    | 18    | 20    | 59    |
| Sun  | 4 | 3 | 10  | 61 | 9  | 4  |  |  |  |  | 13  | 51    | 31    | 15    | 26    | 50    |
| Mon  | 2 | 3 | 289 | 60 | 29 | 19 |  |  |  |  | 92  | 205   | 260   | 121   | 64    | 62    |
| Tue  | 0 | 5 | 14  | 76 | 23 | 16 |  |  |  |  | 87  | 230   | 274   | 154   | 81    | 60    |
| Wed  | 2 | 3 | 186 | 86 | 21 | 13 |  |  |  |  | 94  | 222   | 284   | 125   | 77    | 70    |
|      |   |   |     |    |    |    |  |  |  |  | 450 | 1141  | 1341  | 674   | 354   | 304   |
|      |   |   |     |    |    |    |  |  |  |  | 90  | 228.2 | 268.2 | 134.8 | 70.8  | 60.8  |
|      |   |   |     |    |    |    |  |  |  |  | 180 | 456.4 | 536.4 | 269.6 | 141.6 | 121.6 |

Daily Average:



# PARKING RAMP VOLUMES

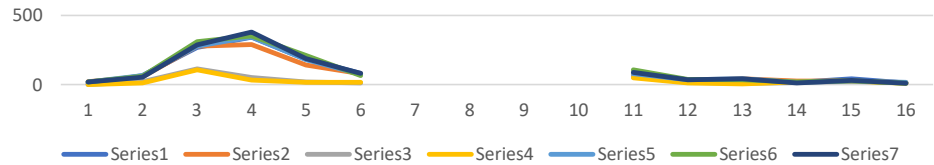
## Hospital Ramp (Chicago Ave)

### - Entry/Exit



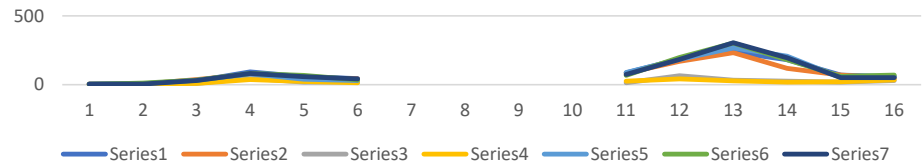
| ENTRY                 | 4    | 5    | 6    | 7     | 8     | 9    |  |  |  |  | 2   | 3  | 4  | 5  | 6  | 7  |
|-----------------------|------|------|------|-------|-------|------|--|--|--|--|-----|----|----|----|----|----|
| Thu                   | 8    | 66   | 269  | 343   | 182   | 82   |  |  |  |  | 72  | 35 | 38 | 17 | 43 | 13 |
| Fri                   | 21   | 55   | 277  | 289   | 141   | 80   |  |  |  |  | 74  | 25 | 43 | 26 | 26 | 14 |
| Sat                   | 2    | 22   | 114  | 51    | 19    | 13   |  |  |  |  | 57  | 17 | 9  | 15 | 24 | 12 |
| Sun                   | 2    | 11   | 106  | 33    | 16    | 16   |  |  |  |  | 48  | 13 | 5  | 20 | 25 | 9  |
| Mon                   | 19   | 65   | 277  | 346   | 181   | 75   |  |  |  |  | 80  | 35 | 42 | 17 | 25 | 16 |
| Tue                   | 18   | 61   | 310  | 353   | 211   | 65   |  |  |  |  | 107 | 37 | 35 | 20 | 29 | 10 |
| Wed                   | 18   | 54   | 287  | 380   | 188   | 81   |  |  |  |  | 88  | 34 | 42 | 13 | 31 | 10 |
|                       | 84   | 301  | 1420 | 1711  | 903   | 383  |  |  |  |  |     |    |    |    |    |    |
| 5 Days Ave Projection | 16.8 | 60.2 | 284  | 342.2 | 180.6 | 76.6 |  |  |  |  |     |    |    |    |    |    |

### Daily Average:



| EXIT                  | 4 | 5  | 6  | 7  | 8  | 9  |  |  |  |  | 2    | 3   | 4     | 5     | 6    | 7    |
|-----------------------|---|----|----|----|----|----|--|--|--|--|------|-----|-------|-------|------|------|
| Thu                   | 2 | 8  | 28 | 93 | 57 | 44 |  |  |  |  | 85   | 186 | 237   | 180   | 70   | 57   |
| Fri                   | 3 | 5  | 38 | 74 | 51 | 42 |  |  |  |  | 83   | 170 | 233   | 119   | 69   | 46   |
| Sat                   | 1 | 3  | 9  | 46 | 18 | 20 |  |  |  |  | 14   | 64  | 32    | 25    | 18   | 31   |
| Sun                   | 4 | 1  | 9  | 36 | 23 | 14 |  |  |  |  | 26   | 42  | 27    | 19    | 21   | 35   |
| Mon                   | 4 | 7  | 32 | 79 | 40 | 30 |  |  |  |  | 89   | 184 | 267   | 206   | 50   | 61   |
| Tue                   | 3 | 11 | 33 | 80 | 67 | 35 |  |  |  |  | 68   | 197 | 301   | 182   | 60   | 69   |
| Wed                   | 4 | 4  | 30 | 80 | 57 | 42 |  |  |  |  | 74   | 183 | 305   | 195   | 52   | 51   |
|                       |   |    |    |    |    |    |  |  |  |  | 399  | 920 | 1343  | 882   | 301  | 284  |
| 5 Days Ave Projection |   |    |    |    |    |    |  |  |  |  | 79.8 | 184 | 268.6 | 176.4 | 60.2 | 56.8 |

### Daily Average:



## **Appendix F**

### **References**

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