Westwood

ENVIRONMENTAL ASSESSMENT WORKSHEET

Kraus-Anderson Block Redevelopment

Minneapolis, Minnesota
November 19, 2015

Prepared For:

Kraus-Anderson, Incorporated
525 South 8th Street
Minneapolis, MN 55404

ENVIRONMENTAL ASSESSMENT WORKSHEET

Kraus-Anderson Block Redevelopment EAW
Minneapolis, MN

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ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addressed collectively under EAW Item 19.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation, and the need for an EIS.

1. Project Title

Kraus-Anderson Block Redevelopment EAW

2. Proposer

Proposer: Kraus-Anderson, Incorporated
Contact Person: Mike Korsh
Title: Vice President
Address: 525 South 8th Street
City, State, ZIP: Minneapolis, MN 55404
Phone: 952-881-8166
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3. RGU

RGU: City of Minneapolis
Contact Person: Hilary Dvorak
Title: Principal Planner
Address: 250 South 4th Street, Room 300
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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 MANDATORY EAW CATEGORIES.

Subp.19. Residential development D. 375 attached units in a city within the seven-county Twin Cities metropolitan area that has adopted a comprehensive plan under Minnesota Statutes, section 473.859; and Subp. 32. Mixed residential and industrial-commercial projects with a sum of quotients exceeding 1.0.

5. Project Location

County: Hennepin County, Minnesota

City/Township: Minneapolis

Address: 810 Portland Avenue

PLS Location (¼, ¼, Section, Township, Range): T29, R24, S26

Watershed (81 major watershed scale): Mississippi River (Metro) #20

GPS Coordinates: 44.972246, -93.266046 (Approximate Project Center)

Tax Parcel Numbers: 2602924230045; 2602924230046; 2602924230047; 2602924230098; 260292423015; 260292423015O; 2602924230051

At a minimum attach each of the following to the EAW:

☐ County map showing the general location of the project; **See Exhibit 1.**
☐ U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and **See Exhibit 2.**
☐ Site plans showing all significant project and natural features. Post-construction site plan and Pre-construction site plans (**Exhibits 1-10**).

See Table of Contents for additional exhibit locations and appendices.

6. Project Description

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

The proposed mixed-use project would result in the redevelopment of an approximate two and one-half acre site along Portland Avenue in Downtown Minneapolis, between South 8th and 9th Streets known as the KA Block. The project is anticipated to be developed in one phase and would provide at completion up to 306 dwelling units, a 148-unit hotel and associated restaurant/bar, 107,000 square feet of office, a 12,000 square-foot brewery, a 13,000 square-foot event center, and up to 530 off-street parking spaces.

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 would cause physical manipulation of the environment or would 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 Site comprises approximately 109,571 square feet (SF) or 2.5 acres of developable property along Portland Avenue, between South 8th and 9th Streets in Minneapolis (the "Site"). The property currently contains the 33,600 square-foot Kraus-Anderson (KA) office building and supporting bituminous surface parking lot that includes a total of 299 off-street parking spaces. A current use as-built survey completed in 2013 is provided in **Appendix A**. The Site is zoned B4N (Downtown Neighborhood District), and located in the Downtown Parking (DP) Overlay District **(Exhibits 3 and 4)**. The project is located in the Elliot Park Neighborhood, and is guided by the Elliot Park Neighborhood Master Plan. In addition, the project design has been guided by the Portland Avenue Residential Corridor and East Downtown Branding and Visioning Initiatives. A letter of project support has been provided by the East Downtown Council (**Appendix B**).

The proposed project would be developed in one phase which would include 306 residential units, a 148-unit hotel and associated restaurant/bar, 107,000 square feet of office, a 12,000 square-foot brewery, a 13,000 square-foot event center, and up to 530 parking spaces. The project would occupy approximately 109,571 square feet of land and is planned for construction beginning in 2016, with substantial completion by 2018. The development would be taken through the City's land use, design and approval processes as one phase and one project. A Conceptual Rendering of the project is provided in **Exhibit 5**.

The proposed project encompasses a full city block; a Detailed Site Plan is provided in **Exhibit 6**. As currently proposed, the project includes a new 5-story Kraus-Anderson Corporate Home Office, a 17-story Type I residential midrise building, and a 7-story 'Brewtel' (Boutique Hotel/Micro-brewery/Innovation Center). The micro-brewery would be home to Finnegans, a non-profit brewery that donates 100% of profits back to the community. An event center and innovation space is proposed on the second and third floors of the brewery building, and a restaurant and bar are proposed at street level in the hotel building along 9th street. A multi-purpose hardscape courtyard is proposed immediately outside the brewery/innovation center that can be used by the surrounding new development for a variety of activities, gatherings, and outdoor dining. Public access to the courtyard from 5th Avenue South would be provided through a covered atrium space (indoor street) situated between the brewery and the Finnegans House hotel. One-way, private drive access to the block is proposed from 5th Avenue South, with an exit onto South 9th Street. Service access and residence/hotel drop off would be available from the 5th Avenue South entrance. Limited access to the two-level parking facility would be from South 8th Street; the underground facility would provide up to 530 parking stalls; no at grade parking is proposed. Approximately 306 bicycle parking spaces are planned for the residential units, and an additional 28 for the public and visitors. Six of the 28 bicycle spaces are planned at the residence entry on Portland, six at the KA Office building along South 8th street, eight in front of the brewery, and eight in the courtyard. Anticipated building floor plans and metrics tables are provided in **Appendices C and D**.

Type 1, 100-year concrete and steel construction would be used throughout the project; exterior materials would include concrete, wood, glass, and steel design elements that blend traditional materials with contemporary form. Residential units along Portland would feature multiple entries, townhomes with front yards, and urban porches that continue the fabric and feel of the Elliot Park neighborhood. Features along the 9th Street and 5th Avenue South streetscapes would include large windows to the street, multiple entry points, and outdoor dining and seating along South 9th Street.

The project would be reviewed by all applicable City Staff including Public Works and Community Planning and Economic Development (CPED) staff. The project would require the removal (relocation and demolition) of the existing KA office building, currently located in the northeast corner of the KA Block, along with bituminous parking surface. The project would require excavation for below-grade foundation structures and underground structured parking.

c. *Project Magnitude*

Table 5.1. Project Magnitude Data

Total Project Acreage	2.5
Linear project length	N/A
Number and type of residential units	306 Attached (Dwellings)
Commercial building area (in square feet)	205,000 (Office/Retail/Commercial)
Industrial building area (in square feet)	N/A
Institutional building area (in square feet)	N/A
Other uses – specify (in square feet)	Up to 530 parking stalls on site (underground structured parking)
Structure height(s)	Residential: 17 stories (190± feet) Office: 5 stories (70± feet) Brewtel: 7 stories (90± feet)

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

The purpose of the development is to redevelop a surface parking lot and existing office building in Downtown Minneapolis with a mixed-use development that includes high density housing, office space, and a hotel/micro-brewery/innovation center. The project would be developed by a private developer, with private funds and financing.

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 the present project, timeline, and plans for environmental review.

There are currently no planned future stages of the Kraus-Anderson Block redevelopment project.

f. *Is the 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. Cover Types

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

The Kraus-Anderson Block Redevelopment Project would replace an existing two-story, concrete office building with a 13,407 SF building footprint and a bituminous surface parking lot with a high-density mixed use development. The Kraus-Anderson Block Redevelopment Project plans include a new, 95,000 SF Kraus-Anderson Corporate Home Office, a new Type I residential midrise building with approximately 306 dwelling units, and 148-room Finnegan's House Boutique Hotel/Microbrewery/Innovation Center.

Table 7.1. Estimated Before and After Cover Types

Land Cover	Before (acres)	After (acres)
Wetland	0.00	0.00
Deep water/streams	0.00	0.00
Wooded/Forest	0.00	0.00
Brush/Grassland	0.00	0.00
Cropland	0.00	0.00
Lawn/landscaping	0.06	0.09
Impervious Surface	2.46	2.43
Stormwater Pond	0.0	0.0
Totals	**2.52**	**2.52**

If **Before** *and* **After** *totals are not equal, explain why:* Totals are equal.

8. 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.

The following table lists the primary permits and approvals anticipated for the project.

Table 8.1. Permits and Approvals Required

Unit of Government	Type of Application	Status
State Permits and Approvals		
Pollution Control Agency	Sanitary Sewer Connection Permit	To be applied for
	Construction Stormwater Permit (NPDES)	To be applied for
	Registration permits for generators	To be applied for
	Stormwater Pollution Prevention Plan	To be applied for
Department of Health	Water Main System Extension Permit	To be applied for
Department of Natural Resources	Appropriation/Dewatering Permit	To be applied for, if needed
Regional Permits and Approvals		
Metropolitan Council Environmental Services	Approval of dewatering discharge	To be applied for, if needed
	Sanitary Sewer Connection Permit/SAC Fee	To be applied for
Mississippi River Watershed District	Grading/Stormwater Permit	To be applied for
Local Permits and Approvals		
City of Minneapolis	Building Permits	To be applied for
	Lane Use/Obstruction Permit	To be applied for, if needed
	Right-of-Way Excavation Permit	To be applied for, if needed
	Sanitary Sewer Connection/Extension Permit	To be applied for, if needed
	Storm Sewer Connection/Extension Permit	To be applied for, if needed
	Erosion and Sediment Control Permit/Plan Approval	To be applied for
	Stormwater Management Plan	To be applied for
	Encroachment Permit	To be applied for, if needed
	Sidewalk Construction Permit	To be applied for
	Zoning - CUPs, Variances, Site Plan Review	To be applied for as needed
	Preliminary and Final Plat	To be applied for
	Certificate of Occupancy	To be applied for

Note: The project proposer would apply for and receive all applicable permits prior to project construction.

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19

9. Land Use

a. Describe:

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

The existing land use within, and adjacent to, the Site is depicted on **Exhibit 7**. The 2.5-acre Site currently consists of a two-story, concrete office building with a 13,407 SF footprint, approximately 3,000 SF of lawn and landscaping, with the remainder of the Site covered by a bituminous parking lot. Adjacent land uses include the Twin Cities United Way, the Family Partnership, and Catholic Charities located west and north of the Site, respectively. Commercial buildings and hotels are located northwest and southeast of the Site, as well as high density residential buildings to the east, south, and southwest. The Gethsemane Episcopal Church is southwest of the Site and adjacent properties include a significant surface parking component. The Hennepin County Medical Center and Government Center are both located within 2-3 blocks east/northeast of the project area, with the Minneapolis Convention Center to the southwest, and the new U.S. Bank Stadium located east/northeast of the Site.

There are no parks, trails, or prime and unique farmlands within the Project boundary. Within one mile of the Site is Loring Park to the west, West River Parkway and Mill Ruins Park to the northeast, Elliot and Currie Parks to the east/southeast, and Steven's Square, Franklin Steele Square, and Peavey Park to the south.

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 *Minneapolis Plan for Sustainable Growth* (the City's Comprehensive Plan, 2009) designates the Site on the future land use map as Mixed-Use, and the property fronts areas zoned for very high density housing, congregate living, offices and commercial uses. Land Use Policy 1.4 of the Comprehensive Plan regarding General Commercial areas encourages the City to "[d]evelop and maintain strong and successful commercial and mixed use areas with a wide range of character and functions to serve the needs of current and future users." This Policy is supported by the following Implementation Steps:

1.4.1 Support a variety of commercial districts and corridors of varying size, intensity of development, mix of uses, and market served.

1.4.2 Promote standards that help make commercial districts and corridors desirable, viable, and distinctly urban, including: diversity of activity, safety for pedestrians, access to desirable goods and amenities, attractive streetscape elements, density and variety of uses to encourage walking, and architectural elements to add interest at the pedestrian level.

1.4.3 Continue to implement land use controls applicable to all uses and structures located in commercial districts and corridors, including but not limited to maximum occupancy standards, hours open to the public, truck parking, provisions for increasing the

maximum height of structures, lot dimension requirements, density bonuses, yard requirements, and enclosed building requirements.

1.4.4 Continue to encourage principles of traditional urban design including site layout that screens off-street parking and loading, buildings that reinforce the street wall, principal entrances that face the public sidewalks, and windows that provide "eyes on the street".

Downtown is also designated as a Growth Center. Growth Centers are characterized by a concentration of business and employment activity and a wide range of complementary activities, residential, office, retail, entertainment and recreational uses. Per the Comprehensive Plan, high intensity uses are encouraged to take advantage of premium locations in the Downtown Growth Center to strengthen the City's core. Land Use Policy 1.15 calls on the City to "[s]upport development of Growth Centers as locations for concentration of jobs and housing, and supporting services." The following Implementation Steps for this Policy are relevant to the proposed project:

1.15.1 Support development of Growth Centers through planning efforts to guide decisions and prioritize investments in these areas.

1.15.3 Encourage the development of high- to very high-density housing within Growth Centers.

Other Comprehensive Plan Policies that are applicable to this type of project include the following, among others:

- ☐ Land Use Policy 1.3 states: "Ensure that development plans incorporate appropriate transportation access and facilities, particularly for bicycle, pedestrian, and transit." This Policy includes the following applicable Implementation Steps: (1.3.1) "Require safe, convenient, and direct pedestrian connections between principal building entrances and the public right-of-way in all new development and, where practical, in conjunction with renovation and expansion of existing buildings"; and (1.3.2) "Ensure the provision of high quality transit, bicycle, and pedestrian access to and within designated land use features."

- ☐ Housing Policy 3.1 states: "Grow by increasing the supply of housing." This Policy includes the following applicable Implementation Step: (3.1.1) "Support the development of new medium- and high-density housing in appropriate locations throughout the city."

- ☐ Housing Policy 3.2 states: "Support housing density in locations that are well connected by transit, and are close to commercial, cultural and natural amenities." This Policy includes the following applicable Implementation Step: (3.2.1). "Encourage and support housing development along commercial and community corridors, and in and near growth centers, activity centers, retail centers, transit station areas, and neighborhood commercial nodes."

The project is also consistent with the goals, objectives and design principles of the Elliot Park Neighborhood Master Plan (2003) including:

- ☐ Create a pedestrian-scaled urban neighborhood with a broad continuum of housing opportunities and sufficient commercial, institutional and recreational facilities to sustain and build community.

- ☐ Make Elliot Park a safer, more attractive and more appealing neighborhood.

- ☐ Foster a sense of place and community, broaden the mix of uses, improve connectivity, respect architectural form, scale, and context, and reclaim parking lots for in-fill housing and commercial uses.

The project would also be designed in general accordance with the City's *Local Surface Water Management Plan* (2006), the *Ten-Year Downtown Transportation Action Plan* (2007), and the *Ten-Year Citywide Transportation Action Plan* (2009).

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

The project is located in the following districts and overlay districts:

B4N Downtown Neighborhood District: The proposed project is located entirely within the B4N Downtown Neighborhood District as shown on Exhibit 3. As described in Section 549.530 of the City's Zoning Code, the B4 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. The B4N District also allows the following principal uses; general retail sales and services, entertainment and lodging, offices, restaurants, residential and public uses, and religious institutions. Specific zoning requirements in the B4N District include the following:

- ☐ In the B4N District, the minimum floor area ratio (FAR) of all structures shall be two (2); there is no maximum FAR in the B4N District.

- ☐ The height limitations of all principle structures in the B4N District shall be ten (10) stories or one hundred forty (140) feet in height, whichever is less. However, the height limitation may be increased by a conditional use permit (CUP) and its associated standards. In this case the height will be increased through the CUP for the Planned Unit Development. An alternative to the zoning code will be required through the CUP and amenities will need to be provided.

  Several conditions govern uses in the B4N District which include, but are not limited to, the prohibition of drive through facilities and outdoor speakers, limitations on automobile sales and prohibition of associated fuel dispensing and outdoor displays. Production, processing and storage uses as well as all retail sales and service uses are limited to 30,000 sf of gross floor area. The ground floor of principal and accessory parking garages shall have commercial, residential, office, or hotel uses located between the parking garage and any public sidewalk, except where necessary for access. In addition, Principal parking garages shall have all parking spaces located entirely below grade.

DP Downtown Parking Overlay District: The proposed project is located entirely within the Downtown Parking Overlay District as shown on Exhibit 4. As described in Section 551.730, the purpose of the DP Overlay District is 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 and establishing certain minimum and maximum off-street parking standards in the downtown area.

The DP Overlay District prohibits commercial parking lots, including the expansion of any existing commercial parking lot and further prohibits the conversion of any accessory parking lot to a commercial parking lot. A conditional use permit is required if any accessory parking lot is provided on-site to serve the principal use and accessory parking lots cannot exceed 20 spaces without a variance.

According to FEMA Floodplain mapping, the project is located within Flood Panel 27053C0357E. The entire project is identified as being outside of either a 100 or 500-year flood zone (**Exhibit 8**).

There are no known wild and scenic rivers, critical areas, designated shorelands, or agricultural preserves within the project area. This Site is approximately 0.6-miles from the Mississippi River.

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

Surrounding properties also fall within the B4 Districts and Overlay Districts as applicable; therefore, they have similar requirements and restrictions as those placed on the proposed project. The surrounding land uses are similar in nature and compatible with the residential, commercial and office uses proposed for the project.

The proposed project is generally compatible with the land uses called for in the Comprehensive Plan. The project would provide high density housing within an area of concentrated employment and other complementary uses. This development would further support the City's goals for transit-oriented development due to its close proximity to mass transit services.

The proposed FAR of the project is 4.89. The project is expected to comply with vehicular and bicycle parking requirements and other generally-applicable code requirements. It is likely, however, that an exception to increase the height of the building through the CUP for the Planned Unit Development will be requested. An alternative to the zoning code will be required through the CUP and amenities will need to be provided. No surface parking is proposed, which would comply with the intent of the DP Overlay District.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

The applicant would work closely with city staff to ensure that the proper permits and approvals are obtained and mitigation measures applied, as needed and warranted.

10. 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.*

Minnesota and U.S. Geological Survey information indicates bedrock geology underlying the Site consists of Platteville and Glenwood formations, which consist predominantly of limestone, dolostone (Platteville) and shale (Glenwood) (M-194 Bedrock Geology of the Twin Cities Ten-county Metropolitan Area, Minnesota-Mossler, John H. (2013). These formations are exposed almost continuously along the Mississippi River in Minneapolis and St. Paul. Bedrock elevations in this area are at an 800 mean sea level (msl) elevation, which is 30 to 50 feet below the ground surface in the area of the project, and would constitute a shallow limestone formation. The Site is located in a karst region and numerous karst features such as sinkholes, springs, and stream sinks are identified within one mile of the Site based on Karst Feature Inventory Points from the University of Minnesota, Department of Geology and Geophysics, but are not currently mapped on the Site.

Braun Intertec (Braun) completed geotechnical borings and issued a Geotechnical Evaluation Report for the site dated July 18, 2014. The work was completed to support the proposed Kraus-Anderson office building. Braun conducted 11 test borings to depths of 20-50 feet across the site. Based on the soil borings, Braun found that the site is underlain by approximately 12 feet of fill, followed by alluvial deposited sands overlying a relatively thin deposit of glacial till associated with the Des Moines or Superior Lobe glacial advances, directly over bedrock consisting of Platteville Limestone. Auger refusal depths, which generally indicate the approximate top of bedrock, were reported at approximately 50 feet below grade. Groundwater was not encountered during drilling. The geo-technical report concluded that the proposed KA office structure can be supported by spread footing foundations bearing upon the underlying alluvial sands. Geo-technical assessments for the other proposed structures would be evaluated prior to construction.

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 11.b.ii.*

The Soil Survey Geographic (SSURGO) digital database for Hennepin County (USDA NRCS, Accessed 2014) indicates the soils that occur within the project area (**Exhibit 9**) are Urban land-Udipsamments (cut and fill land) complex, 0 to 2% slopes. Urban land consists mainly of industrial parks, office buildings, warehouses, and railroad yards and is covered by impervious surfaces. Most of these urban land areas were originally wet, mineral or organic soils in depressions.

Udipsamments are nearly level areas that have undergone minimal grading and the cut and fill material is predominantly sandy. According to the Hennepin County Soil Survey, because of the variability of both of these components, interpretations for specific uses are not available and onsite investigation is needed. Prior to project construction, the project proposer would be conducting additional analysis of soil borings on the Site to determine if there are site-specific soil limitations

and what, if any, necessary soil corrections or special building foundations or footings might be needed for the project.

The estimated volume of soils to be excavated on the Site is 85,039 cubic yards to accommodate foundations for the proposed structures and the two story underground parking garage. Site grading would encompass the entire project area, which is approximately 2.5 acres.

Contour mapping from the MnDNR MNTOPO online mapping tool indicates surface topography in the project area is flat with an 846 elevation across the site. There are no naturally occurring steep slopes on the Site.

Erosion and sedimentation control BMPs related to stormwater runoff are discussed in greater detail within Item 11.b.ii.

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.

11. 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, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include 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.

Surface Waters

The Kraus-Anderson Block Redevelopment lies within the Middle Mississippi Watershed, which drains to the Mississippi River. The Minnesota Department of Natural Resources (MN DNR) Public Water Inventory Map (PWI), the 2014 update of the National Wetland Inventory (NWI) Map, and the National Hydrography Dataset (NHD) were reviewed and depicted no watercourses or waterbodies within the Site (Exhibit 8). The MN DNR PWI and NHD dataset mapping did indicate two watercourses and one water body within approximately one mile of the Site, including the Mississippi River, Bassett Creek, and Loring Pond (27-655 P). NWI mapping indicated no wetlands within 0.5-miles of the project site.

Impaired Waters

According to the 2012 Minnesota impaired waters inventory and the MPCA's impaired waters viewer (IWAV), no impaired watercourses or waterbodies are located within the project Site. Bassett Creek (No. 07010206-538) and the Mississippi River (07010206-509), located northwest and east of the Site, respectively, are both listed as impaired waters. Bassett Creek (last inspected 2009) is impaired for chloride, fecal coliform, and fishes bio assessments; the Mississippi River (last inspected 2011) is impaired for Mercury and PCB in fish tissue and fecal coliform.

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.

Three aquifers provide the majority of public ground water supply in Hennepin County, the Prairie Du Chien-Jordan, Franconia-Ironton-Galesville, and Mt. Simon-Hinckley. Although groundwater needs are not anticipated, the Prairie Du Chien-Jordan Aquifer would likely provide any ground water appropriations for the Kraus-Anderson Block Redevelopment Site, if needed, as it lies below the center of the Twin Cities.

Groundwater elevations within the vicinity of the Site are between 800 to 820 feet above sea level based on the Geologic Atlas of Hennepin County, Minnesota (1989) C-4, Plate 5. Topographic mapping indicates that elevations on the Site are all around 846 feet above mean sea level. Consequently, the maximum depth to groundwater is estimated at about 46 feet and the minimum depth to groundwater is estimated at 22 feet below grade. The approximate average depth to groundwater was calculated by averaging the topographic elevations on the Site (846) and subtracting the anticipated groundwater depth shown on the Hennepin County Atlas. No ground water was observed in the geo-technical borings completed for the project by Braun.

No new water wells are planned for the project. The Minnesota Geological Survey's (MGS) County Well Index (CWI) indicates there are no registered wells within the Project Site. Unique Well numbers identified nearby, but outside, the project area include: 200634 – Francis Drake Hotel, and 542918 – Minneapolis Energy Center No. 1. Well logs for these two wells are included in **Appendix E**.

The project is not located within a Minnesota Department of Health Wellhead Protection Area.

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 types of wastewater produced by the Kraus-Anderson Block Redevelopment project would be typical of high-density residential developments and commercial office space. No on-site municipal or industrial wastewater treatment is anticipated or planned and no pre-treatment of wastes from this development is proposed.

<u>Sanitary Waste Estimates</u>
Estimated sanitary waste generation from the Kraus-Anderson Block Redevelopment project is estimated to be 139,792 gallon/day. Usage is based on the Metropolitan Council 2015 Sewer Availability Charge (SAC) Procedure Manual.

The above estimates are based on the following calculations:

- ☐ 306 residential units at 274 gallons per unit per day = 83,844 gal/day
- ☐ 107,000 gross sq. ft. of office space at 274 gallons per 2,400 sq. ft. per day = 12,216 gal/day
- ☐ 200 seat restaurant at 274 gallons per 10 seats per day = 5,480 gal/day
- ☐ 148 Hotel units at 274 gallons per 2 units per day = 20,276 gal/day
- ☐ 18,000 barrels per year (31 gallons per barrel); Brewery Production Center at 7 gallons water used for every gallon beer produced/365 days per year = 10,701 gal/day
- ☐ 13,100 Square Foot Event Space at 274 gallons per 590 square feet per day = 6,084 gal/day
- ☐ 100 seat Bar at 274 gallons per 23 seats per day = 1,191 gal/day

Estimated Total = 139,792 gal/day

Note: Area and unit estimates are derived from project plans (Appendices C and D).

Sewer System Connection and Capacity

The Site is located in sanitary service area MN-310 (interceptor service area B) and is served by the Metropolitan Wastewater Treatment Plant. The Metropolitan Wastewater Treatment Plant, which has a current capacity of 251 million gallons per day, is located near the Mississippi River in St. Paul, MN. The plant is an advanced secondary treatment facility with chlorination and dechlorination steps, ultimately discharging to the Mississippi River.

According to the City's approved Comprehensive Sanitary Sewer Plan (August 2008), the Minneapolis sanitary sewer system was originally constructed as combined sanitary and stormwater system. However, the sewer system is now used solely for sanitary purposes and thus has capacity to handle the anticipated growth of sewage volume to 17.6 billion gallons by the year 2030. The Metropolitan Plant has the capacity to handle the volume and composition of the sanitary waste discharged from the Site.

The proposed sanitary services would be connected to the City's sewer system located along South 8th Street, Portland Avenue and 5th Avenue South. It should be noted that City of Minneapolis plumbing code for buildings may require sanitary connections at street level to be sized for instantaneous-use scenarios. Consequently, it may be necessary for sanitary sewer connections to be enlarged to accommodate anticipated capacities, or for temporary on-site storage to be provided to mitigate potential peaks from instantaneous use. The specific points of connection to the public system, and size of connections, would be determined with City Staff at the time of application for Building Permits or Preliminary Development Review (PDR). Mapping of known sanitary sewer connection locations is provided in **Appendix F**.

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.*

Wastewater discharge would not be to a subsurface sewage treatment system (SSTS).

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.*

Wastewater discharge is not to surface water. No effects are anticipated to surface or groundwater as treatment would go to the Metropolitan Waste Water Treatment Plant.

ii. *Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.*

The Site is located in the Mississippi River Stormwater Drainage Area as shown in the City of Minneapolis's Local Surface Water Management Plan (LSWMP).

Pre-Construction Site Runoff

Currently, stormwater runoff on Site is from surrounding roof drainage and parking lots and is not treated. According to the USEPA Urban Nonpoint Source Fact Sheet (2003), 55% or more of stormwater volume in areas dominated by impervious surface (75-100% impervious) leaves the Site as runoff. Given the Site is currently a paved surface parking lot with one structure, it is reasonable to assume that the majority of stormwater leaves the Site as runoff. Existing Site runoff would likely contain pollutants associated with the predominant parking lot land use; road salts, sediment, oil, grease, heavy metals and chemicals from motor vehicles. Runoff primarily drains away from the Site to the northeast and towards the Mississippi River. Currently, runoff leaves the Site via overland flow through streets and subsurface flow through the City's storm sewer system. No treatment or stormwater infrastructure exists on the Site.

Construction Stormwater and Erosion Control BMPs and Permitting

Minneapolis, as a large MS4 (Municipal Separate Storm Sewer System) city, is required by federal and state law to obtain and implement a NPDES Stormwater permit administered by the MPCA. MS4s are required to develop and implement a stormwater pollution prevention plan program (SWPPP), and submit an annual report to the MPCA.

To obtain a building permit for the project, the applicant must obtain approval from the City for a Stormwater Management Plan and City of Minneapolis Erosion Control Permit, which among other measures, would require temporary BMPs to treat stormwater runoff prior to discharge to the MS4 infrastructure.

Because the project would involve disturbance of more than one acre of land, application for coverage under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) General Permit would be submitted to the MPCA prior to initiating earthwork on the Site. This permit is required for discharge of stormwater during construction activity and requires that Best Management Practices (BMPs) be used to control erosion, and that erosion controls be inspected after each rainfall event. Erosion control practices that would be implemented on the Site include, but are not limited to:

1. Silt fence and other erosion control features installed prior to initiation of earthwork and maintained until viable turf or ground cover is established on exposed areas.

2. Street-level inlet protection.
3. Periodic street cleaning and installation of a rock construction entrance to reduce tracking of dirt onto public streets.
4. Stabilization of exposed soils, phased with grading,
5. Use of sod and landscaping to stabilize exposed surface soils after final grading,
6. Future BMPs will include: covered parking, underground rate control and sedimentation facilities, and stormwater filter systems.

Erosion control plans must be reviewed and accepted by the City of Minneapolis prior to project construction. Because the above BMPs would be implemented during and after construction, potential adverse effects from construction-related sediment and erosion on water quality would be minimized. Stormwater treatment facilities would also be designed and implemented to meet City, Watershed and MPCA requirements.

Post-Construction Site Runoff

After construction, most of the stormwater runoff would come from rooftops and sidewalks. Runoff from the completed project would contain fewer contaminants than preconstruction as the proposed parking would be covered. It is expected that the post-construction runoff volume would remain the same as current conditions (near 100% impervious), but that runoff rates and contaminants would decrease during storm events as a result of proposed subsurface detention and filtration systems.

The water quality of the stormwater runoff in the post-construction setting would be improved by the proposed underground rate control and sedimentation facilities.

The proposed storm water detention and filtration system would exceed City water quality requirements. As currently proposed, stormwater treatment facilities would be situated at two separate locations within the project area, with approximately half of the project draining to each system. Each system would provide 2,000 cubic feet of storage, and a StormFilter® stormwater treatment system comprised of approximately 20 cartridges would provide filtration. The storage system would buffer the peak flow rate from the 1.25" rain event, and the treatment flow rate through the filter system would be 0.40 cubic feet per second (cfs).

These stormwater features would be designed to remove 70% of post-construction, site generated sediment and maintain peak discharge rates to existing conditions as required under Title 3, Chapter 54 of the Minneapolis City Code. Because the project is not creating one acre or more of new impervious surface, the MPCA post construction stormwater management requirement of the NPDES permit would not apply to this project.

Given that stormwater runoff from the existing parking lot is generally untreated, it is anticipated that the proposed project would provide an overall improvement by reducing rates of runoff and treating runoff waters prior to entering the public storm sewer system.

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. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

Connection to a public water supply system

The project would have no impact on sole source aquifers. Water would be supplied to the development via the Minneapolis municipal water supply system (Minneapolis Water Works). The City of Minneapolis obtains water from the Mississippi River for potable consumption under the MN DNR's water appropriations permit (No. 786216-1). The permit allows a total system pumping capacity of 125,000 million gallons per year (MG/Y). According to DNR Water Appropriation Records as of 2011, the city reported pumping 20,084.1 MG/Y (average 55.0 million gallons per day).

Based on the assumption that consumption is approximately 110 percent of wastewater generation, estimated water usage from the Kraus-Anderson Block Redevelopment project would likely be 153,771 gallons/day. See sanitary waste estimates in section 11.b.i. for details on usage estimation. Consequently, potable water supplies are adequate to meet the needs of the project without modifications to the existing system.

The proposed fire protection and domestic water services would be supplied from existing water mains in South 8th Street, Portland Avenue and 5th Avenue South. No water supply issues or constraints are anticipated. Mapping of known city water connection locations is provided in Appendix F.

Dewatering

Based on identified depths to groundwater, construction dewatering for utility installation is not anticipated. If groundwater is encountered during utility installation, it would be discharged to temporary sediment basins, screened and discharged, or otherwise managed in coordination with City Staff. If construction dewatering and pumping from the proposed development becomes necessary, permits from the MN DNR and the Metropolitan Council would be obtained. If the quantities exceed the 10,000-gallons per day or 1,000,000 gallons per year thresholds, a DNR Water Appropriation Permit would be obtained. However, it is not anticipated that construction dewatering or pumping from the proposed development would be extensive or continue long enough to require a permit from the DNR.

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 would occur in the same minor or major watershed, and identify those probable locations.

No water resources are located within the project area; therefore, the project would not involve alterations of wetlands.

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 would change the number or type of watercraft on any water body, including current and projected watercraft usage.

Best Management Practices to avoid or minimize erosion and sedimentation during construction would be described in the project SWPPP, and deployed as needed. No physical effects or alterations to surface waters are anticipated as a consequence of project development given no surface waters are located within the project boundary or within close proximity to the Site.

12. 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 Site currently contains a 33,600 square-foot office building constructed in 2 phases in 1974 and 1978, and an asphalt surface parking lot. A Phase I Environmental Site Assessment (ESA) was completed for the site by Braun Intertec and the results included in a report dated March 31, 2014. This assessment identified no recognized environmental conditions (RECs) in connection with the Site, with the exception of the following:

The former building located at 811 and 823 5th Avenue South was listed as constructed in 1926 and demolished in 1991. Historical records indicate that auto repair and metal cleaning and refinishing facilities were formerly located on the western part of the Site, along 5th Avenue South from approximately the 1920s to the early 1990s. There were no reports of environmental concerns associated with these former operations. Former uses at the 811 and 823 5th Avenue South building may have included processes involving the use of petroleum, and other possible hazardous substances. The manner in which these substances were stored, used, and disposed is not known. Therefore, past land use at the former building located at 811 and 823 5th Avenue South from the 1920s to 1991 is considered a REC.

Braun Intertec obtained and reviewed a City of Minneapolis building permit from June 1934 for the installation of three 550-gallon capacity gasoline tanks at 811 5th Avenue South. The tanks and pumps were listed as located on City property "inside of sidewalk." Another building permit was obtained and reviewed for the installation of three 550-gallon capacity gasoline tanks at 811 5th Avenue South, dated November 1957. The location of these tanks was listed as "6 feet inside property line — front of building" and the location of pumps was listed as "inside sidewalk line." It was unclear in the permits if these tanks listed in the 1957 permit were the same tanks listed in the 1934 permit, or if these were new tanks. The 1949 through 1969 Sanborn fire insurance maps

depict two 500-gallon capacity gasoline underground storage tanks (USTs) northwest of the 811 5th Avenue South building. Braun Intertec found no documentation indicating that these tanks had been removed. The USTs are therefore considered a REC.

In addition to the RECs described above, Braun Intertec noted an additional consideration, which is a condition that does not meet the definition of a REC, controlled REC, or historical REC but, in Braun Intertec's opinion, should be brought to the attention of the User. The following additional consideration was identified during the Phase I ESA:

Historically, numerous buildings have been located on the Site. It is unknown if the demolition debris associated with the buildings was buried on the Site or hauled away for disposal. If fill soils, which could include demolition debris and other wastes are encountered during redevelopment, additional evaluation of the fill soils might be required for management and disposal purposes.

Based on the above information for the Site, it appears previous potential sources of soil and groundwater contamination has been identified. The project proposer would prepare a Construction Contingency Plan prior to site development. In the event that materials are encountered during excavation and grading activities that require special management or disposal, they would be handled and disposed of in accordance with the applicable regulations, permits, and practices for those materials.

The National Pipeline Mapping System (NPMS) Public Map Viewer was accessed in September 2015 to determine the presence of hazardous liquid or natural gas pipelines on or adjacent to the Site. Based on the NPMS mapping, there are no hazardous liquid or natural gas pipelines on or adjacent to the Site.

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.*

No significant volumes of solid wastes are anticipated to be encountered/generated during construction and/or operation. Construction activities would generate wastes typical of residential and commercial development operations. The contractor would dispose of wastes generated at the Site in an approved method by using commercial dumpsters and disposing construction wastes at an MPCA-permitted landfill. The contractor would minimize and mitigate adverse effects from the generation of solid waste from demolition and construction activities by recycling construction waste that can be recycled, when feasible.

Following project construction, solid waste generation would be typical of occupied residential/commercial developments of this size and would consist of mixed municipal/residential waste materials. The majority of the solid waste generated would include materials such as paper, organics, plastics, and "other wastes" which includes materials such as appliances, furniture and textiles.

According to the Metropolitan Solid Waste Management Policy Plan 2010-2030 (MPCA, 2011), the Minnesota per capita rate for waste generation is 1.06 tons per person per year. The following residential solid waste generation rate estimates were based, in part, on 2010 City of Minneapolis census data which indicate that the average persons per household is 2.21. The project includes 306 residential units. To calculate the estimated amount of waste generated for the project, the

household occupant number (2.21) was multiplied by the number of units (306) and then multiplied by 1.06 tons per person per year. Using these figures, the residential portion of the proposed development could generate approximately 717 tons of solid waste per year. The amount of solid waste produced for the commercial/retail component was calculated using a metric of 2.5 pounds (lbs) generated per 1,000 SF. The project includes 95,000 SF of office space, a 12,000 SF brewery, a 3,300 SF restaurant, a 2,000 SF bar and a 13,100 SF Event Space. Using these figures, the commercial/retail portion could produce approximately 57 tons of solid waste per year (2.5 lbs x 125.4 x 365 days). Consequently, the total estimated solid waste produced by the project is approximately 774 tons per year.

A source recycle/separation plan for the residential, retail, and office space components of the project would be implemented in accordance with city requirements. Mixed municipal solid waste not recycled would either be incinerated at the Hennepin County Energy Recovery Center or hauled to a sanitary landfill. Participation in the recycling program by future residents of the project area is expected to reduce costs for solid waste trucking and disposal, and generally minimize and mitigate adverse effects from the generation and storage of solid waste.

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 above or below ground tanks to store petroleum or other materials. 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.*

It is not anticipated that the proposed project would generate, or require storage of, significant amounts of hazardous wastes aside from typical household cleaners. During construction, hazardous materials such as fuels (small quantities stored above ground) and specific construction materials would be on Site during construction and stored and handled in conformance with state and federal regulations to prevent accidental spill or release of hazardous materials. Builders and contractors are responsible for proper management of hazardous materials utilized during construction. The contractor would minimize and mitigate adverse effects from the generation and storage of hazardous wastes by recycling wastes that can be recycled, and by developing a spill prevention plan for the project.

Following construction, the project would likely have emergency generators that would serve as a back-up source of electricity during power failures. The generators would be designed with internal, above-ground fuel tanks.

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.*

Outside of the materials described above, the project is not anticipated to generate or require the storing, handling or disposal of hazardous wastes during construction or operation of the project. Consequently, potential environmental effects from hazardous wastes, and measures to avoid, minimize, or mitigate adverse effects from the generation/storage of hazardous waste (including source reduction and recycling) have not been considered.

13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

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

Data and imagery available through USGS, the MN DNR, Google Earth, and the City of Minneapolis was used to conduct a desktop analysis of cover types, habitats, and wildlife resources. The Site area provides few resources for wildlife due to its current use as an office building and a surface parking lot, general lack of vegetative cover, and developed properties surrounding the Site. Wildlife use of the site is likely limited to species adapted to urban environments and highly fragmented habitats including species such as rock pigeons, black-capped chickadees, house sparrows, grey squirrels, and small rodents.

Loring Park, located approximately 0.75 miles southwest, and Elliot Park, located approximately 0.25 miles southeast, provide more substantial open space, landscaped vegetation, and wetland area for wildlife. In addition, the Mississippi River corridor and associated parkland is located about half a mile north of the Site and provides habitat and resources to a variety of aquatic organisms and birds of prey.

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-**NA**) and/or correspondence number (ERDB-**20160137**) 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.*

Westwood currently has a license agreement with the DNR to use their rare features database information. Westwood mapped data from the Minnesota Natural Heritage Information System (NHIS; MN DNR 2014) to determine if listed plants and animals, native plant communities, wildlife aggregations, geological features, or state rare features are known to occur within or near the project Site (**Exhibit 10**). The database search and mapping did not identify listed plants and animals, native plant communities, wildlife aggregations, geological features, or state rare features within the project boundary.

A NHIS Data Request Form was submitted to the DNR on September 4, 2015, to request information regarding fish, wildlife, and ecologically sensitive resources. The response letter from the DNR, dated October 23, 2015, is included in **Appendix G.** The DNR NHIS staff reviewed the project area for potential effects to known occurrences of rare features. A search of the NHIS database did identify rare features within an approximate one-mile radius of the proposed project, but these records did not include any federally listed species and were either historical or not of concern given the project plans. As such, the DNR concluded that they do not believe that *"the proposed project will adversely affect any known occurrences of rare features."* The DNR did note that the northern long-eared bat (*Myotis septentrionalis*), a state-listed species of concern, is found throughout Minnesota. During the winter, this species hibernates in caves and mines, and during the active season (approximately April-October) it roosts underneath bark, in cavities, or in crevices of both live and dead trees. Because the site does not contain significant areas of roost trees, or known hibernacula, the project is not anticipated to impact this species or its habitat.

According to the Natural Communities and Rare Species of Hennepin County Map (Minnesota County Biological Survey, 1997), the project Site does not contain rare plant or animal species or other significant or otherwise designated natural features or habitat areas.

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.*

Project development would convert existing surface parking into high-density housing and retail space. Consequently, the project is not expected to result in a decline in wildlife abundance or species diversity. Measures expected to provide additional habitat for wildlife and help mitigate any potential adverse effects include increased landscaping along sidewalks and streets.

The predominantly impervious and unprotected nature of the Site does not constitute suitable habitat for peregrine falcons, tricolored bats, or black sandshells. Further, it appears unlikely that these species currently utilize the Site for breeding or foraging and therefore are unlikely to be affected by Site development.

Invasive Species

The project proposer understands that the introduction and spread of invasive weed species from project construction and operation requires consideration. While there is the opportunity for invasive weed species to be introduced during project construction, it is unlikely that these species would persist in a meaningful way following construction. The proposed project would be landscaped with turf grass and landscape trees and shrubs per a city-approved landscaping plan. Consequently, large areas of exposed soils where invasive weed species might appear are not expected. If large areas of invasive species develop, they would be controlled by the applicant in accordance with local and state invasive and noxious weed regulations.

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

The proposed project is unlikely to have negative effects on fish, wildlife, plant communities, or sensitive ecological resources due to its location and the current Site use.

14. 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 would be taken to avoid, minimize, or mitigate adverse effects to historic properties.

No previously recorded archaeological sites are located within or immediately adjacent to the project area. One archaeological site, 21HE352, is located within 500 feet of the project area. This site was the location of a house (911 Portland Avenue). Historic research indicates development of the area, including both residential and commercial structures, occurred from the mid-1880s through the 1960s.

No inventoried historic structures are located within the project Site. Multiple inventoried historic structures are located within the general area. Two structures listed on the National Register of Historic Places (NRHP) and ten NRHP eligible structures are located within a 500-foot buffer of the project area. These structures are provided in the table below.

Table 14.1. NRHP Listed and Eligible Structures

Structure Name	Inventory Number	NRHP Status
Linne Building	HE-MPC-0376	Eligible
Carlsbourgh	HE-MPC-0378	Eligible
Empire Apartments	HE-MPC-0379	Eligible
The Oakland/Williston Apartments	HE-MPC-0384	Eligible
Hinkle-Murphy House	HE-MPC-0388	Listed
Park Avenue Fourplex	HE-MPC-0467	Eligible
Roselle Apartments	HE-MPC-0474	Eligible
The Melrose	HE-MPC-0475	Eligible
Gethsemane Episcopal Church	HE-MPC-0502	Listed
Citizen's Aid Building	HE-MPC-3548	Eligible
Rea Flats	HE-MPC-9803	Eligible
Rea Garage	HE-MPC-9804	Eligible

The Gethsemane Episcopal Church (901-905 4th Avenue South) is also locally designated, and is located approximately 300 feet west of the site.

The KA block development is directly adjacent, and to the north of, the locally designated South 9th Street Historic District. The key concern of the Elliot Park Neighborhood Group was that this new development respect and respond to the existing historic fabric. The project responds in the following manner:

The 17 story residential building along Portland Avenue provides several walk up "brownstone" type units at street level that are a contemporary interpretation of the age old town home type seen in the District. These units exhibit recessed porches, large windows, and direct access to the street via smaller semi-private sidewalks and steps, set behind a layer of rich landscaping. This typology turns the corner on South 9th Street also. The Lenox building and Rappahannock building adjacent to the site are key historic buildings that exhibit this residential typology of entryways from the street.

The residential tower massing is broken up into two masonry masses of 5 and 8 stories, with punched window types, typifying the older architecture of the District, while the upper portion of the tower is composed of windows and lighter weight metal panels, signifying a more forward-looking expression as is appropriate in the "downtown sector" of the neighborhood master plan. Breaking up the building in this manner creates an interesting architectural expression and provides a connection to both the past and the future.

Lastly, the hotel along South 9th Street responds to the Historic District by adopting architecture of brick masonry with punched windows. This building also has several bays composed of glass and metal panels that are contemporary interpretations of the bays seen in buildings that are part of the Historic District.

No direct physical impacts are anticipated upon any of the identified historic structures, or the South 9th Street Historic District.

15. 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 are no scenic views or vistas located on or near the property, and no non-routine impacts or visual nuisances are anticipated. The proposed mixed-use development; comprising apartments, a hotel, a brewery and event center; is consistent with other established uses in the downtown area, and therefore would not create a significant change in visual aesthetics.

16. 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 would be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.*

   Fermenters, such as breweries, are known stationary sources of ethanol (typically very low concentrations in fermentation rooms), other VOCs, and CO_2. Large breweries typically recover CO_2 for internal use; however, smaller breweries and microbreweries typically vent CO_2,, ethanol, and other VOCs to the atmosphere. Based on the amount of anticipated production at the proposed microbrewery facility, emissions are expected to be negligible and impacts to sensitive receptors or human health are not expected. Microbreweries are typically not regulated by the EPA or MPCA, and emission control devices are not generally used by microbreweries.

   The natural gas heating and cooling systems proposed for the buildings are expected to consist of individual furnace/air conditioning systems. Emissions from the heating and cooling units would be typical of other buildings in the surrounding area.

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 would be taken to minimize or mitigate vehicle-related emissions.*

   Increased traffic would generate a relatively small corresponding increase in carbon monoxide levels and other vehicle-related air emissions. Local regulations exist for vehicle idling. Electrical hook-ups will be installed, as needed, for use by commercial vehicles that would allow for the shutting off of delivery truck engines and auxiliary equipment during winter deliveries. The project is expected to have a negligible impact on air quality. Consequently, baseline air quality monitoring, or predictive air quality modeling, has not been contemplated at this time, and no measures to

mitigate air quality impacts have been considered. It is anticipated that siting residential units along the Portland Avenue Residential Corridor and within proximity to commercial/office uses will promote other modes of transportation such as walking, bike riding, and mass transit for overall emission reductions.

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 would be taken to minimize or mitigate the effects of dust and odors.*

Project construction and occupancy is not expected to generate objectionable odors or dust. Odors and dust generated during construction and occupancy would meet the requirements of the MPCA and applicable local regulations. The nearest receptors to the proposed project are: The Gethsemane Episcopal Church, Wells Fargo Bank, Tillges Certified Orthotic Prosthetic Inc., Goodyear service station, two hotels, parking areas, a commercial building and apartments.

The project would not generate significant odors during construction or operation. Minor odors generated during construction would be typical of those associated with urban construction processes, such as exhaust from diesel and gasoline powered construction equipment.

The construction process is expected to generate some dust, but it is not anticipated that fugitive dust would be generated in objectionable quantities. During demolition and construction, contractors would follow best management practices to reduce dust emissions. Suppression of airborne dust by application of water would be implemented if significant fugitive dust generation occurs during equipment operation that is greater than routinely expected during normal construction practices. Demolition would include removal of a building, and a bituminous surface parking area.

17. 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 would be taken to minimize or mitigate the effects of noise.

Due to the planned enclosed design of the event center, and the central location of the multi-purpose courtyard between other taller structures, it is not expected that noise levels would exceed Minneapolis noise ordinances, or levels typical of a downtown environment. Therefore, no impacts to sensitive receptors or quality of life is anticipated. The nearest receptors to the proposed project are: The Gethsemane Episcopal Church, Wells Fargo Bank, Tillges Certified Orthotic Prosthetic Inc., Goodyear service station, two hotels, parking areas, a commercial building and apartments.

The Minneapolis Code of Ordinances and MPCA noise requirements regulate noise levels within the city for construction and operation (mechanical noise) at project sites. Construction and operation of the project would be required to comply with these noise requirements, including hours of operation of construction equipment. It is anticipated that noise levels would temporarily increase locally during project construction, but are expected to return to intensities and levels consistent with a downtown business district environment. Noise levels on and adjacent to the Site would vary considerably during

construction depending on the pieces of construction equipment being operated simultaneously, the percent of time in operation, and the distance from the equipment to the receptors. Planned landscaping at the perimeter of the project, and situating the multi-purpose courtyard at the center of the project, will help to minimize and mitigate the effects of any negligible noise generated from the project following construction. Noise levels following construction are anticipated to be consistent with other sources within a downtown environment and in conformance with city and state noise standards.

18. 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.

1. Existing and Proposed Additional Parking Spaces –

The existing land use is comprised by a 30,000 sq. ft. office building and a surface parking lot. There are 299 parking spaces on the parcel.

The proposed land uses and corresponding parking supply for this site include:

- Office Headquarters Building
- Office Building
- Apartments
- Hotel with meeting rooms, dining and event center
- Micro-brewery
- Underground Parking (530 stalls)

This translates to an additional 231 parking spaces.

2. Estimated Total Average Daily Traffic Generated –

Based on previous TDM Plans in the downtown area and the types of proposed land uses, the following mode split goals for the project have been identified by the developer:

Table 18. 1 -- Mode Split Goals

Mode Split	Goal
Auto	40%
Transit	50%
Bike/Walk	10%

Therefore, by applying this modal share for auto trips generated by the site, the total traffic entering and exiting the site is shown on Table 18.2.

Table 18.2 -- Trip Generation Estimates with Modal Share[1]

Lane Use (according to Site Plan)	Size	Unit	ITE Land Use	ITE Land Use Code	Gross Trip Generation Estimates				
					Daily	AM Peak Hour		PM Peak Hour	
						In	Out	In	Out
Hotel	148	Rooms	Hotel	310	484	18	13	18	18
Event Center	13	ksf	Event Center	*	104	13	2	24	3
Apartments	306	units	High-Rise Apartment	222	514	9	28	26	17
KA Headquarters	95	ksf	Single Tenant Office	715	442	61	8	10	56
Hotel Dining	200	seats	Quality Restaurant	981	372	1	1	14	7
Finnovation	12	ksf	Gen. Office Bldg.	710	53	6	1	1	6
Brewery	11.58	ksf	Light Industrial	110	33	4	0	0	4
Taproom	1.25	ksf	Tap Room	**	33	n.a.	n.a.	22	11
Total					**2,036**	113	52	116	122
						165		**238**	

Source: Westwood, October 15, 2015

[1] Rates and equations based on ITE Trip Generation Manual, Ninth Edition, 2012.

* Rate not found in ITE Trip Generation Manual. Used 20 trips/ksf, as described below.

** Rate not found in ITE Trip Generation Manual. Used peak capacity estimation to determine peak hour trips, as described below

- The ITE Trip Generation Manual, 9th Edition does not present rates or equations for event centers. A web search showed traffic impact studies for two event centers (Noah's Event Venue in Sugar Land, TX, and The Ridge Event Center in Orem, UT). Both event centers were approximately 10,000 sq. ft.

  The traffic studies conducted for each had varying trip generation rates:
  - The Sugar Land event center used a rate of 24 daily trips for every 1,000 sq. ft., as well as 2.8 trips/1000 sq. ft. in the AM peak hour and 5.3 trips/1000 sq. ft. in the PM peak hour.[1]
  - The Orem event center traffic study did not present a daily trip rate, but assumed a rate of 16.6 trips/1000 sq. ft. in the weekday PM peak hour. This rate was based on a survey of comparable site traffic resulting in an estimation that 20 sq. ft./person is needed during a seated event and an average of 3 persons per vehicle, thus generating the PM peak hour rate.[2]
  - Further, the Orem study provided estimations of 88% inbound and 12% outbound trip distribution.

  Therefore, for the Brewtel's event center, a median rate of 20 trips/1000 sq. ft. was used. Further, the AM and PM peak hour rates from the Sugar Land study were used.

- There are no rates or data for micro-breweries, brewpubs or breweries listed in the ITE Trip Generation Manual. In addition, there are very few traffic impact studies found on the internet – and of those, the micro-breweries are in rural settings and the trip generation is based on barrels

[1] Donald R. Glenn, P.E., "Trip Generation of Noah's of Sugar Land", report prepared for the City of Sugar Land, Reynolds, Smith and Hills, Inc., Houston, TX, 01/21/2013.

[2] "The Ridge Event Center Traffic Impact Study", report prepared by Horrocks Engineers for the City of Orem, UT, August 9, 2010.

produced per year. Therefore, the brewery was classified as General Light Industrial for the sake of this analysis.

- As with micro-breweries, there are no rates listing in the ITE Trip Generation Manual for tap rooms. Of the few traffic impact studies for micro-breweries found on the internet, some did discuss having tap rooms, but no specific rates were disclosed. Therefore, an estimation of this facility's patronage and trip behavior were made:
    - Assuming the tap room's size of 1,250 sq. ft., and dividing it by 15 sq. ft. per person, the resulting occupancy is 83 people. Therefore, assuming full occupancy, a conservative estimate of 83 trips would be generated during the PM peak hour.
    - To estimate directional distribution, the inbound and outbound rates for ITE Lane Use Code 925 – Drinking Place were used; e.g., 67% inbound and 33% outbound in the PM peak hour. This translates into 56 trips inbound and 27 trips outbound.

  The total average auto trip generation for the site is approximately 2.036 vehicular trips per day.

3. Estimated Maximum Peak Hour Traffic Generated and Time of Occurrence –

   The table above shows the trip generation for AM and PM Peak Hours. The estimated maximum peak hour auto traffic will be generated in the PM Peak Hour (238 trips/hour).

4. Indicate source of trip generation rates used in the estimates –

   Source: Trip Generation Manual, Ninth Edition, Institute of Transportation Engineers, Washington, DC, 2012.

5. Availability of Transit and/or Other Alternative Transportation Modes –

   Currently, there are many transit and alternative transportation modes available to tenants, residents, employees and customers coming to and from this site. Several Metro Transit bus stops exist on each street bordering the KA Block, that provide access to all portions of the metro Twin Cities area. The Metro Transit's BLUE and GREEN LRT lines are accessible four blocks to the north of this site at the Downtown East station. There are a vast array of sidewalks and bicycle routes that crisscross downtown Minneapolis, and are within walking and riding distance of the KA Block.

   Regarding alternate modes during the warmer months, NiceRide MN has located a station for shared bicycles two blocks to the west of the KA Block. Further, shared auto companies such as HOURCAR, have stations within a few blocks of the KA Block site. Other shared vehicle companies such as Car2Go and ZipCar have emerged and provide internet based rental of vehicles, with availability based on usership.

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. If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: http://www.dot.state.mn.us/accessmanagement/resources.html) or a similar local guidance,*

A traffic impact study was conducted for the KA Block site. Because of the proximity to downtown businesses, shopping and entertainment, reliance on auto travel is less likely by tenants of The KA Block residential units. Further, the availability of alternative modes of travel (i.e., transit, pedestrian, bicycle, etc.) translates to fewer auto trips during weekday peak traffic periods, thus lessening the overall impact to the regional highway transportation system. This is especially true for the employees of the KA Block.

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

The KA development will minimize or mitigate project related transportation effects; via the adoption of Travel Demand Management Plans, including strategies such as:

- Support and encourage alternate modes of transportation by tenants and employees; and provide information to its users on availability of these modes
- Locate loading dock and delivery areas off of City streets and onto the service drive
- Provide full access off of local streets at midpoints of South 8th Street and South 9th Street, with hotel and service access only of off of 5th Avenue South. No vehicular access is allowed off of Portland Avenue.

Full recommendations and conclusions can be found in the **Appendix H** – Travel Demand Management Plan and Traffic Impact Study.

19. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

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.*

It is anticipated that project demolition would begin in early 2016, with project construction immediately following. Full build-out is anticipated by 2018; however, construction timing would ultimately depend upon market conditions.

Cumulative effects of this and future projects on natural resources and infrastructure are expected to be roughly proportional to the impacts discussed in this EAW, or somewhat greater if future surrounding projects are developed at a higher density. The City of Minneapolis has planned for future growth and development as part of the *Minneapolis Plan for Sustainable Growth* (the City's Comprehensive Plan (2009), the *Elliot Park Neighborhood Master Plan* (2003), the *Intersections: Downtown 2025 Plan* (2011), *Local Surface Water Management Plan* (2006), the *Ten-Year Downtown Transportation Action Plan* (2007), and the *Ten-Year Citywide Transportation Action Plan* (2009). These

efforts would ensure that the cumulative impacts of future growth and development to the environment, and to the City's service capacity, are anticipated and mitigated.

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 project proposer does not currently own or have options on adjacent lands. Surrounding parcels are largely developed, with the exception of two parking lots (Parcel I.D. 26-029-24-23-0153 and 27-029-24-14-0030) located to the south and southwest. Because available lots develop based on market drivers and conditions, the timing of future development can be difficult to predict. The City's Comprehensive Plan anticipates and guides the intensity of development within the city and directs necessary infrastructure improvements to support future development projects. These planning efforts serve to avoid and mitigate potential cumulative environmental effects from projects that may be completed within the same general geographic area and timeframes.

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.

Minor, cumulative impacts to city infrastructure such as roads, sewer, and water would occur should surrounding parcels develop into other uses. However, these cumulative impacts have been contemplated and addressed in the *Minneapolis Plan for Sustainable Growth*, and other plan documents previously discussed. Should surrounding properties develop in the future, they would be evaluated under the Minnesota Environmental Policy Act (MEPA) rules, and would adhere to guidelines presented in the City's approved zoning and comprehensive plans.

Mitigation for anticipated minor cumulative impacts in the area would include using green construction and demolition practices, green material specifications and landscaping, pretreating stormwater and controlling stormwater rates. These provisions would help minimize cumulative effects from past and future developments. Given the nature of potential cumulative effects, the evaluation of available and relevant information, and mitigation efforts proposed, the project is not expected to result in significant environmental effects.

20. 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 would be affected, and identify measures that would be taken to minimize and mitigate these effects.

All known potentially adverse environmental effects are addressed in the preceding sections.

RGU CERTIFICATION. *(The Environmental Quality Board would 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: Hilary Dvorak, Principal Planner

Exhibits 1 - 10

Kraus Anderson Block Redevelopment EAW, Minneapolis
Hennepin County, Minnesota

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Map Document: P:\0007118.00\GIS\PT_SiteLocation01A_150922.mxd 9/22/2015 3:03:55 PM

Data Source(s): Map and data are approximate. Westwood (2015); Minnesota NAIP Imagery (Accessed 2015); ESRI WMS Topographic, National Geographic, & USA Topo and World Imagery, Streets (Accessed 2015); ESRI (2010); MNTOPO (2015); Census Bureau (2014); USGS NHD Dataset (2013); MnDNR (2008); FEMA (2010); Minnesota Department of Natural Resources, Ducks Unlimited, and St. Mary's University of Minnesota (2015); U.S. Department of Agriculture, Natural Resources Conservation Service (2010); U.S. Geological Survey (2011): Google (2015).

Legend

Project Boundary

Kraus Anderson Block Redevelopment

Minneapolis, Minnesota

N

0 400 Feet

Site Location

EXHIBIT 1

Westwood
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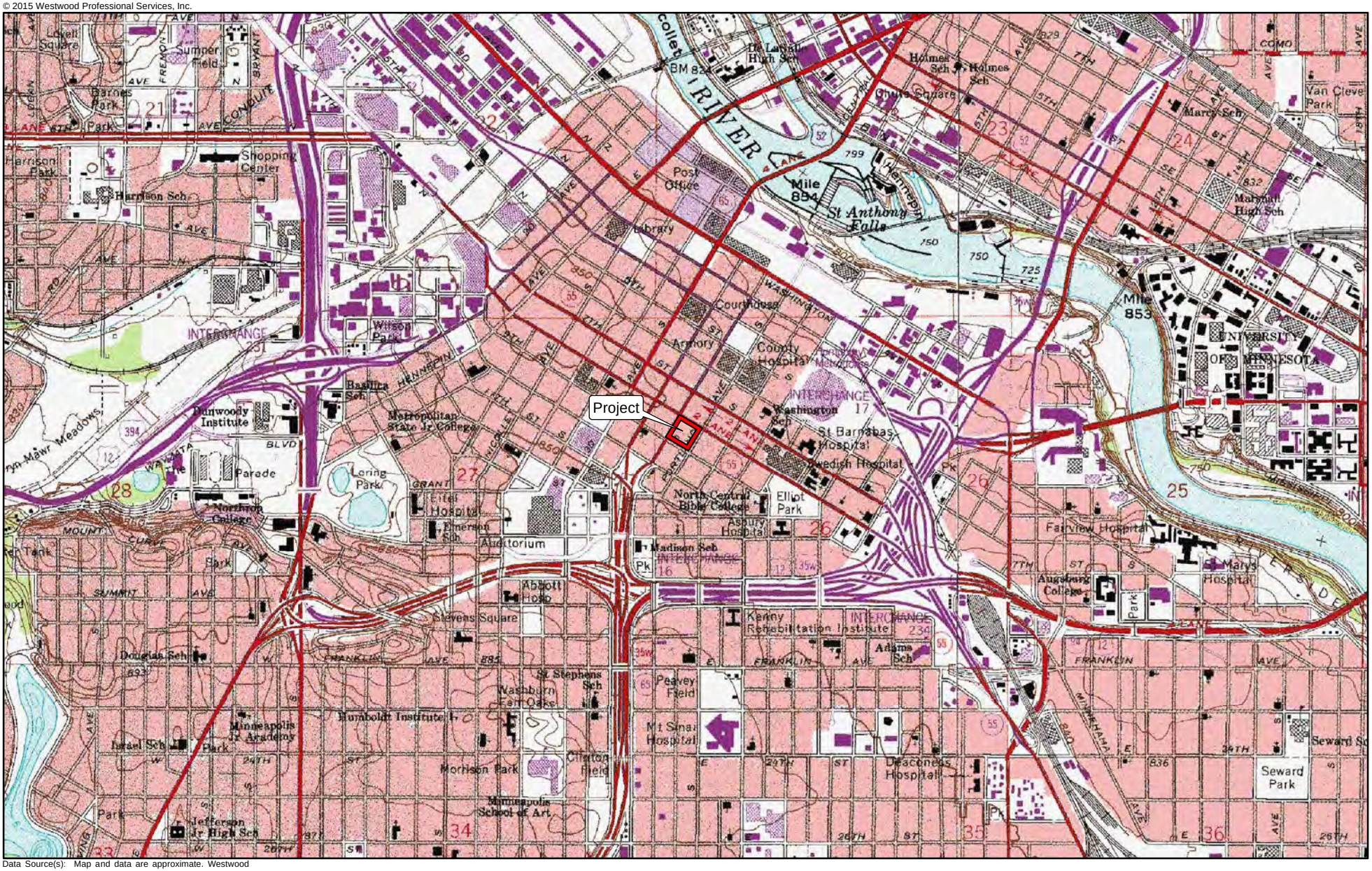
Map Document: P:\0007118.00\GIS\PT_UGSGtopography01A_150903.mxd 9/9/2015 2:56:49 PM



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Legend

Project Boundary

Kraus Anderson Block Redevelopment

Minneapolis, Minnesota

N

0 Feet 2,000

USGS Topography

EXHIBIT 2

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PRIMARY ZONING DISTRICTS

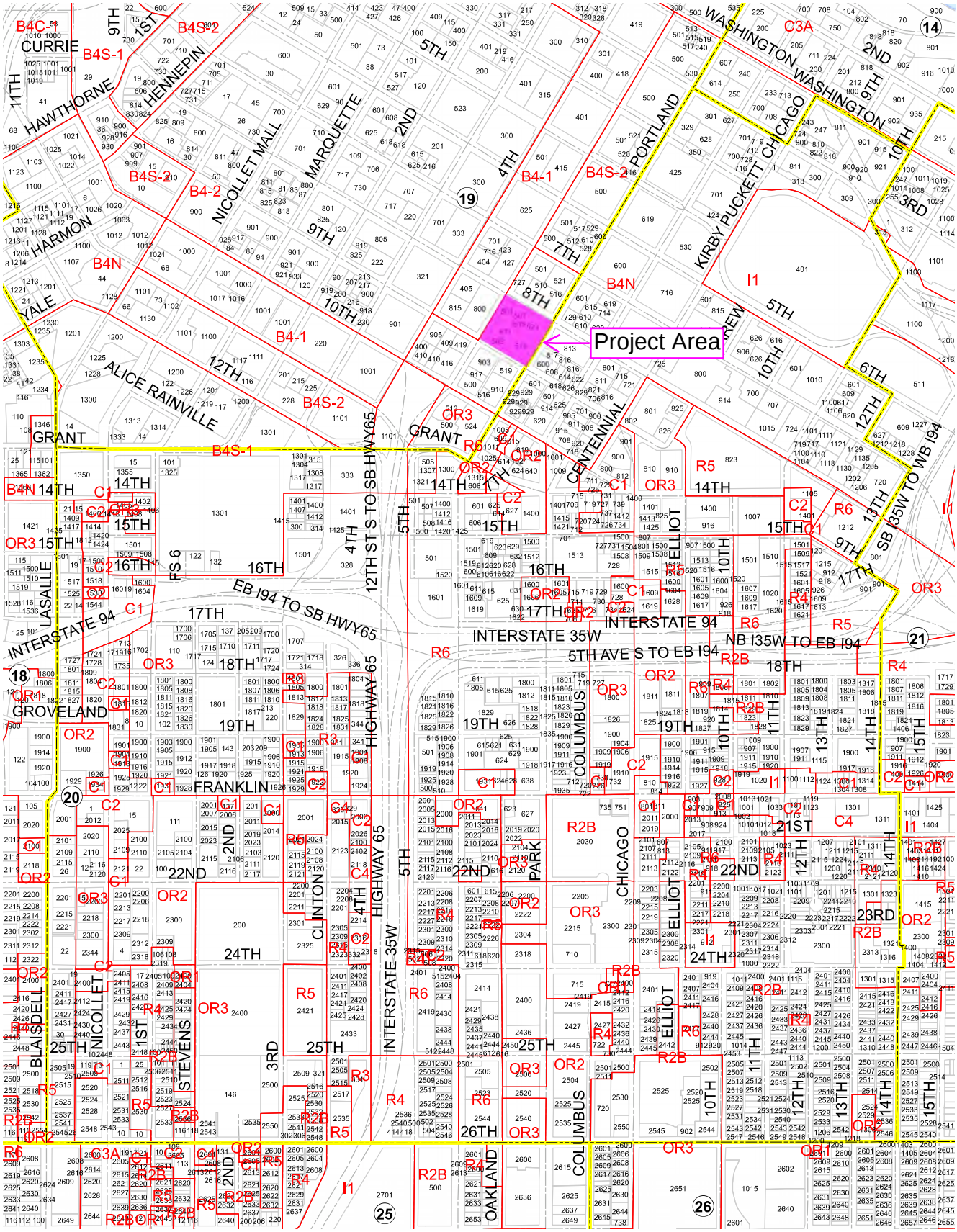


EXHIBIT 3

RESIDENCE DISTRICTS
LOW DENSITY
R1
R1A
R2
R2B
MEDIUM DENSITY DISTRICTS
R3
R4
HIGH DENSITY DISTRICTS
R5
R6

OFFICE RESIDENCE DISTRICTS
OR1
OR2
OR3

COMMERCIAL DISTRICTS
C1
C2
C3A
C3S
C4

DOWNTOWN DISTRICTS
B4
B4C
B4S

INDUSTRIAL DISTRICTS
I1
I2
I3

Primary Zoning
Plate Boundaries

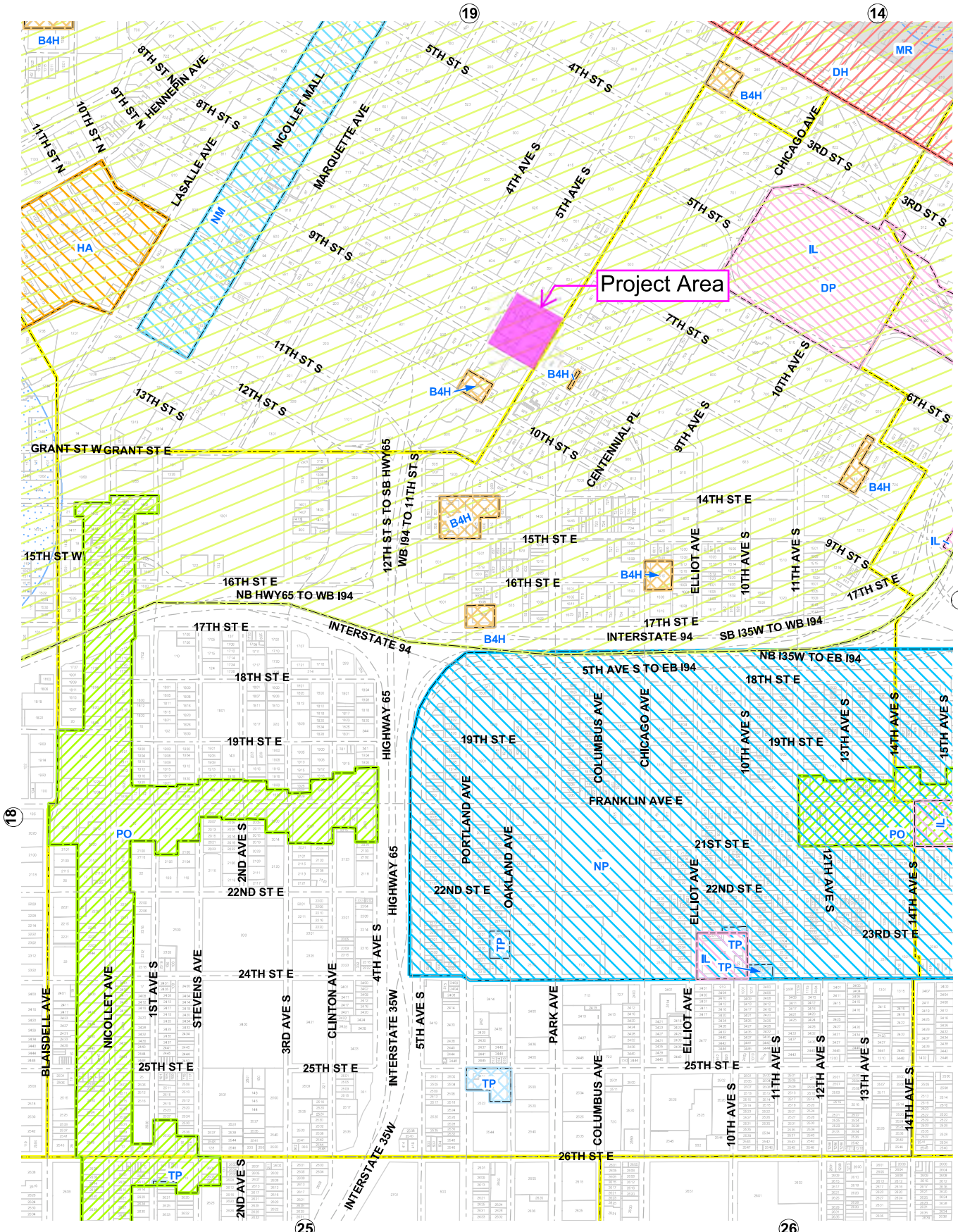
0 250 500 1,000 1,500 Feet

(12) PLATE NUMBER

Last Amended : December 13, 2013

MINNEAPOLIS ZONING PLATE 20

OVERLAY ZONING DISTRICTS



Overlay Districts

- Airport
- Downtown Housing
- Downtown Height
- Downtown Parking
- Downtown Shelter
- Harmon Area
- Industrial Living
- Linden Hills
- Nicollet Mall
- North Phillips
- Pedestrian Oriented
- Transitional Parking
- University Area
- West Broadway
- Shoreland
- Floodplain
- Mississippi River Critical Area

(12) ADJOINING PLATE NUMBER

Last Amended : July 22, 2011

EXHIBIT 4

Wetland

Plate Boundaries

0 250 500 1,000 1,500 Feet

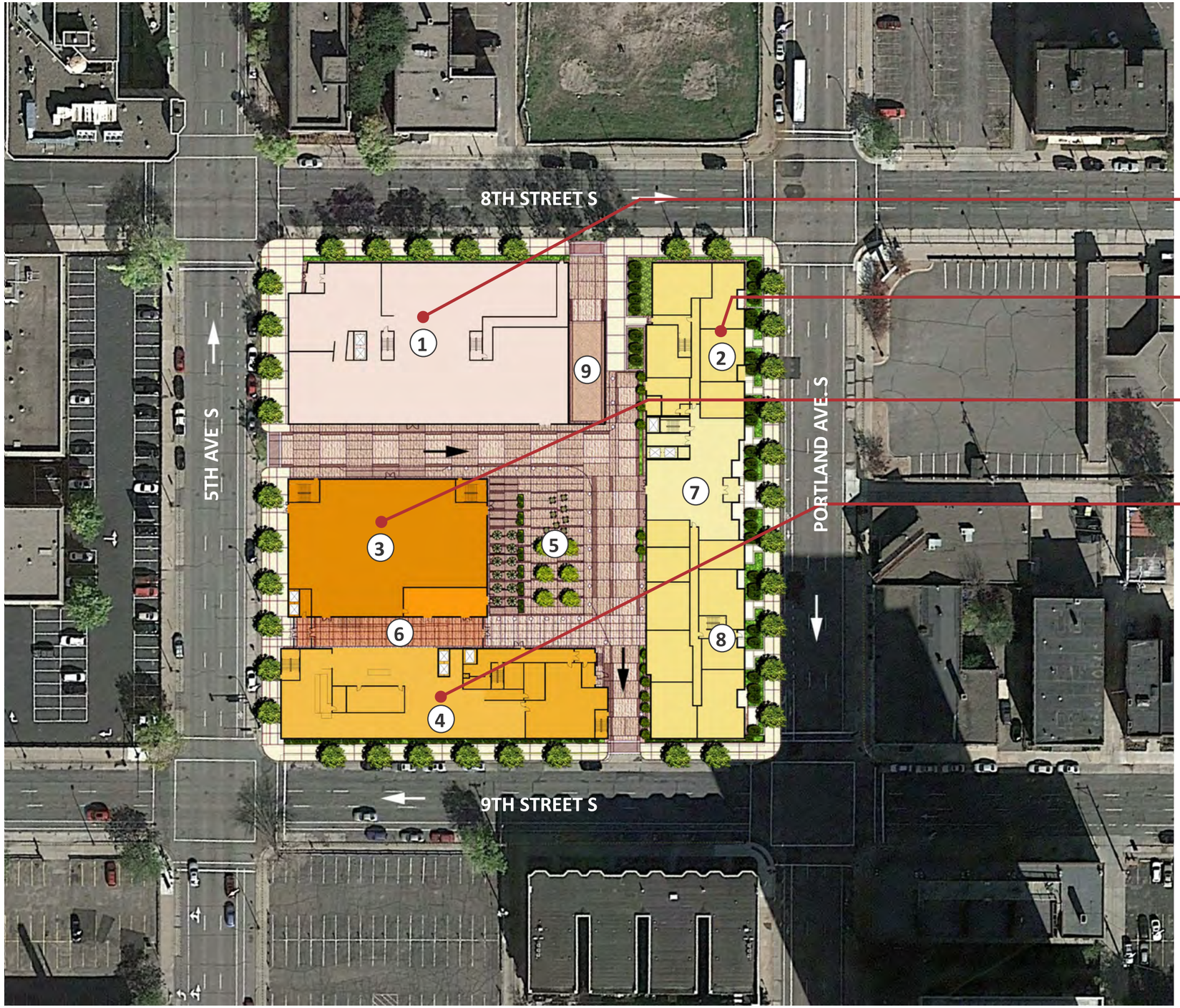
MINNEAPOLIS ZONING PLATE 20

K.A. BLOCK MIXED USE REDEVELOPMENT DESIGN VISION

DESIGN IMAGES-
Corner of 5th and 9th

Concept Rendering

EXHIBIT 5



Key Plan

1. **K.A. CORPORATE HEADQUARTERS**
   5 floors (70’ +/-)
   95,000 SF

2. **RESIDENTIAL TYPE 1**
   17 Floors over lower rise podium (190’ +/-)
   306 units (+/-)

3. **FINNEGANS MICROBREWERY / INNOVATION SPACE/ EVENT CENTER**
   3 Floors (60’ +/-)

4. **FINNEGANS HOTEL / RESTAURANT / BAR**
   7 Floors (90’ +/-)
   148 keys (+/-)

5. **SERVICE / DROP OFF / MULTIPURPOSE COURT**

6. **ATRIUM/ INDOOR STREET**

7. **RESIDENTIAL LOBBY**

8. **GROUND FLOOR “TOWN HOME” DWELLING UNITS**

9. **VEHICULAR RAMP TO UNDERGROUND PARKING**

N

Detailed Site Plan
EXHIBIT 6

Map Document: P:\0007118.00\GIS\PT_LandUseAndLandCoveGoogle01A_150922.mxd 9/22/2015 3:08:23 PM

Data Source(s): Map and data are approximate. Westwood (2015); Minnesota NAIP Imagery (Accessed 2015); ESRI WMS Topographic, National Geographic, & USA Topo and World Imagery, Transportation (Accessed 2015); ESRI (2010); MNTOPO (2015); Census Bureau (2014); USGS NHD Dataset (2013); MnDNR (2008); FEMA (2010); Minnesota Department of Natural Resources, Ducks Unlimited, and St. Mary's University of Minnesota (2015); U.S. Department of Agriculture, Natural Resources Conservation Service (2010); U.S. Geological Survey (2011); Minneapolisdid.com, downtown base map (2011); USGS - Geographic Names Information System (2015): Google (2015).

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Legend

Project Boundary

N

0 500 Feet

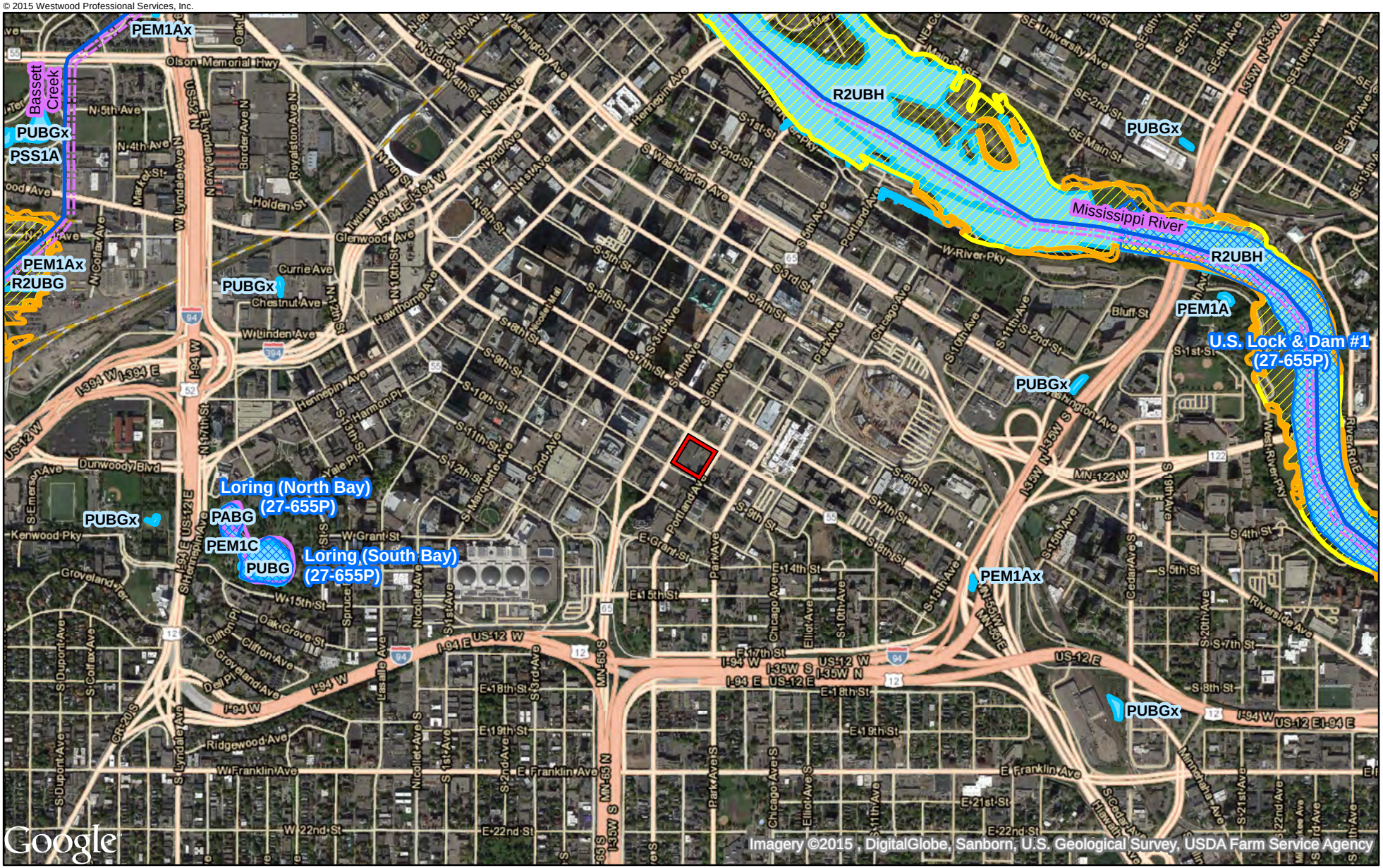
Kraus Anderson Block Redevelopment

Minneapolis, Minnesota

Land Use and Land Cover

EXHIBIT 7

Map Document: P:\0007118.00\GIS\PT_WaterResources01A_150922.mxd 9/22/2015 5:13:49 PM



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Legend

- Project Boundary
- NHD Flowline
- NHD Waterbody
- MN DNR PWI Watercourse
- MN DNR PWI Waterbody
- NWI Wetland
- 100 yr. Flood
- 500 yr. Flood

N

0 Feet 1,500

Kraus Anderson Block Redevelopment

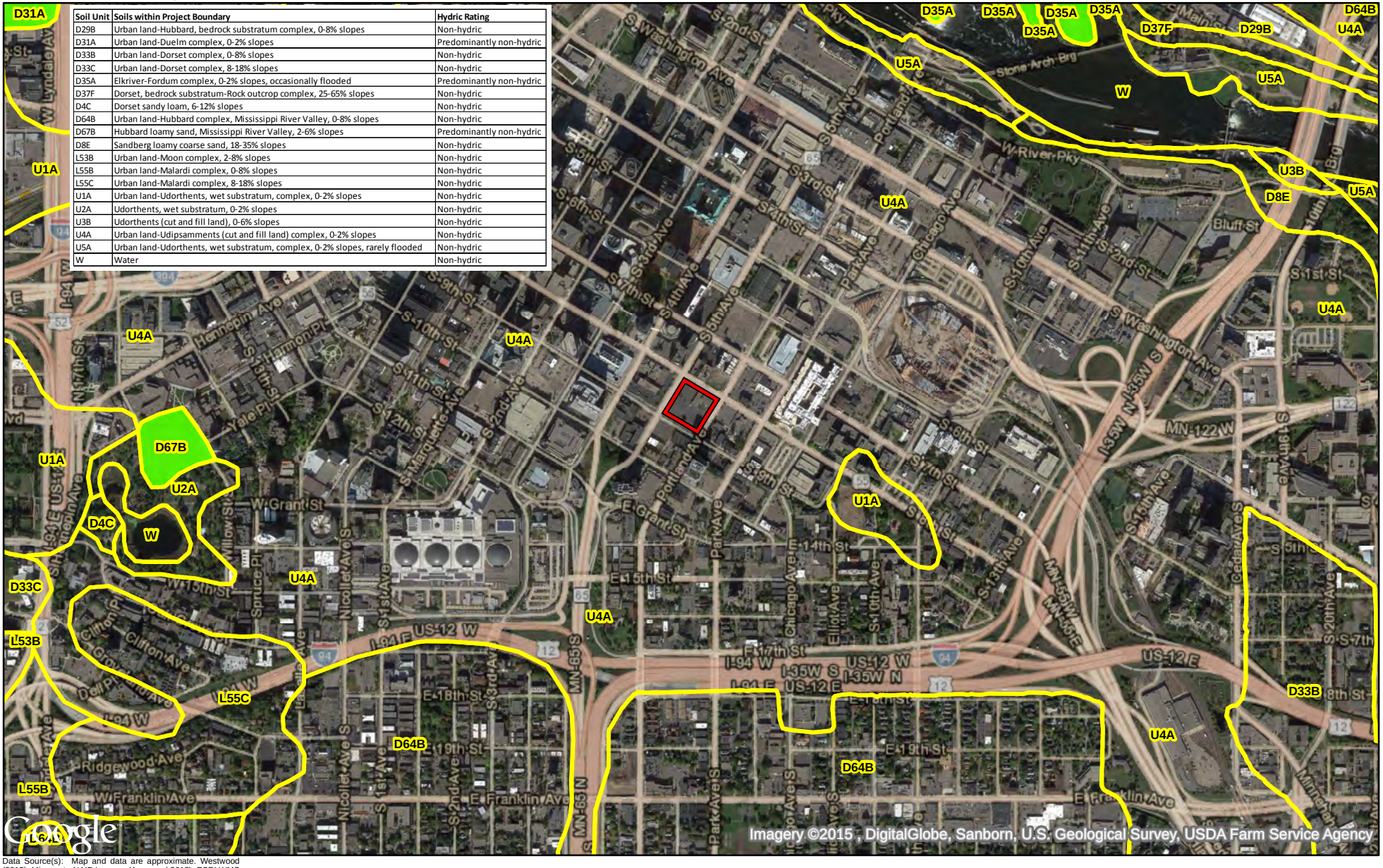
Minneapolis, Minnesota

Water Resources

EXHIBIT 8

Map Document: P:\0007118.00\GIS\PT_NRCSsoils01A_150922.mxd 9/22/2015 5:04:02 PM

Soil Unit	Soils within Project Boundary	Hydric Rating
D29B	Urban land-Hubbard, bedrock substratum complex, 0-8% slopes	Non-hydric
D31A	Urban land-Duelm complex, 0-2% slopes	Predominantly non-hydric
D33B	Urban land-Dorset complex, 0-8% slopes	Non-hydric
D33C	Urban land-Dorset complex, 8-18% slopes	Non-hydric
D35A	Elkriver-Fordum complex, 0-2% slopes, occasionally flooded	Predominantly non-hydric
D37F	Dorset, bedrock substratum-Rock outcrop complex, 25-65% slopes	Non-hydric
D4C	Dorset sandy loam, 6-12% slopes	Non-hydric
D64B	Urban land-Hubbard complex, Mississippi River Valley, 0-8% slopes	Non-hydric
D67B	Hubbard loamy sand, Mississippi River Valley, 2-6% slopes	Predominantly non-hydric
D8E	Sandberg loamy coarse sand, 18-35% slopes	Non-hydric
L53B	Urban land-Moon complex, 2-8% slopes	Non-hydric
L55B	Urban land-Malardi complex, 0-8% slopes	Non-hydric
L55C	Urban land-Malardi complex, 8-18% slopes	Non-hydric
U1A	Urban land-Udorthents, wet substratum, complex, 0-2% slopes	Non-hydric
U2A	Udorthents, wet substratum, 0-2% slopes	Non-hydric
U3B	Udorthents (cut and fill land), 0-6% slopes	Non-hydric
U4A	Urban land-Udipsamments (cut and fill land) complex, 0-2% slopes	Non-hydric
U5A	Urban land-Udorthents, wet substratum, complex, 0-2% slopes, rarely flooded	Non-hydric
W	Water	Non-hydric



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Legend

Project Boundary

Soil Unit

Non-Hydric Soils

Predominantly Non-Hydric Soils

Kraus Anderson Block Redevelopment

Minneapolis, Minnesota

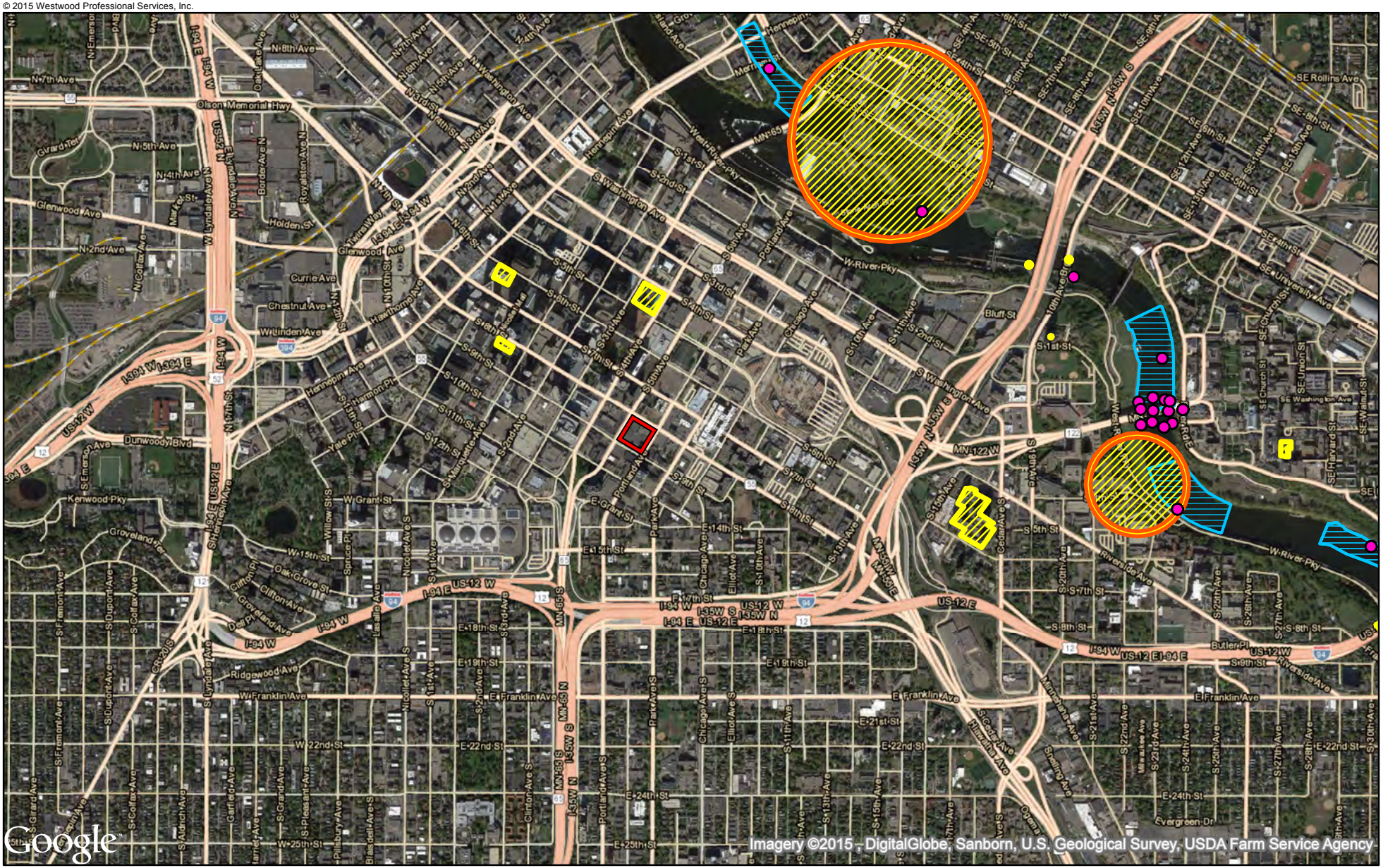
N

0 1,200 Feet

NRCS Soils

EXHIBIT 9

Map Document: P:\0007118.00\GIS\PT_NHIS01A_150922.mxd 9/22/2015 4:54:34 PM



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Legend

- Project Boundary
- MnDNR NHIS Mussel Survey

MnDNR NHIS Category

- Animal Assemblage
- Invertebrate Animal
- Vertebrate Animal

Note: Copyright 2015, State of Minnesota, Department of Natural Resources, "NHIS data included here were provided by the Division of Ecological and Water Resources, Minnesota Department of Natural Resources (DNR), and were current as of May 2015. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present."

Kraus Anderson Block Redevelopment

Minneapolis, Minnesota

N

0 1,800 Feet

MN DNR NHIS Database

EXHIBIT 10

Appendix A

Current Use As-Built Survey

Kraus Anderson Block Redevelopment EAW, Minneapolis
Hennepin County, Minnesota

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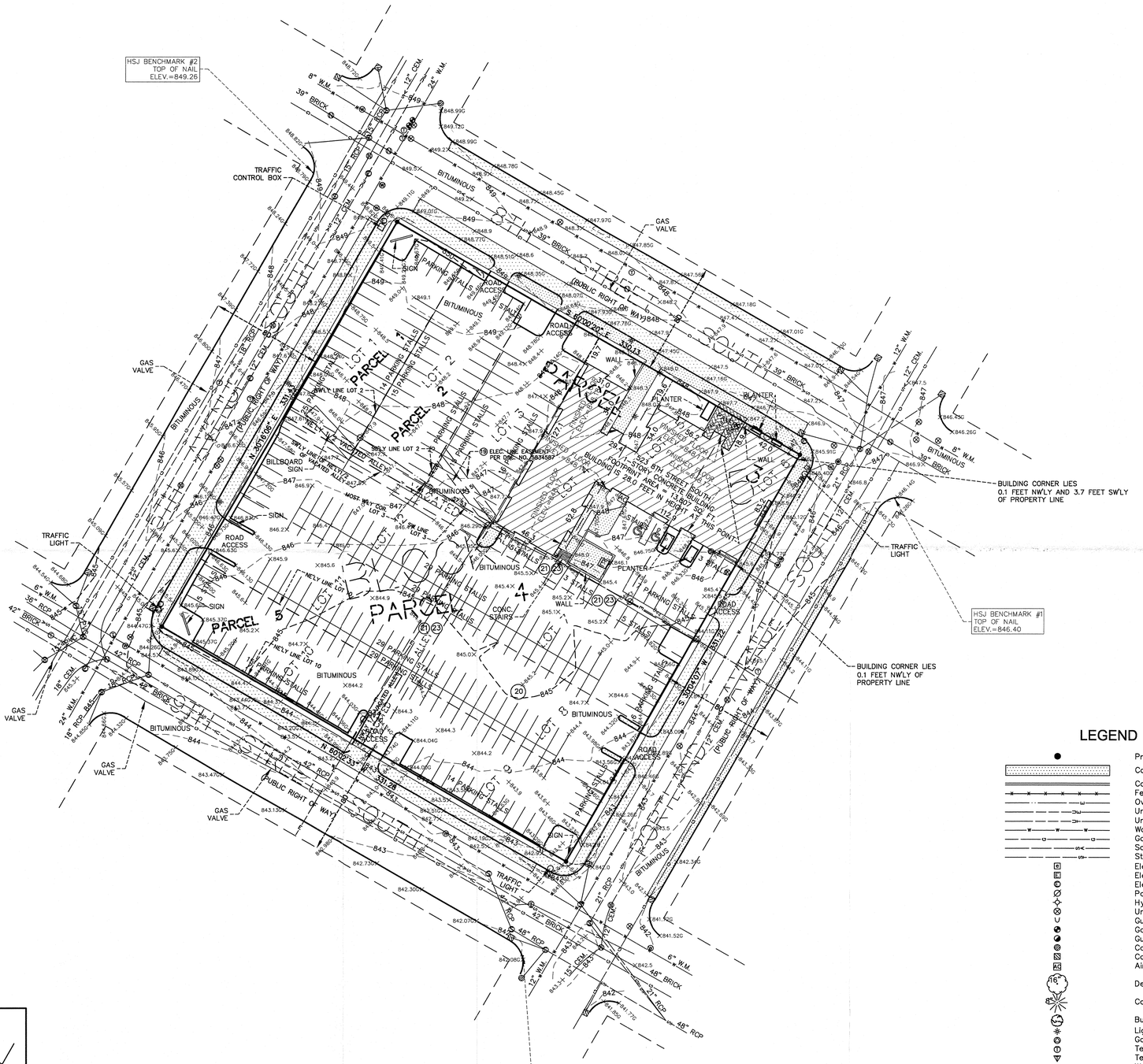
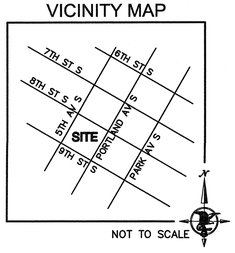


VICINITY MAP



NOT TO SCALE

LEGAL DESCRIPTION:

Parcel 1:
Lot 1, Block 5 of Mattisons Third Addition to Minneapolis, together with the Northeasterly One-Half of the vacated alley adjacent thereto which lies between the Southwesterly extensions of the side lot lines of said Lot 1.

Parcel 2:
Lot 2, Block 5, "Mattisons Third Addition to Minneapolis," together with that portion of the vacated alley in said Block lying Northeasterly of the center line of said alley and between extensions Southwesterly of the Northwesterly and Southeasterly side lines of said Lot 2.

Parcel 3:
Lots 3, 4, 5 and 6, Block 5, "Mattisons Third Addition to Minneapolis," but not including any part of the vacated alley in said Block 5.
Together with a non-exclusive appurtenant easement for passenger vehicle parking and ingress and egress purposes over Lots 7, 8 and 9, Block 5, "Mattisons Third Addition to Minneapolis," and portions of the vacated alley in said Block 5, as described in Decree Document No. 3339116.

Parcel 4:
Lots 7, 8, 9, 11 and 12, Block 5, "Mattisons Third Addition to Minneapolis."
All of the vacated alley in Block 5, "Mattisons Third Addition to Minneapolis," except the 3 following described parts:
(1) The Northeasterly One-Half of the vacated alley adjacent to Lot 1, said Block, which lies between the Southwesterly extensions of the side lot lines of said Lot 1.
(2) That portion of the vacated alley in said Block lying Northeasterly of the center line of said alley and between the extensions Southwesterly of the Northwesterly and Southeasterly lines of Lot 2, said Block.
(3) That part of the Northwesterly Half of the vacated alley abutting Lot 10, said Block, which lies between the Southeasterly extensions of the Northeasterly line and of the Southwesterly line of said Lot.

Parcel 5:
Lot 10, Block 5, Mattisons Third Addition to Minneapolis.
AND
That part of the vacated alley dedicated in Block 5 of the plat of Mattisons Third Addition to Minneapolis, which lies Northwesterly of the centerline thereof, and between the Southeasterly extensions of the Northeasterly and Southwesterly lines of Lot 10, said Block and Addition, subject, however, to the reservation of utility easements in favor of Northern States Power Company and Paragon Cable as contained in Resolution Document No. 3243521.

Hennepin County, Minnesota
Torrens Property
Torrens Certificate No. 170403 (Parcel 1); 228450 (Parcel 2); 1057147 (Parcel 3); 1055274 (Parcel 4) and 765099 (Parcel 5).

NOTES CORRESPONDING TO EASEMENTS:

(19) Terms and conditions of Electric Line Easement dated October 10, 1991, filed October 15, 1991, as Document No. 5834587. (Shown as a recital on the Certificate of Title for Parcel 3)
(AFFECTS PROPERTY, AS SHOWN ON SURVEY)

(20) Terms and conditions of Easement Agreement for parking and ingress and egress purposes dated December 22, 1998, filed December 24, 1998, as Document No. 7026964. (Shown as a recital on the Certificate of Title for Parcels 3 and 4) PARKING EASEMENT OVER LOT 7, 8 AND 9 (PARCEL 4) FOR THE BENEFIT OF LOTS 4, 5 AND 6 (PARCEL 3)
(AFFECTS PROPERTY, AS SHOWN ON SURVEY)

(21) Subject to easements for utility purposes in favor of Northern States Power Company and KBL Cablesystems of the Southwest, Inc., doing business as Time Warner Cable, as reserved in Document No. 5840695. (Shown as a recital on the Certificate of Title for Parcel 4) (VACATED ALLEYS WITHIN BLOCK 5 ARE SUBJECT TO EXISTING EASEMENT) (AFFECTS PROPERTY, AS SHOWN ON SURVEY)

22. Minerals and mineral rights reserved by the State of Minnesota as shown by recital on the Certificate of Title. (Parcel 5) (NON-SURVEY MATTER)

(23) Reservation of utility easements as contained in Resolution filed January 11, 2000, as Document No. 3243521. (Parcel 5) (VACATED ALLEYS WITHIN BLOCK 5 ARE SUBJECT TO EXISTING EASEMENT)
(AFFECTS PROPERTY, AS SHOWN ON SURVEY)

STATEMENT OF POTENTIAL ENCROACHMENTS:

There are no visible above ground encroachments at the time of survey, over or across any property lines of subject property.

GENERAL NOTES:

1. The bearing system used is assumed.

2. The location of the underground utilities shown hereon, if any, are approximate only. PURSUANT TO MSA 216D CONTACT GOPHER STATE ONE CALL AT (612) 454-0002 PRIOR TO ANY EXCAVATION.

3. Subject property is identified as being in "Zone X, Other Areas" on Flood Insurance Rate Map No., 27053C0357E, effective date September 2, 2004.

4. Site area = 109,571 square feet = 2.515 acres.

5. There are a total of 297 striped parking stalls on said property, of which there are 2 designated as handicap.

6. All field measurements matched recorded dimensions within the precision requirements of ALTA/ACSM specifications.

7. This survey was made on the ground and in accordance with the Minimum Standard Detail Requirements for Land Title Surveys as adopted by ALTA and ACSM.

8. There is no observable evidence of cemeteries in the field or of record.

9. The surveyor was not provided with zoning information by the insurer pursuant to Table A item(s) 6a and 6b.

10. There is no visible above ground evidence of earth moving work, building construction or building additions within recent months.

11. There is no observable evidence of recent street or sidewalk construction or repairs.

12. There is no visible above ground evidence of the site being used as a solid waste dump, sump or sanitary landfill.

13. In preparing this survey I have relied upon the supporting documents and the Commitment for Title Insurance issued by Commercial Partner and Old Republic National Title Insurance Company, having an effective date of June 2, 2013 and bearing file number 37254.

14. Elevation datum is based on NAVD 88 data.
HSJ Benchmark #1 is located Top of Nail (AS SHOWN ON SURVEY)
Elevation = 846.40

PRINTED
AUG 26 2013
HARRY S. JOHNSON CO. INC

LEGEND

- Property Monument
- Concrete
- Concrete Curb
- Fence
- Overhead Electric
- Underground Electric
- Underground Telephone
- Water
- Gas
- Sanitary Sewer
- Storm Sewer
- Electric Meter
- Electric Box
- Electric Manhole
- Power Pole
- Hydrant
- Unknown Manhole
- Guy Wire Anchor
- Gate Valve
- Guard Post
- Catchbasin
- Catchbasin
- Air Conditioning Unit
- Deciduous Tree (Diameter in Inches)
- Coniferous Tree (Diameter in Inches)
- Bush
- Light Pole
- Gas Meter
- Telephone Manhole
- Telephone Box
- Water Manhole
- Window Well
- Sanitary Manhole
- Storm Manhole
- Existing Contour
- X 851.27G Existing Spot Elevation Gutter
- X 934.3 Existing Spot Elevation
- Patio Pavers

40 20 0 40 80 120
SCALE IN FEET

CERTIFICATION:

To Kraus-Anderson, Incorporated, a Minnesota corporation, Commercial Partners Title, LLC and Old Republic National Title Insurance Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2011 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes items 1, 2, 3, 4, 5, 6(b), 7(a), 7(b1), 8, 9, 11(a), 13, 16, 17 and 18 of Table A thereof.

The field work was completed on August 26, 2013.

Date of Plat or Map: August 26, 2013

Thomas E. Hodorff, L.S.
Minn. Reg. No. 23677

N

SCALE: 1 INCH = 40 FEET

REVISIONS

Date:	

ALTA/ACSM LAND TITLE SURVEY w/ TOPOGRAPHY

For:

KRAUS-ANDERSON
REALTY COMPANY

SITE:

523 SOUTH EIGHT STREET

MINNEAPOLIS, MINNESOTA

HENNEPIN COUNTY

HARRY S. JOHNSON CO., INC.
LAND SURVEYORS
9063 Lyndale Avenue South
Bloomington, MN. 55437
Tele. 952-884-5341 Fax 952-884-5344
www.hsjsurveyors.com

Book	File No.
633	1-3-8624
Page	W.O. Number
5	2013306
CAD Technician	
ONI	
Sheet No.	1 OF 1

CAD File: 2013306.DWG
Path: S:\JOBS\2013306\DWG\

Appendix B

East Downtown Council Letter of Support

Kraus Anderson Block Redevelopment EAW, Minneapolis
Hennepin County, Minnesota

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east downtown council

810 South 7th Street
Minneapolis, MN 55415
612-359-0601
info@edcmpls.org
www.edcmpls.org

8 September 2015

Mike Korsh
President
Kraus-Anderson Development Company
523 South 8th Street
Minneapolis, Minnesota 55404

Dear Mr. Korsh,

The East Downtown business community is pleased with Kraus-Anderson's redevelopment vision for the block currently owned by you. The concept vision was presented to the East Downtown Council at our September 3rd Board meeting. At that time the board voted overwhelmingly to support the project vision (with one abstention) as presented. The commitment to increased density and a full block solution including your headquarters, underground parking, market rental housing, a boutique hotel and a Finnegan's brewery and innovation center is a transformational vision for your block and potentially a key bridge between East Downtown and the Central Business District. We commend you and your development team for putting forward a project that we believe will be an important contributor to the new and unfolding effort to promote Portland Avenue as an emerging residential corridor in Downtown.

On behalf of the board and staff of East Downtown Council, we welcome this development as part of the emerging broad-based community vision to improve this area of downtown so it becomes as vital as the adjacent neighborhoods. Thank you for listening to community concerns and revising your earlier vision to be one that will markedly improve our neighborhood.

Sincerely,

Dan Collison
EDC Executive Director

Paul C N Mellblom
EDC Board President

Appendix C

Typical Building Floor Plans

Kraus Anderson Block Redevelopment EAW, Minneapolis
Hennepin County, Minnesota

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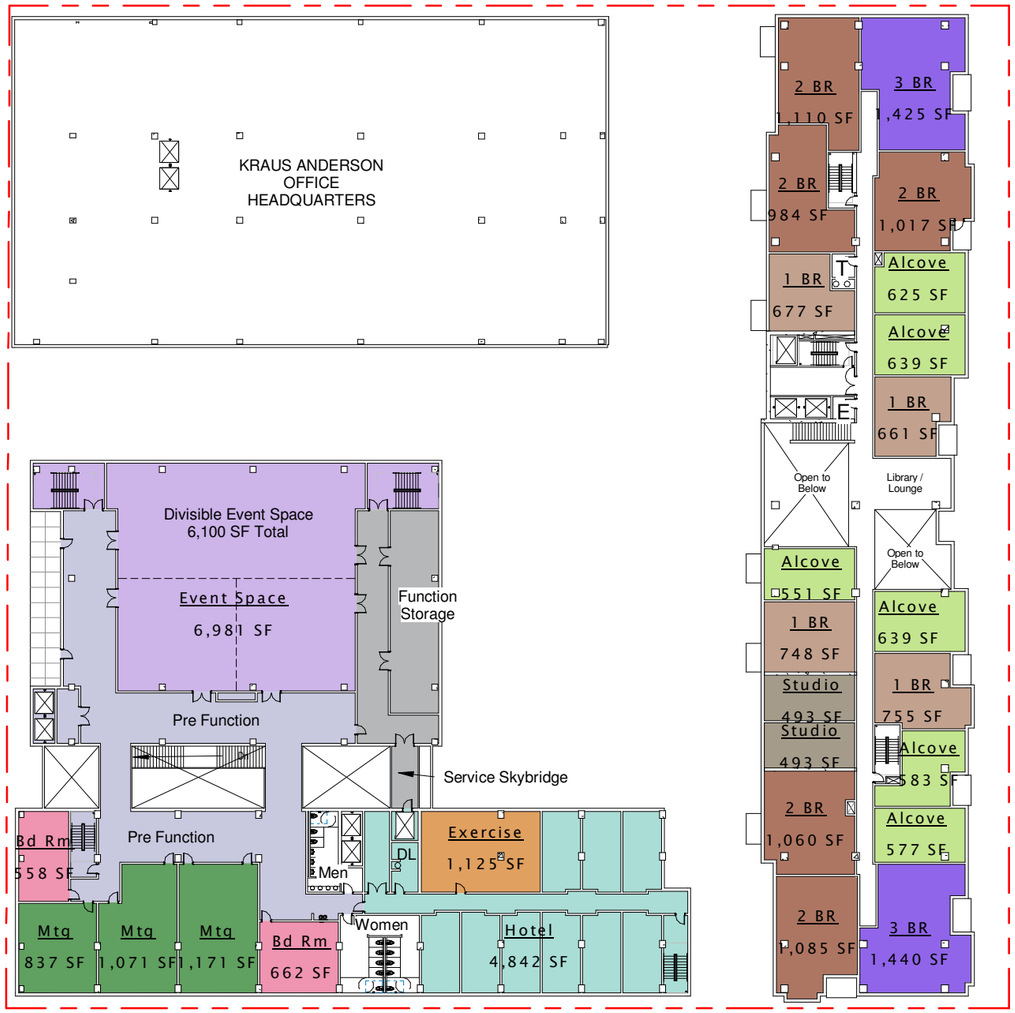
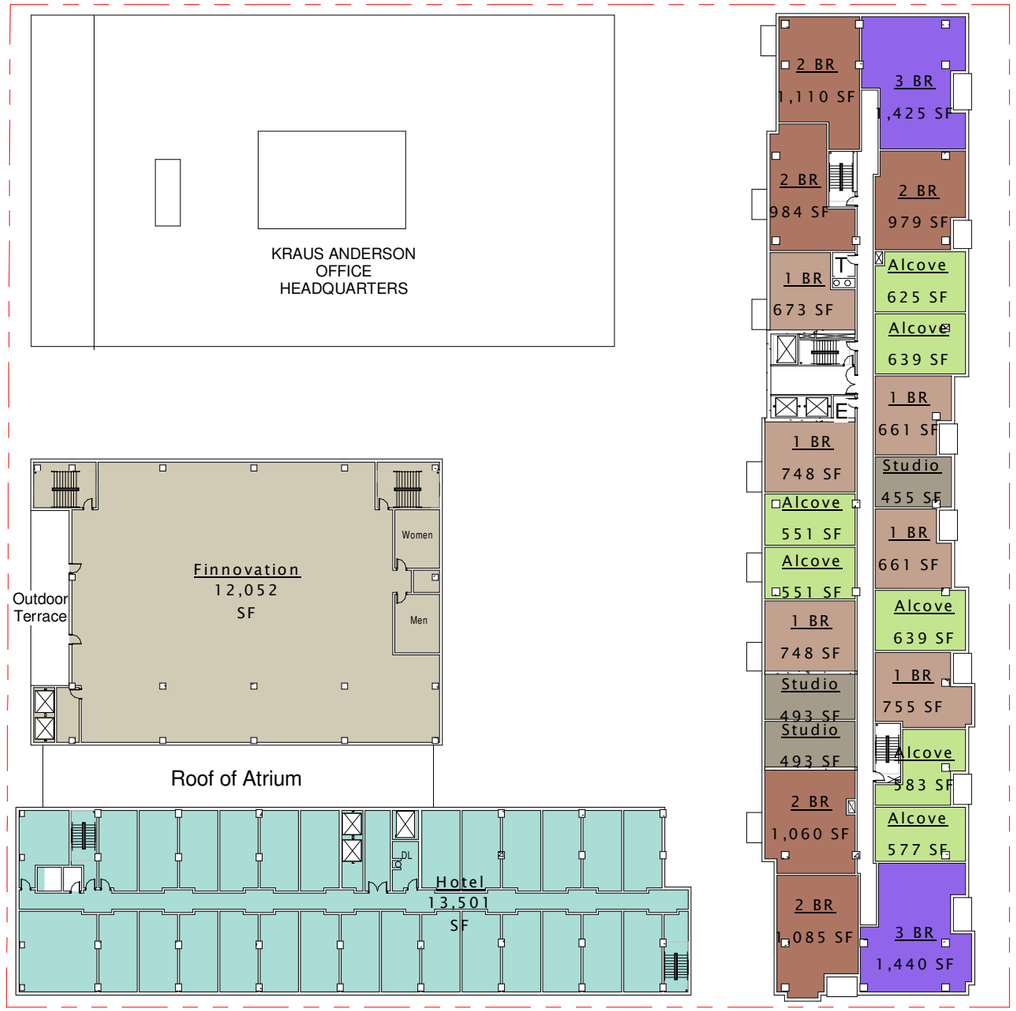
STREET LEVEL

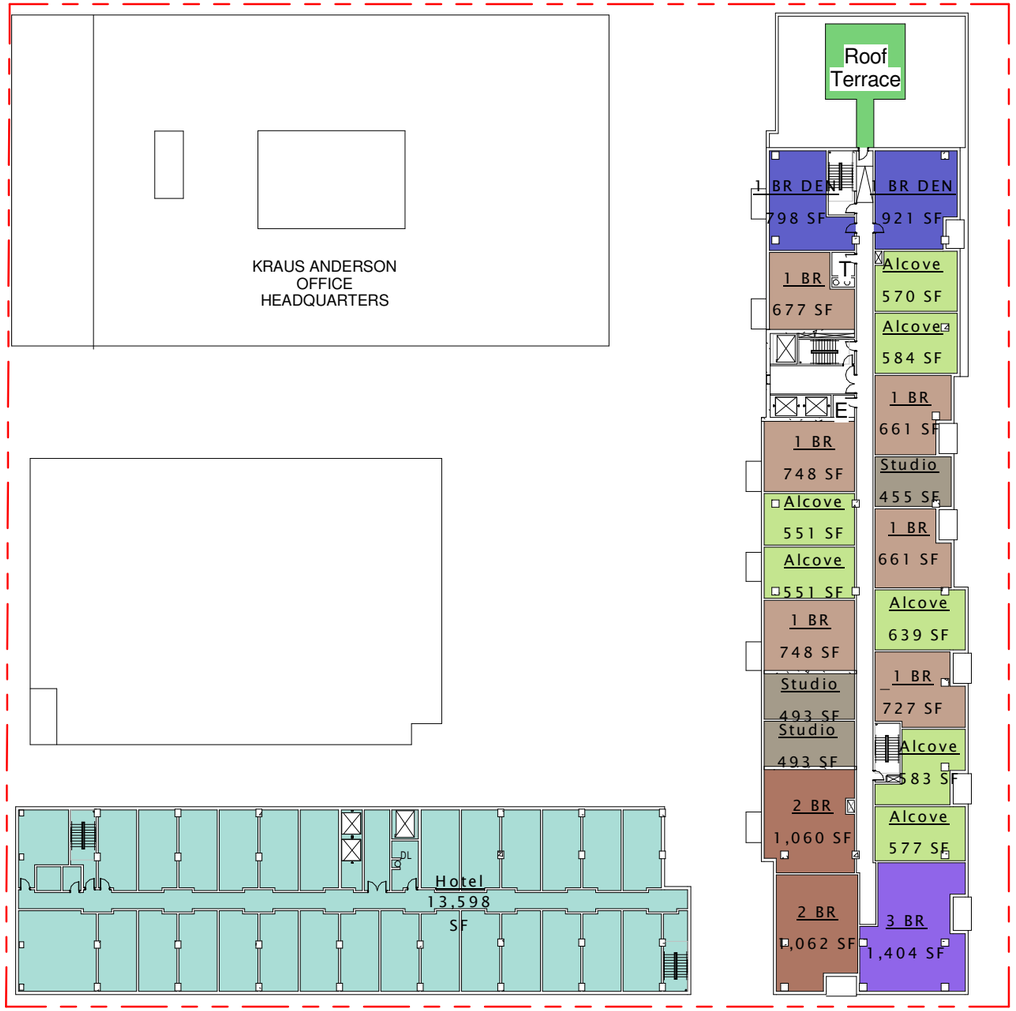


LEVEL 2

0 25' 50'

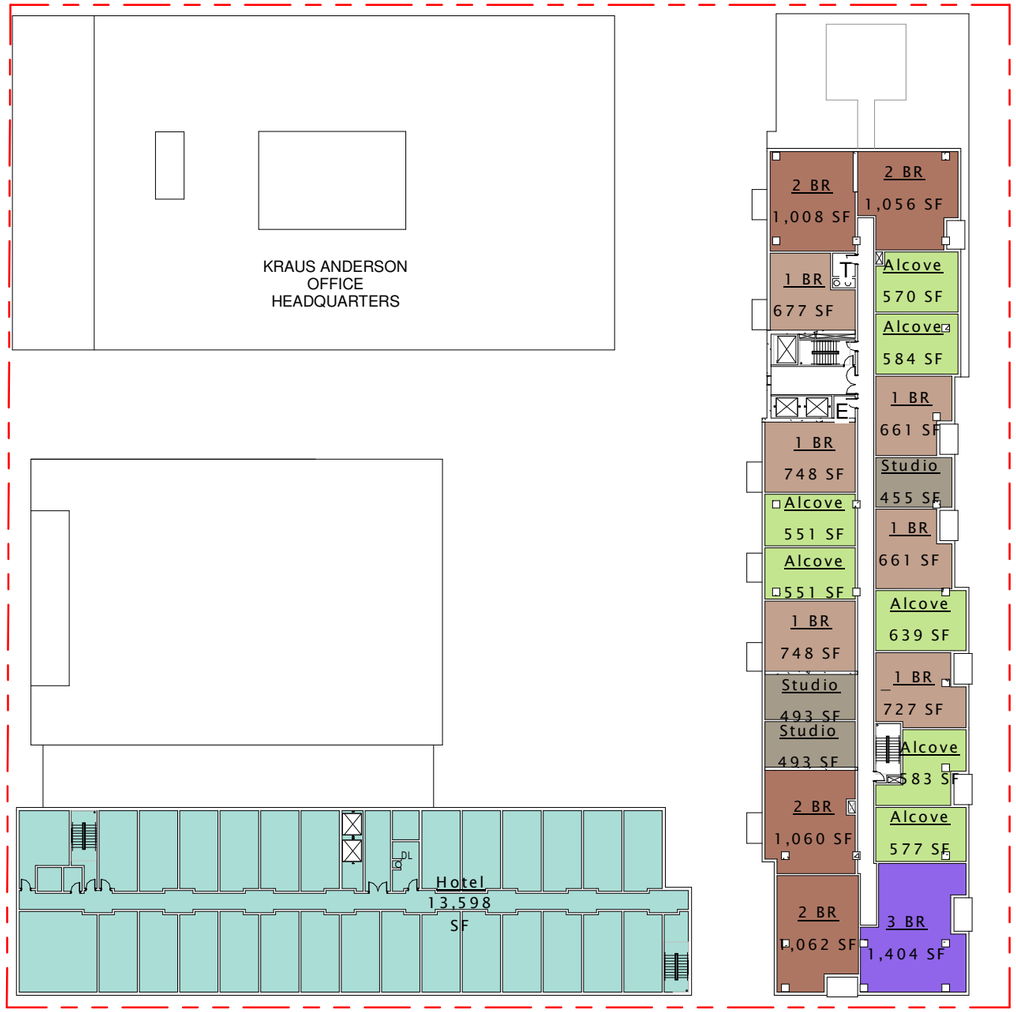


LEVELS 3-5



LEVEL 6

0 25' 50'



LEVELS 7-8

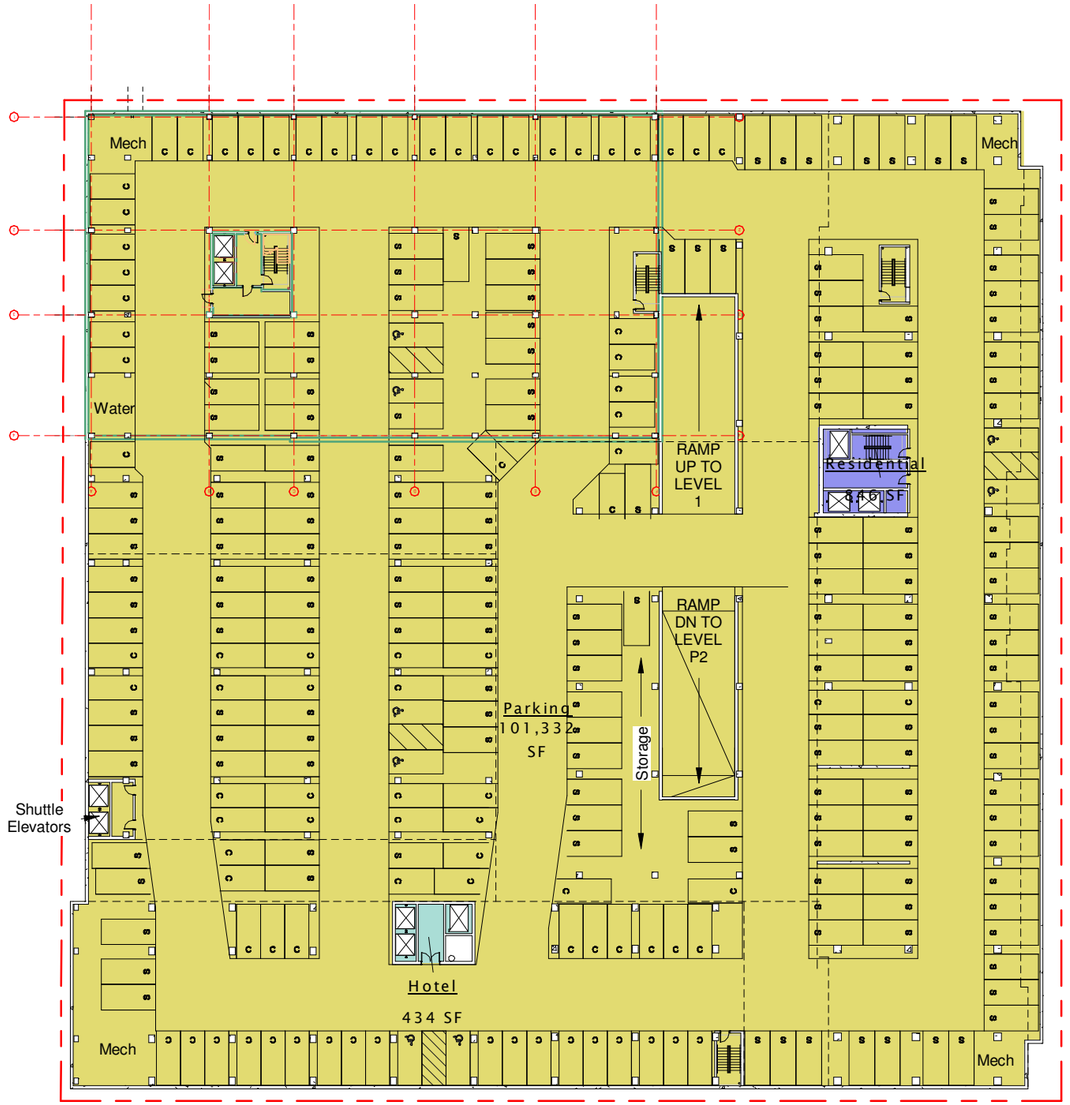
LEVEL 9

0 25' 50'

LEVELS 10-15

LEVEL 16-17 PENTHOUSE

0 25' 50'



LEVEL P1 PARKING (P2 SIMILAR)

0 25' 50'

DF/
DAMON FARBER
LANDSCAPE ARCHITECTS

401 2nd Avenue North, Suite 410
Minneapolis, MN 55401
p 612.332.7522

Appendix D

Building Metrics Tables

Kraus Anderson Block Redevelopment EAW, Minneapolis
Hennepin County, Minnesota

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Zoning Analysis: Kraus Anderson site

Replatted properties	Lot Size	GFA	FAR
Residential		295,000	
Office (KA headquarters)		95,000	
Finnegan House Hotel + Brewery		142,000	
Total	108,900	532,000	4.89

Zoning District	B4N
Overlay District	Downtown Parking
Max FAR	none
Min FAR	2.0
Proposed FAR	4.89
Max Height	10 stories, 140' (increase allowed with Conditional Use Permit)
Proposed height - Residential	17 stories, 190'
Proposed height - Office	5 stories, 70'
Proposed height - Brewtel	7 stories, 88'

Parking Analysis					
Required Parking	Proposed DUs, Keys, GSF or occupants	Base Zoning		Applied Zoning	
		Min	Max	Min	Max
Residential	306	*	1.6	6	490
Office (KA headquarters)	95,000	0	0.001	0	95
Office (Finnovation)	12,000		0.001		12
Hotel rooms	148	0	1	0	148
Hotel dining/meeting	200	0	30%	0	60
Brewery Production, Processing, Stor	11,759		0.0015		18
Event Center	750		30%		225
Total				6	1047

* Min 1 guest stall per 50 dwellings

Parking Provided	Stalls
Minus 2	265
Minus 1	265
Total	530

Required applications:
Site Plan Review
CUP to increase max allowable height
Variance for signage - specifics TBD
Setback along Portland greater than 8'

Kraus Anderson Block Residential Metrics

Minneapolis, MN

Area Summary

	Use	Total GSF	Parking GSF	Res GSF	Lobby or Amenity	Res NRSF	DUs	Parking	Efficiency
Level P2	Parking	101,641	100,795	846				266	
Level P1	Parking	101,641	100,795	846				266	
Level 1	Residential	21,031		15,673	5,358	12,579	17		80.3%
Level 2	Residential	21,031		21,031		16,090	19		76.5%
Level 3	Residential	20,957		20,957		17,911	23		85.5%
Level 4	Residential	20,957		20,957		17,911	23		85.5%
Level 5	Residential	20,957		20,957		17,911	23		85.5%
Level 6	Residential	17,880		17,880		15,279	21		85.5%
Level 7	Residential	17,880		17,880		15,279	21		85.5%
Level 8	Residential	17,880		17,880		15,279	21		85.5%
Level 9	Res/Amenity	14,227		10,679	3,548	8,348	12		78.2%
Level 10	Residential	15,157		15,157		12,786	18		84.4%
Level 11	Residential	15,157		15,157		12,786	18		84.4%
Level 12	Residential	15,157		15,157		12,786	18		84.4%
Level 13	Residential	15,157		15,157		12,786	18		84.4%
Level 14	Residential	15,157		15,157		12,786	18		84.4%
Level 15	Residential	15,157		15,157		12,786	18		84.4%
Level 16	Residential	15,157		15,157		12,782	9		84.3%
Level 17	Residential	15,157		15,157		12,782	9		84.3%
Total		497,338	201,590	285,150	8,906	238,867	306	532	83.7%

Unit Distribution Summary

Level	Studio	Alcove	1 BR		2 BR	2 BR DEN	3 BR	Beds	Total DUs
Level 1	5	6	1		3		2	24	17
Level 2	2	6	4		5		2	28	19
Level 3	4	6	6		5		2	31	23
Level 4	4	6	6		5		2	31	23
Level 5	4	6	6		5		2	31	23
Level 6	4	6	6		4		1	27	21
Level 7	4	6	6		4		1	27	21
Level 8	4	6	6		4		1	27	21
Level 9	2	3	5		2			14	12
Level 10	4	4	6		4			22	18
Level 11	4	4	6		4			22	18
Level 12	4	4	6		4			22	18
Level 13	4	4	6		4			22	18
Level 14	4	4	6		4			22	18
Level 15	4	4	6		4			22	18
Level 16					4	2	3	21	9
Level 17					4	2	3	21	9
Total	57	75	82	0	69	4	19	414	306
%	19%	25%	27%	0%	23%	1%	6%		

Appendix E

County Well Index Well Logs

Kraus Anderson Block Redevelopment EAW, Minneapolis
Hennepin County, Minnesota

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Minnesota Unique Well No.

200634

County Hennepin
Quad Minneapolis South
Quad ID 104A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 103I

Entry Date 08/24/1991
Update Date 06/03/2004
Received Date

Well Name FRANCIS DRAKE HOTEL

Township Range Dir Section Subsections Elevation 848 ft. 7.5 minute topographic map (+/- 5 feet)

29 24 W 27 ADDAAB Elevation Method

Well Depth 95 ft. | Depth Completed 95 ft. | Date Well Completed

Drilling Method

Well Address

MINNEAPOLIS MN

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No From Ft. to Ft.

Use Commercial Status Active

Casing Type Joint Drive Shoe? ☐ Yes ☐ No Above/Below ft.

Geological Material	Color	Hardness	From	To
DRIFT			0	60
PLATTEVILLE			60	95

Casing Diameter **Weight** **Hole Diameter**

Open Hole from ft. to ft.

Screen

Diameter **Slot/Gauze** **Length** **Set Between**

Static Water Level
ft. from Date Measured

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

NO REMARKS

Grouting Information Well Grouted? ☐ Yes ☐ No ☐ Not Specified

Located by: Minnesota Geological Survey

Method: Digitized - scale 1:24,000 or larger (Digitizing Table)

Unique Number Verification: N/A

Input Date: 01/01/1990

System: *UTM - Nad83, Zone15, Meters*

X: 478860 Y: 4979817

Nearest Known Source of Contamination
_feet _direction _type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed

Manufacturer's name Model number __ HP _ Volts

Length of drop Pipe _ ft. Capacity _ g.p.m Type Material

Abandoned Wells Does property have any not in use and not sealed well(s)? ☐

Yes ☐ No

Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Well Contractor Certification

First Bedrock Platteville Formation

Last Strat Platteville Formation

Aquifer

Depth to Bedrock 60 ft.

License Business Name | Lic. Or Reg. No. | Name of Driller

County Well Index Online Report

200634

Printed 9/16/2015
HE-01205-07

Minnesota Unique Well No.

542918

County Hennepin
Quad Minneapolis South
Quad ID 104A

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 103I

Entry Date 01/23/1997
Update Date 10/15/2014
Received Date

Well Name MPLS. ENERGY CENTER NO.1

Township Range Dir Section Subsections Elevation 851 ft.

29 24 W 27 AADDBC Elevation Method LiDAR 1m DEM (MNDNR)

Well Depth	Depth Completed	Date Well Completed
475 ft.	475 ft.	10/12/1995

Drilling Method Cable Tool

Well Address
814 4TH AV S
MINNEAPOLIS MN

Drilling Fluid --

Well Hydrofractured? ☐ Yes ☐ No From Ft. to Ft.

Use Industrial Status Active

Geological Material	Color	Hardness	From	To
FILL	BROWN	SOFT	0	25
DRIFT	BROWN	MEDIUM	25	54
PLATTEVILLE	GRAY	HARD	54	84
ST. PETER	GRAY	MEDIUM	84	248
SHAKOPEE	GRAY	HARD	248	380
JORDAN	GRAY	MEDIUM	380	467
SHALE	GREEN	MEDIUM	467	475

Casing Type Steel (black or low carbon) Joint Welded Drive Shoe? ☐
Yes ☐ No Above/Below ft.

Casing Diameter	Weight	Hole Diameter
24 in. to 55 ft.	94.5 lbs./ft.	23 in. to 475 ft.
18 in. to 270 ft.	71 lbs./ft.	

Open Hole from 270 ft. to 475 ft.

Screen NO Make Type

Diameter	Slot/Gauze	Length	Set Between

Static Water Level
78 ft. from Land surface Date Measured 12/09/1994

PUMPING LEVEL (below land surface)
101.6 ft. after 8 hrs. pumping 1100 g.p.m.

Well Head Completion
Pitless adapter manufacturer WHITEWATER Model SU20-8
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

NO REMARKS

Grouting Information Well Grouted? ☑ Yes ☐ No ☐ Not Specified

Grout Material: Neat Cement from 0 to 270 ft. 22.5 yrds.

Located by:
Unique Number Verification: Address verification
System: *UTM - Nad83, Zone15, Meters*
Method: GPS SA Off (averaged)
Input Date: 10/06/2014
X: 478815 Y: 4980078

Nearest Known Source of Contamination
_feet _direction _type
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name Model number __ HP 0 Volts
Length of drop Pipe _ft. Capacity _g.p.m Type Material

Abandoned Wells Does property have any not in use and not sealed well(s)? ☐
Yes ☑ No

Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No

First Bedrock Platteville Formation
Last Strat St.Lawrence Formation
Aquifer Prairie Du Chien-Jordan
Depth to Bedrock 54 ft.

Well Contractor Certification

Keys Well Co.	62012	GALVIN, M.
License Business Name	Lic. Or Reg. No.	Name of Driller

County Well Index Online Report

542918

Printed 9/16/2015
HE-01205-07

Appendix F

Utility Connection Plans

Kraus Anderson Block Redevelopment EAW, Minneapolis
Hennepin County, Minnesota

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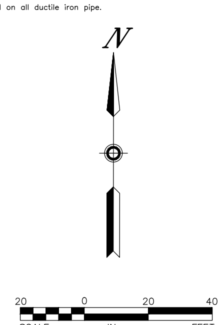
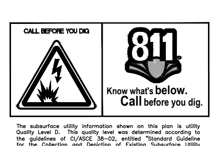
SANITARY SEWER:

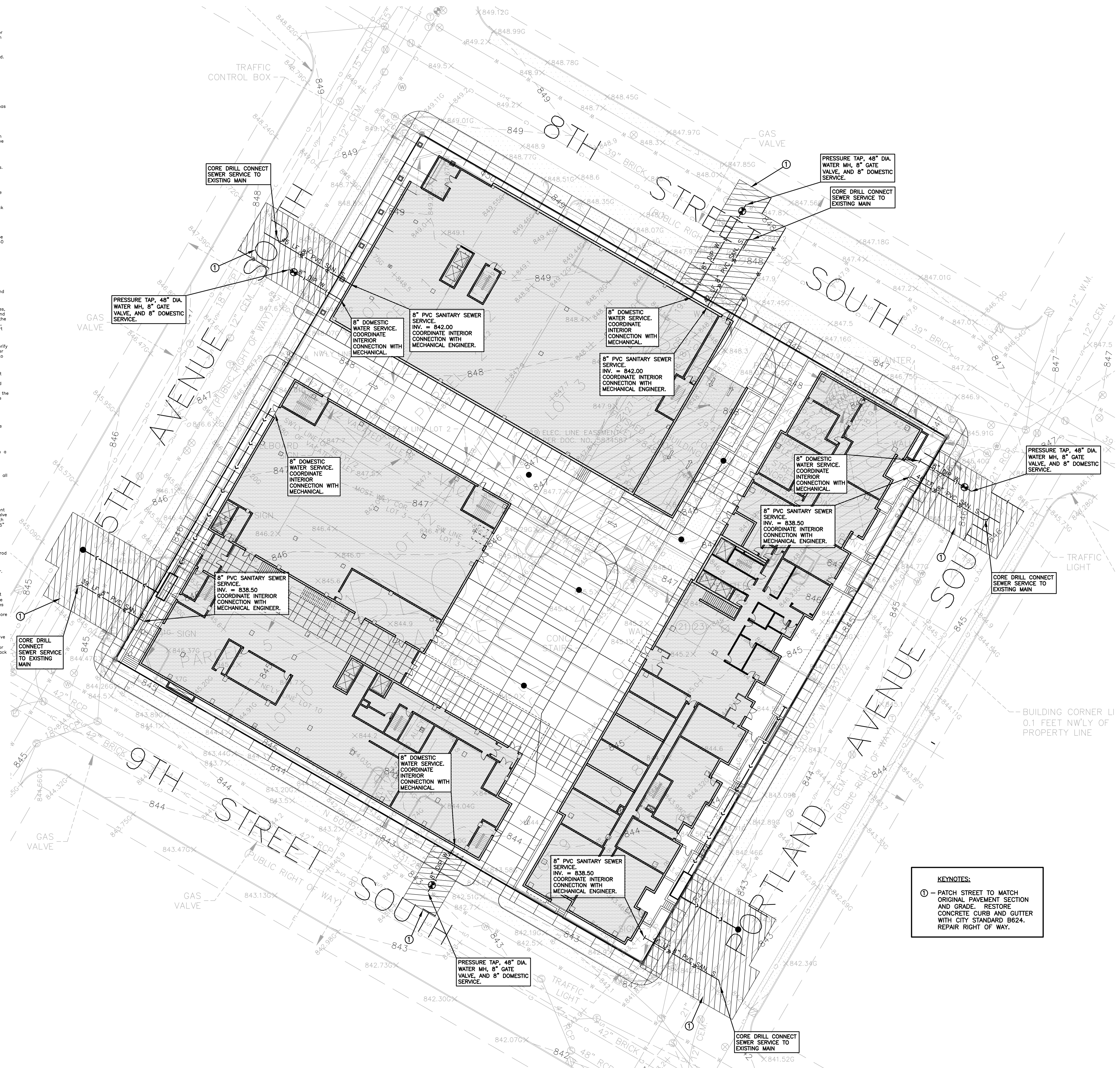
1. Pipe: Use solid–core, SDR–35, ASTM D3034 (or approved equal) Polyvinyl Chloride (PVC) Plastic Pipe for all designated PVC sanitary sewer services. Joints for all sanitary sewer shall have push–on joints with elastomeric gaskets. Use of solvent cement joints is allowed for building services. Solvent cement joints in PVC pipe must include use of a primer which is of contrasting color to the pipe and cement in accordance with Minnesota Rules, part 4715.0810, subpart 2. Pipe with solvent cement joints shall be joined with PVC cement conforming to ASTM D2564. Lay all PVC pipe on a continuous granular bed. Installation must comply with ASTM D2321.
2. Cleanouts: Install cleanouts on all sanitary sewer services in accordance with Minnesota Rules part 4715.1010. The distance between cleanouts in horizontal piping shall not exceed 100 feet for pipes 4–inch and over in size. Cleanouts shall be of the same nominal size as the pipes they serve. Include frost sleeves and concrete frame and pipe support. Install a meter box frame and solid lid (Neenah R–1914–A, or approved equal) over all cleanouts.
3. Testing: Pressure test all sanitary sewer lines in accordance with the Minnesota Rules part 4715.2820. Test all flexible sanitary sewer lines for deflection after the sewer line has been installed and backfill has been in place for at least 30 days. No pipe shall exceed a deflection of 5%. If the test fails, make necessary repairs and retest.
4. Unless otherwise indicated, use reinforced, precast, concrete maintenance holes conforming to ASTM C478, furnished with precast bases. Sanitary sewer maintenance holes shall be supplied with pre–formed inverts and flexible neoprene sleeve connections for all lateral lines 375 mm (15 inches) in diameter or less, unless otherwise indicated. Joints for all precast maintenance hole sections shall have confined, rubber "O"–ring gaskets in accordance with ASTM C923. The inside barrel diameter shall not be less than 48 inches.
5. Install flexible watertight frame/chimney seals on all sanitary sewer maintenance holes. Use either Manufactured Maintenance Hole Frame/Chimney Seals or Elastomeric Waterproofing Frame/Chimney Seals.
6. Use Neenah Foundry Co. R–1642 casting with self–sealing, solid, type B lid, or approved equal, on all sanitary sewer maintenance holes. Covers shall bear the "Sanitary Sewer" label.
7. Install detectable underground marking tape directly above all pvc, polyethylene, and other nonconductive underground utilities at a depth of 457 mm (18 inches) below finished grade, unless otherwise indicated. Bring the tape to the surface at various locations in order to provide connection points for locating underground utilities. Install blue Rhino TriView Flex Test Stations, or approved equal, with black caps at each surface location.
8. The minimum depth of cover for sanitary sewer without insulation is 5 feet. Insulate sanitary sewer services at locations where the depth of cover is less than 5 feet. Provide a minimum insulation thickness of 2 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam HI–40 plastic foam insulation.

WATER DISTRIBUTION SYSTEM:

1. Bring all site utilities to 5' outside of the building line with the exception of the water service. Extend water service into the building and up to the flange for the water meter.
2. Separation of Water and Sewer: Construct sewer and water services in accordance with Minnesota Rules, part 4715.1710, subpart 2. Provide a minimum horizontal separation of 10 feet between all water and sewer lines. At water and sewer crossings, the bottom of the water pipe located within ten feet of the point of crossing must be at least 12–inches above the top of the sewer. When this is not feasible, the sewer pipe material must conform to the requirements of Minnesota Rules, part 4715.170, subpart 2E. No joints or connections are allowed on the water line within 10–feet of the crossing.
3. Watermain Depth: Maintain 8–feet of cover over the top of the water lines to the finished grade. Verify elevation of proposed and existing water lines at all utility crossings. Install the water lines at greater depths in order to clear storm sewers, sanitary sewers, or other utilities as required. Include costs to lower water lines in the base bid.
4. Disinfection: Disinfect all completed watermains in accordance with AWWA Standard C651. If the tablet or continuous feed methods are used, disinfect using with water that contains at least 50 ppm of available chlorine in accordance with Minnesota Rules, part 4715.2250. Do not use the tablet method on solvent–welded plastic or on screwed–joint steel pipe because of the danger of fire or explosion from the reaction of the joint compounds with the calcium hypochlorite. Retain the treated water in the pipeline for at least 24 hours. Measure the chlorine residual at the end of the 24 hour period. The free chlorine residual must be at least 10 mg/l measured at any point in the line. Measurement of the chlorine concentration at regular intervals shall be in accordance with Standard Methods, AWWA M–12, or using appropriate chlorine test kits.
5. Testing: Pressure test and perform bacteriological tests on all water lines under the supervision of the City Public Works Department. Notify the City at least 24 working hours prior to any testing. Pressurize the waterline to 1034–kPa (150–psi) gauge pressure (measured at the point of lowest elevation) by means of a pump connected to the pipe in a satisfactory manner. Maintain the test pressure for a minimum of 2 hours. Do not add water to the watermain in order to maintain the required pressure during the water main pressure testing. The test section of pipe is acceptable with a pressure drop of 14 kPa (2 psi) or less.
6. Use mechanical joint restraint devices for joint restraint on all watermain bends having a vertical or horizontal deflection of 22–1/2 degrees or greater, all valves, stubs, extensions, tees, crosses, plugs, all hydrant valves, and all hydrants in accordance with City requirements. Use "Series 1100 Megalug" manufactured by EBAA Iron Inc., Eastland, Texas, or approved equal, installed in accordance with manufacturer's recommendations for restraint on Ductile Iron Pipe.
7. At all valve locations which require a 12" or smaller valve, install gate valves which are of the compression resilient seated (CRS) type. Use American Flow Control's Series 2500 Ductile Iron Resilient Wedge Gate Valve, or approved equal. Gate valves shall conform to AWWA C509. Install cast iron valve boxes conforming to ASTM A48 at each valve location. Valve boxes shall be the three–piece type with 5–1/4" shafts. Use Tyler 6860–G with No. 6 base, or equivalent. Valve boxes shall have at least 6" of adjustment above and below finished grade. Drop covers on valve boxes shall be round and bear the word "WATER" cast on the top. Use Tyler 6860–G "Stayput" covers with extended skirt, or equivalent.
8. Use Mueller H 10300 or Ford EM 2 7057, or approved equal, at all curb stop locations. Stationary rod is required on all curb stops.
9. Polyvinyl Chloride (PVC) Building Water Services: ASTM D2241 or ASTM D1785; pressure rated for water.
10. Polyvinyl Chloride (PVC) Watermain: Use AWWA C900 for all PVC watermain furnished with integral elastomeric bell and spigot joints; minimum pressure Class 150; dimension ratio not greater than 18; laying length 20 feet. Use EBAA Iron, Inc., "Series 2000 PV Megalug," or approved equal for restraint on C900 PVC watermain. Lay trace wire with all C900 PVC watermain. Use #12 copper–insulated wire rated for underground service. Connect the wire to all fire hydrants by wrapping the ends three times around the hydrant barrels just below the break off flange and continue back down to the main line. Splice the trace wire by twisting the two ends and heat shrink–wrapping the splice. Do not make more than one splice per 250 feet. Wire nut splices are not allowed. Lay the trace wire below all watermain, fittings, and hydrants.
11. Install detectable underground marking tape directly above all pvc, polyethylene, and other nonconductive underground utilities at a depth of 457 mm (18 inches) below finished grade, unless otherwise indicated. Bring the tape to the surface at various locations in order to provide connection points for locating underground utilities. Install blue Rhino TriView Flex Test Stations, or approved equal, with black caps at each surface location.
12. Use ANSI/AWWA C151/A21.51 Thickness Class 52 or Pressure Class 350 Ductile Iron Pipe (DIP) with push–on joints for all watermain. Use only stainless steel bolts and nuts on all watermain fittings, valves, and hydrants.
13. Polyethylene encasement is required on all ductile iron pipe.







KEYNOTES:

① – PATCH STREET TO MATCH ORIGINAL PAVEMENT SECTION AND GRADE. RESTORE CONCRETE CURB AND GUTTER WITH CITY STANDARD B624. REPAIR RIGHT OF WAY.

KA BLOCK REDEVELOPMENT

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I hereby certify that this document was prepared by me or under my direct supervision and that I am a duly licensed under the laws of the State of

Signature

Mike R. Kettler
Typed or Printed Name

40425
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Conceptual Pricing Set – 8/7/2015

ORIGINAL ISSUE:

REVISIONS

215503
PROJECT NUMBER

MK
DRAWN BY CHECKED BY

KEY PLAN

KA BLOCK REDEVELOPMENT

UTILITY PLAN

C1.3

Appendix G

Natural Heritage Information System Letter

Kraus Anderson Block Redevelopment EAW, Minneapolis
Hennepin County, Minnesota

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Minnesota Department of Natural Resources

Division of Ecological and Water Resources, Box 25

500 Lafayette Road

St. Paul, Minnesota 55155-4025

Phone: (651) 259-5091 E-mail: samantha.bump@state.mn.us

October 23, 2015 **Correspondence # ERDB 20160137**

Mr. David Weetman
Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

RE: Natural Heritage Review of the proposed KA Block EAW;
T29N R24W Section 26; Hennepin County

Dear Mr. Weetman,

As requested, the above project has been reviewed for potential effects to known occurrences of rare features. A search of the Minnesota Natural Heritage Information System did identify rare features within an approximate one-mile radius of the proposed project, but these records did not include any federally listed species and were either historical or not of concern given the project details that were provided with the data request form. As such, I do not believe the proposed project will adversely affect any known occurrences of rare features.

However, please note that the northern long-eared bat (Myotis septentrionalis), a state-listed species of special concern, is found throughout Minnesota. During the winter this species hibernates in caves and mines, and during the active season (approximately April-October) it roosts underneath bark, in cavities, or in crevices of both live and dead trees. Activities that may impact this species include, but are not limited to, wind farm operation, any disturbance to hibernacula, and destruction/degradation of habitat (including tree removal).

Effective May 4, 2015, the U.S. Fish and Wildlife Service (USFWS) listed the northern long-eared bat as threatened under the Endangered Species Act (ESA) and implemented an interim 4(d) rule. The ESA prohibits take of this species without a permit unless the take is exempt under the interim 4(d) rule. If you believe that your project may adversely affect ("take") the northern long-eared bat, you should determine whether the "take" is exempt under the interim 4(d) rule or whether you need a Federal permit. To make this determination, please refer to the USFWS Key to the Interim 4(d) Rule available at http://www.fws.gov/midwest/endangered/mammals/nleb/Interim4dRuleKeyNLEB.html. Please note that the NHIS does not contain any known occurrences of northern long-eared bat roosts or hibernacula within an approximate one-mile radius of the proposed project.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. **If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.**

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location (noted above) and the project description provided on the NHIS Data Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural

Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. To determine whether there are other natural resource concerns associated with the proposed project, please contact your DNR Regional Environmental Assessment Ecologist (contact information available at http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html). Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,

Samantha Bump
Natural Heritage Review Specialist

Appendix H

TDMP & Traffic Impact Study

Kraus Anderson Block Redevelopment EAW, Minneapolis
Hennepin County, Minnesota

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Westwood

TRAVEL DEMAND MANAGEMENT PLAN

Kraus-Anderson Block Redevelopment

Minneapolis, MN

November 19, 2015

`Prepared For:

Kraus-Anderson, Incorporated

Westwood

Travel Demand Management Plan for

Kraus-Anderson Block Redevelopment

Prepared for:
Kraus-Anderson, Incorporated
525 South 8th Street
Minneapolis, MN 55404
612.332.7281
www.krausanderson.com

Prepared by:
Westwood Professional Services
7699 Anagram Drive
Eden Prairie, MN 55344
(952) 937-5150
www.westwoodps.com

Project Number: R0007118.00
Date: 11/19/2015

Travel Demand Management Plan for

Kraus-Anderson Block Redevelopment

Minneapolis, MN

November 19, 2015

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

Print Name: Stephen J. Manhart

Signature: 

Date: 11/19/2015 License # 22428

CONTENTS

FIGURES

TABLES

APPENDICES

1.0 -- INTRODUCTION

The Vision and Purpose of the proposed Kraus-Anderson Block Redevelopment is to transform an entire city block, consisting of a surface parking lot and antiquated office building into a vibrant, high-density mixed use destination in the Elliot Park neighborhood of downtown Minneapolis consistent with several key sources of guidance. This particular area of the city is currently characterized by several large surface parking lots and is in need of creative infill redevelopment. The proposed project will serve as a catalyst for future improvements and investment in this area of downtown Minneapolis.

1.1 -- MIXED USE PROGRAM SUMMARY

The program for this redevelopment includes three distinct and active uses:

- A new Kraus-Anderson (KA) Corporate Home Office of approximately 95,000 square feet. KA has been located on this site for over 75 years.
- A new Type 1 residential midrise building of approximately 306 dwelling units.
- A new 148-key Finnegan's House Boutique Hotel/ Micro Brewery/ Innovation Center.

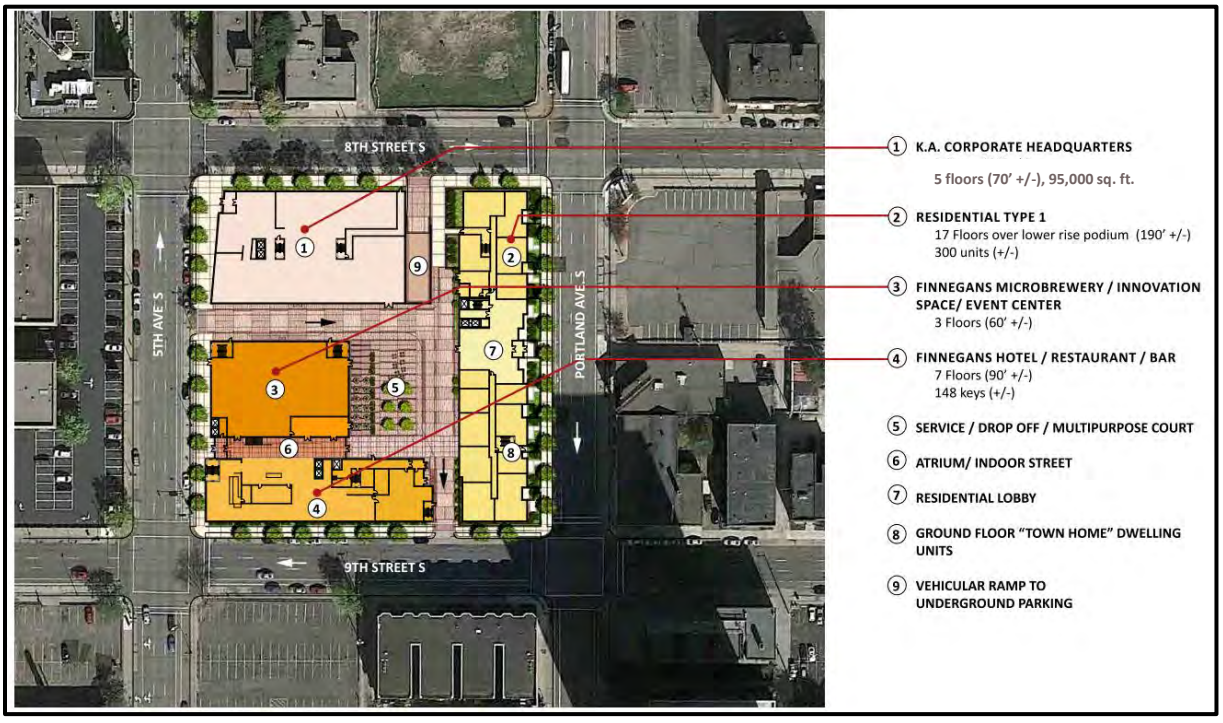
Table 1-1: Land Use Changes with Proposed Development

Existing Land Uses	Proposed Land Uses
Office Building (30 ksf.)	Office Headquarters Building (95 ksf)
Off-Street Parking (169 pay-parking stalls + 100 KA employee parking stalls + 13 visitor stalls = 299 total stalls)	Residential – 306 dwelling units (57 studio apts.; 75 alcove apts.; 82 1-BR apts.; 69 2-BR apts.; 4 2-BR+den apts.; 19 3-BR apts.)
	Finnovation Office Space (12ksf)
	"Brewtel" Boutique Hotel (148 rooms; 110,000 sq. ft.)
	Hotel dining/meeting space (8,400sf, 200 seats)
	Brewery (12 ksf)
	Event Center (13ksf, 750 seats)
	Underground Parking (530 stalls)

(Source: Westwood, September, 2015)

Figure 1-1: Site Location (Source: KA Block Mixed Use Redevelopment Design Vision)

Figure 1-2: Concept Layout (Source: KA Block Mixed Use Redevelopment Design Vision)



The development lies completely within the B4N Downtown Neighborhood Zoning District which promotes higher density development surrounding the Downtown office core. The development also lies in the Downtown Parking Overlay District, which according to Article IX of the Minneapolis Municipal Code, states:

> "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 and establishing certain minimum and maximum off-street parking standards in the downtown area."

The site is surrounded by one-way streets:

- 5th Avenue South is a three-lane arterial northbound
- Portland Avenue is a three-lane arterial southbound
- South 8th Street is a three-lane arterial eastbound
- South 9th Street is a three-lane arterial westbound

The site lies along several Metro Transit lines. Nine different routes providing full, limited, or express bus transit opportunities are located at or nearby this site.

The site is also bike- and pedestrian-oriented, with on-street bike routes along both Fifth Avenue South and Portland Avenue. The streets represent a one-way pair with Fifth Avenue South heading northbound and Portland Avenue heading southbound. Further, the site has sidewalks along all four sides.

Kraus-Anderson will propose TDM strategies similar to those identified in other recent plans in downtown Minneapolis. The added dimensions of the unique mix of uses, the downtown location combined with the numerous adjacent transit and pedestrian facilities will serve to reduce traffic demand to and from this development.

This TDMP will identify the alternative transportation options in the vicinity of the site, will discuss the change in parking and site generated traffic, and will include strategies to encourage the use of these alternative modes.

2.0 -- PEDESTRIAN, BICYCLE AND TRANSIT CONSIDERATIONS

The proposed development's location between South 8th Street and South 9th Street and between 5th Avenue South and Portland Avenue affords the future office and Brewtel employees, apartment residents and hotel visitors with many opportunities for the use of alternative transportation modes.

2.1 -- TRANSIT

There are numerous transit opportunities around this site (see Figure 3).

Bus Stop #49427 – Corner of South 9th Street and Portland Avenue

Served by:

- Local Bus Route 9 – service between Minnetonka/Saint Louis Park and south Minneapolis via downtown Minneapolis.
    - Weekday scheduled stops at this location vary from 15 to 50 minutes between 5:13 a.m. and 1:14 a.m.
    - Saturday service varies from 30 to 60 minutes between 6:06 a.m. and 1:14 a.m.
    - Sunday service varies from 30 to 60 minutes between 6:08 a.m. and 1:23 a.m.

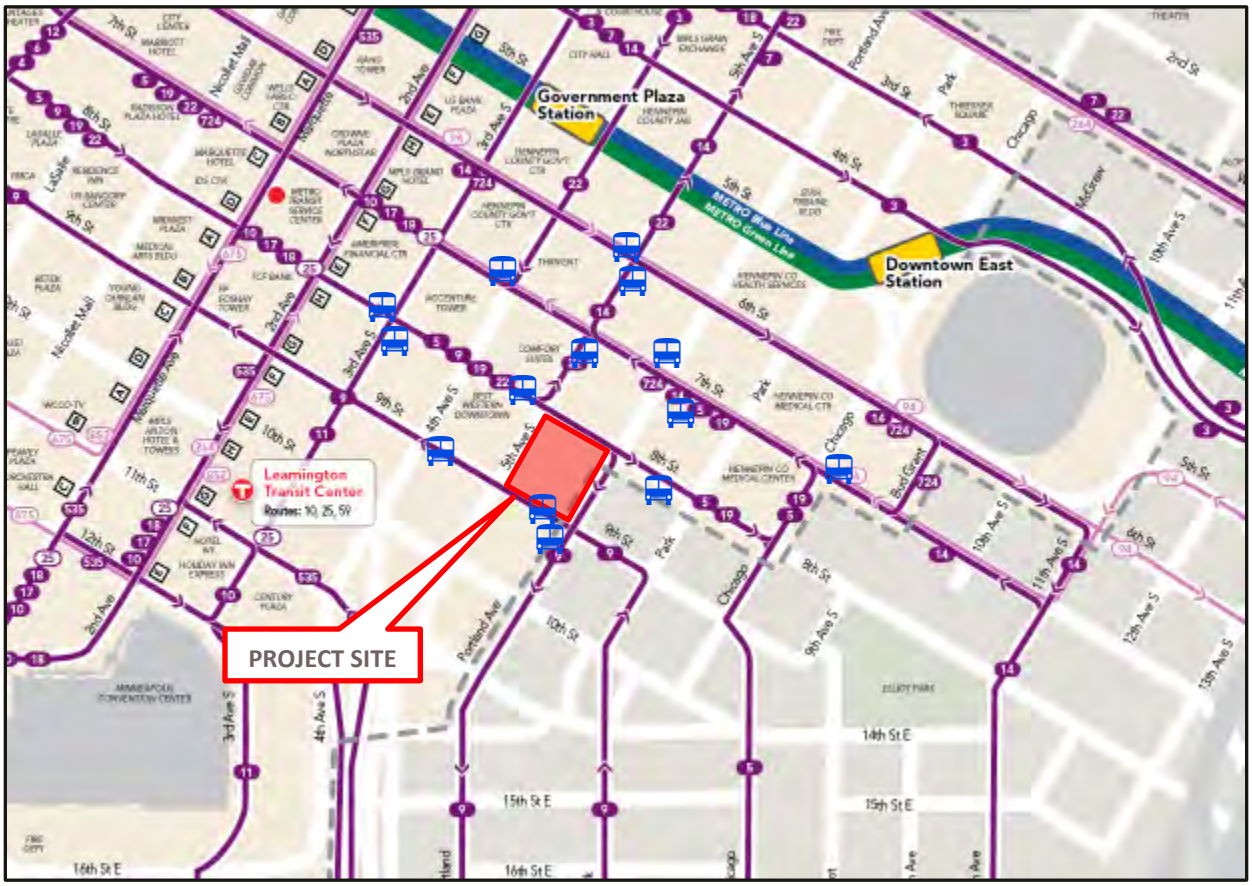
- Local Bus Route 20 – Weekday rush hour service only

  Serves riders:
    - Southbound from Northstar trains to 5th Avenue and 7th Street every half hour between 6:00 a.m. and 8:33 a.m.
    - Northbound to Northstar trains from 9th Street and Chicago Avenue every half hour between 3:34 p.m. and 6:05 p.m.

- Local Bus Route 643 – Weekday rush hour service only

  Serves riders:
    - Westbound from downtown Minneapolis to Minnetonka every 30 minutes to 60 minutes between 6:02 a.m. and 9:06 a.m.
    - Eastbound from Minnetonka to downtown Minneapolis every 30 minutes to 60 minutes between 3:08 p.m. and 6:27 p.m.

Figure 2-1: Transit Routes



Downtown Map Legend

- **Downtown Zone Limit** — Ride in the Downtown Zone for 50¢ (transfers not available). Board any bus or train going the direction you want to go.
- **Frequent Local Buses** — Serve all stops and operate at least every 30 min. during middays on weekdays, more often during rush hours.
- **All-Day Local Buses** — Serve all stops and operate throughout the day but may offer less frequent service.
- **All-Day Express Buses** — Limited-stop or non-stop service that operates throughout the day on weekdays but may offer less frequent service.
- **METRO Blue Line** — Trains stop at all stations shown.
- Bus Stops in proximity to Project Site
- **METRO Green Line** — Trains stop at all stations shown.
- **Northstar Commuter Rail** — Operates primarily during rush hours.
- **Rail Platform**
- **Transit Center/Station**
- **Transit Service Center** — Get passes, route information and other transit help.
- **Lettered Stop** — Express buses serve these stops on Marquette and 2nd avenues.
- **Free Rides on Nicollet Mall** — Look for buses marked "Free Ride" between the Convention Center and Washington Avenue in Minneapolis.

SOURCE: Metro Transit Website, 2015.

- Express Bus Route 663 – Weekday rush hour service only

  Serves riders:

  - Eastbound from Minnetonka to downtown Minneapolis every 30 minutes to 60 minutes between 6:17 a.m. and 9:43 a.m.
  - Westbound from downtown Minneapolis to Minnetonka every 30 minutes to 60 minutes between 2:58 p.m. and 6:46 p.m.

Bus Stop #17912 – South 8th Street between Park and Portland Avenues

Served by:

- Local Bus Route 5 – service between Mall of America and Brooklyn Center via south, downtown and north Minneapolis:
  - Weekday, Saturday and Sunday scheduled stops at this location vary from 3 to 60 minutes twenty-four hours a day.

- Local Bus Route 19 – service between downtown Minneapolis and Brooklyn Center via north Minneapolis
  - Weekday, Saturday and Sunday scheduled stops at this location vary from 3 to 60 minutes twenty-four hours a day.

Bus Stop #17911 – South 8th Street between 4th and 5th Avenues South

Served by:

- Local Bus Route 5 – service between Mall of America and Brooklyn Center via south, downtown and north Minneapolis:
  - Weekday, Saturday and Sunday scheduled stops at this location vary from 3 to 60 minutes twenty-four hours a day.

- Local Bus Route 9 – service between Minnetonka/Saint Louis Park and south Minneapolis via downtown Minneapolis.
  - Weekday scheduled stops at this location vary from 15 to 50 minutes between 5:13 a.m. and 1:14 a.m.
  - Saturday service varies from 30 to 60 minutes between 6:06 a.m. and 1:14 a.m.
  - Sunday service varies from 30 to 60 minutes between 6:08 a.m. and 1:23 a.m.

- Local Bus Route 19 – service between downtown Minneapolis and Brooklyn Center via north Minneapolis
    - Weekday, Saturday and Sunday scheduled stops at this location vary from 3 to 60 minutes twenty-four hours a day.

- Local Bus Route 39 – Weekday rush hour service only

  Serves riders:
    - Southbound from downtown Minneapolis to Chicago and 26th Street every 30 minutes between 6:29 a.m. and 7:49 p.m.
    - Northbound from 5th Avenue South and 27th Street to downtown Minneapolis every 30 minutes between 3:37 p.m. and 5:26 p.m.

In addition to bus transit, both Government Plaza Station and Downtown East Station serving METRO BLUE and GREEN Lines of light rail transit are approximately five blocks away. The BLUE Line provides LRT service between Target Field Station and Mall of America Station via MSP International Airport. The GREEN Line provides LRT service between Target Field Station and Union Depot in Saint Paul via the University of Minnesota.

2.2 -- BICYCLE

Downtown Minneapolis is heavily traveled by bicyclists. The following two figures illustrate the significant bicycle opportunities and usage present in downtown Minneapolis.

- As shown on Figure 2-2, there are designated on-street bike routes along 5th Avenue South, Portland Avenue and South 9th Street that tie into the elaborate bike trail system of Minneapolis. This system would enable potential residents to easily travel to other downtown locations such as the Viking Stadium, the central business district and Nicollet Mall, as well as venture to the east across the Mississippi River into Northeast Minneapolis, Dinkytown and the University of Minnesota area.

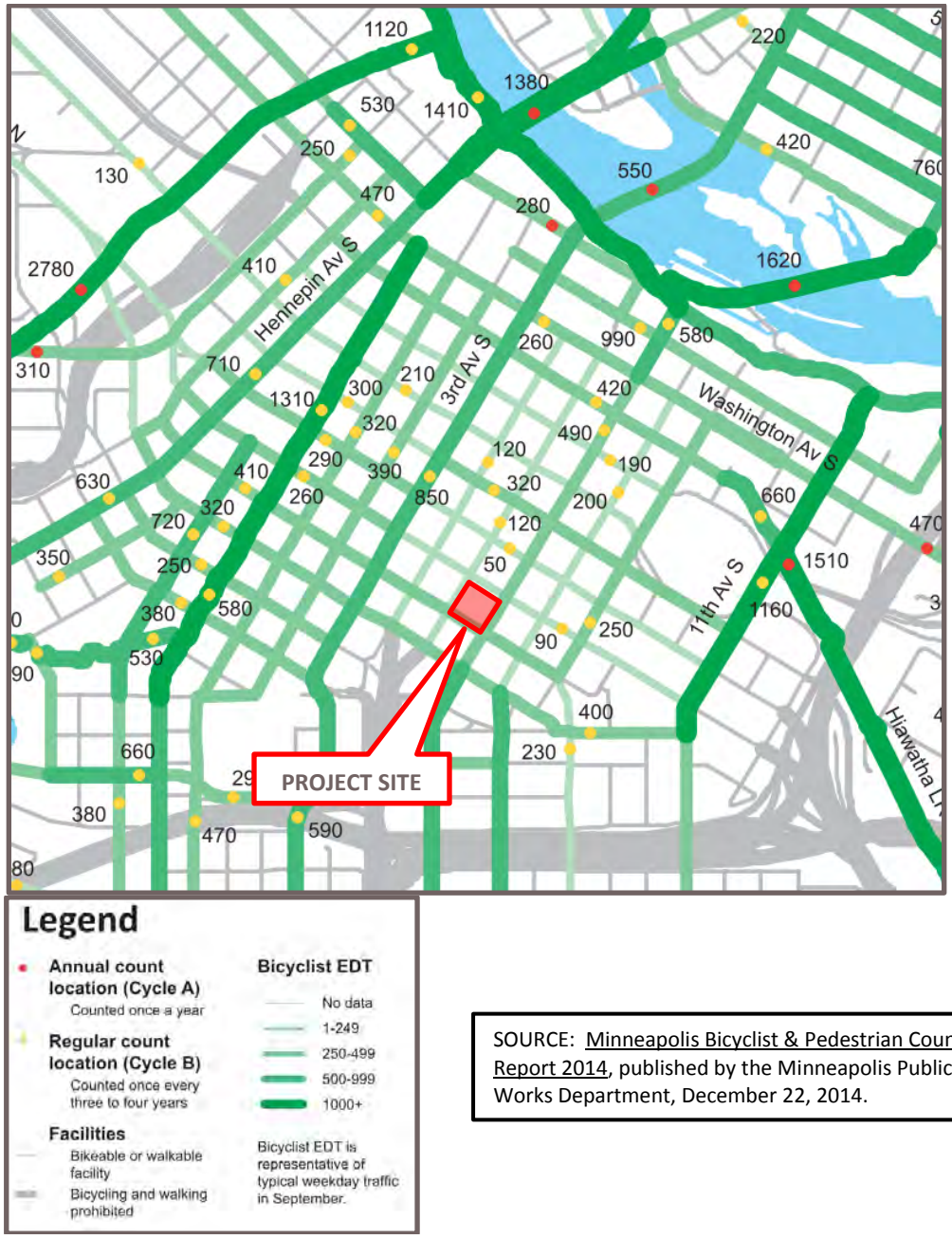
- As shown on Figure 2-2, there are six NiceRide Minnesota stations within four blocks of the site. NiceRide Minnesota is a non-profit bike sharing program being deployed throughout the Twin Cities, and is an available strategy to reduce auto trips. (NiceRide stations are also shown on Figure 2-4.)

Figure 2-2: Existing Bike Routes

SOURCE: City of Minneapolis Bicycle Map, City of Minneapolis Public Works www.minneapolismn.gov/bicycles

- Figure 2-3 illustrates the estimated daily bicycle traffic along the streets in downtown Minneapolis, as reported by the Minneapolis Public Works Department.[1] . Daily bicycle traffic along the designated bike routes of Portland Avenue is approximately 490 bicyclists per day, while South 8th Street has a daily count of approximately 90 bicyclists per day.

Figure 2-3: Bicyclist Estimated Daily Traffic (EDT)



SOURCE: Minneapolis Bicyclist & Pedestrian Count Report 2014, published by the Minneapolis Public Works Department, December 22, 2014.

[1] Minneapolis Bicyclist & Pedestrian Count Report 2014, published by the Minneapolis Public Works Department, December 22, 2014.

2-3 – CAR-SHARING

In recent years, several car-sharing options have become available throughout the Twin Cities, and especially in downtown Minneapolis. Car-sharing companies, such as HOURCAR, Car2Go, ZipCar and Enterprise CarShare make fleets of vehicles available to customers for short-term rentals. These rentals are geared to registered customers who do not own personal vehicles, but require a vehicle for short-term personal use. Gasoline, insurance and maintenance are included in the rental cost.

HOURCAR, Enterprise CarShare and ZipCar offer vehicles in designated parking spaces, while Car2Go offers cars that can be collected and parked on city streets. Figure 2-4 shows the proximity to these stations near the KA Block redevelopment.

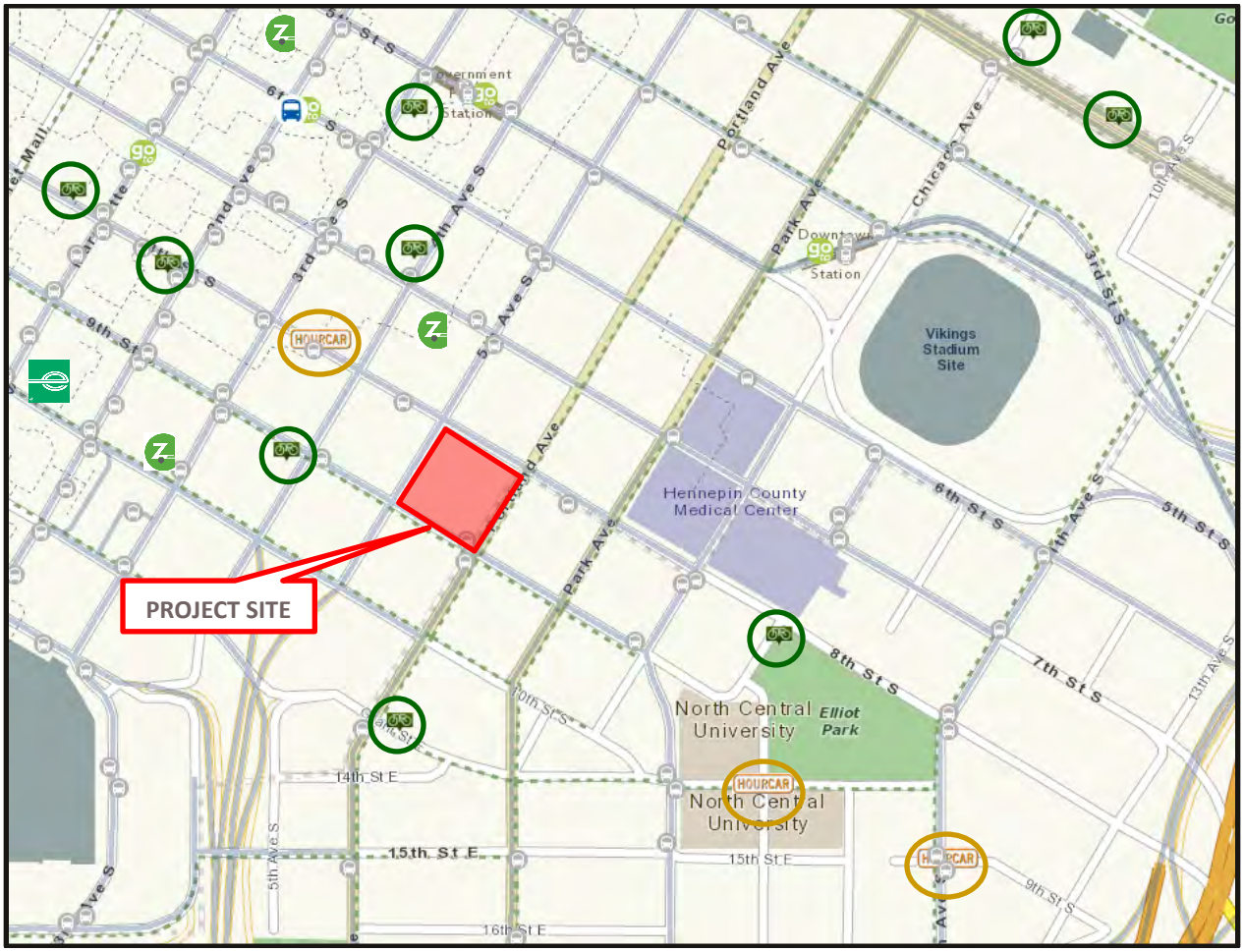
There is a hub for HOURCAR located less than two blocks to the northwest of the site. This would be within walking distance and would be a positive amenity when a personal vehicle is needed on a temporary basis.

Other shared vehicle providers, such as Car2Go (https://www.car2go.com/en/minneapolis/), Enterprise CarShare (https://www.enterprisecarshare.com/us/en/home.html) and Zipcar (http://www.zipcar.com/minneapolis /find-cars) offer vehicles at sites throughout Minneapolis.

Enterprise CarShare (https://www.enterprisecarshare.com/us/en/home.html) has two parking stations within downtown Minneapolis – one at the Mar-Ten Ramp and another on Oak Grove Street in the Loring Park neighborhood.

ZipCar has a parking station at the Centre Village Parking Ramp just to the northwest of the K-A Block at 700 5th Ave South. There is also another ZipCar parking station at the surface parking lot at 216 South 10th Street, adjacent to the Ameriprise Financial Center.

Figure 2-4: 2015 Shared Car and NiceRide MN Station Locations

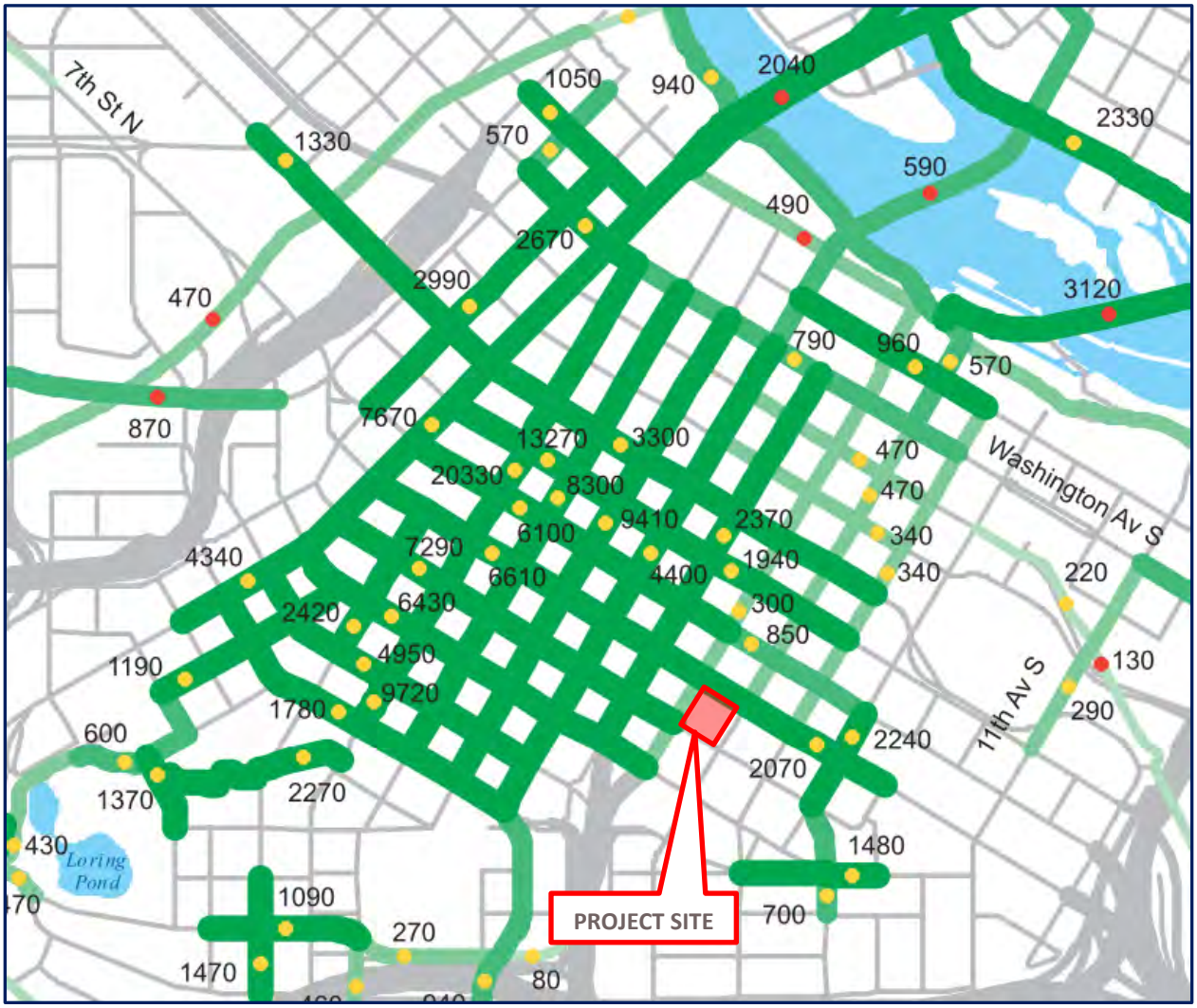


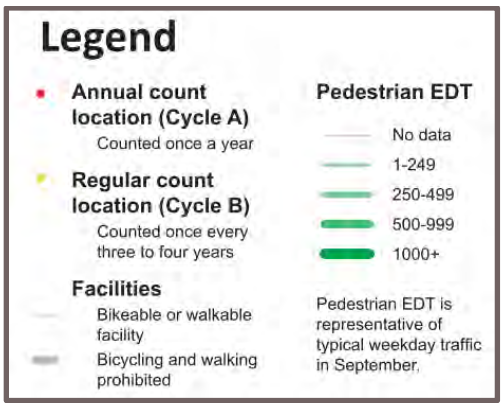
2-4 -- PEDESTRIANS

Pedestrian activity is quite heavy in downtown Minneapolis. Figure 2-5 shows the estimated trips per day by pedestrians in this area, as reported by the Minneapolis Public Works Department.[2]

[2] Minneapolis Bicyclist & Pedestrian Count Report 2014, published by the Minneapolis Public Works Department, December 22, 2014.

Figure 2-5: Pedestrian Estimated Daily Traffic (EDT)





SOURCE: Minneapolis Bicyclist & Pedestrian Count Report 2014, published by the Minneapolis Public Works Department, December 22, 2014.

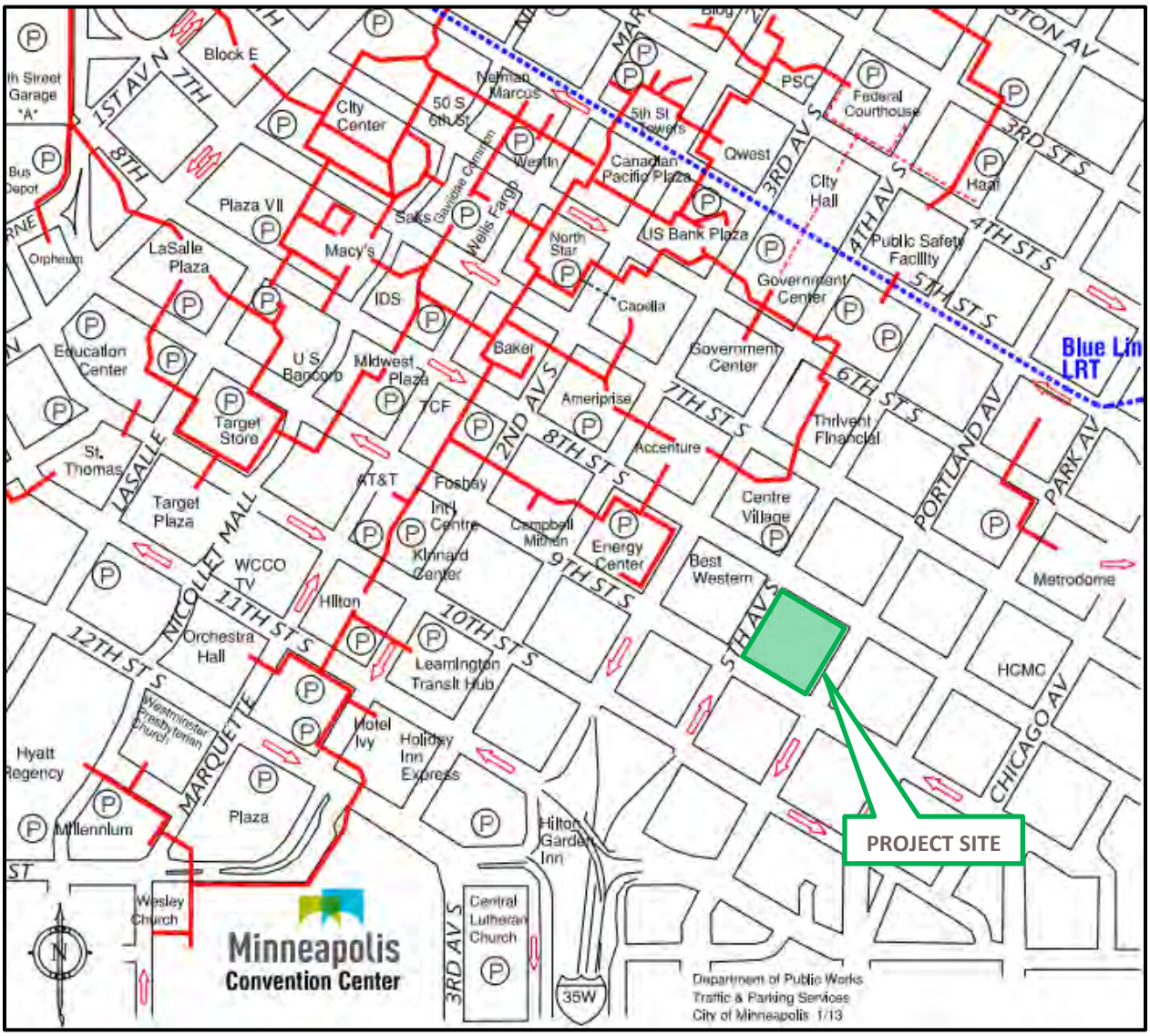
- Sidewalks exist along all public streets that are adjacent to the project site. These sidewalks provide pedestrian access to the robust sidewalk and pedestrian trail network in this area of Minneapolis.

- South 8th Street recorded pedestrian activity varying between 2,000 and 6,600 pedestrians per day.

- Downtown Minneapolis has an eight-mile skyway system that provides climate-controlled pedestrian access between buildings (see Figure 2-6). While no "skyway-ready" connections exist to the KA Redevelopment Block, current connections to the skyway system are one block north of the project site in the Centre Village building.

- In the near future, pedestrian activity will greatly increase in downtown Minneapolis as new development replaces surface parking lots.

Figure 2-6: Downtown Minneapolis Skyway Map



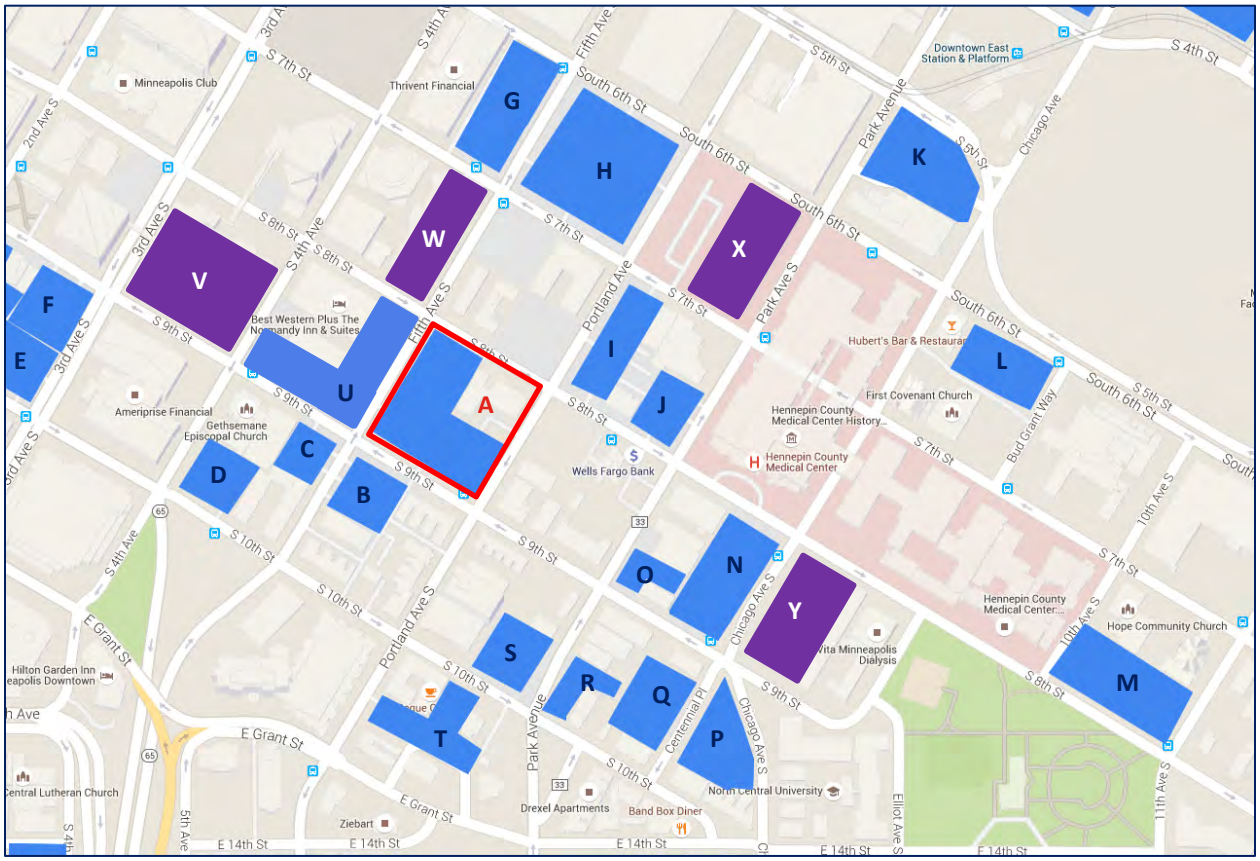
SOURCE: http://www.ci.minneapolis.mn.us/www/groups/public/@publicworks/documents/maps/convert_268555.pdf

3.0 -- PARKING CONSIDERATIONS

3.1 – DISPLACED PARKING

The KA Block Redevelopment will displace 299 surface parking spaces. There exist several public and private surface lots and parking ramps around the KA Block site (See Figure 3-1). The blue areas represent surface lots, while the purple areas represent multi-level parking ramps

Figure 3-1: Parking Lots and Ramps in Study Area



(Source: Base Map: Where are downtown's surface parking lots?", Minneapolis StarTribune, April 2, 2014; Data is current as of September, 2015)

An inventory was taken to review parking capacities at these lots and ramps (See Table 3-1). This inventory shows there are over 7,000 public parking stalls available in the immediate study area for drivers whose parking will be displaced once the existing KA surface lot is closed. Note that the colors of the letter codes reflect either the KA block (red), surface lots (blue) or parking ramps (purple).

Table 3-1: Parking Lot and Ramp Capacities in Study Area

Code	Parking Lot or Ramp	Location	Restricted or Public	Parking Capacity
A	Kraus-Anderson Lot	Kraus-Anderson Block	Public	299 stalls
B	Kensington Lot (Monthly)	5th Ave S. & S. 9th St.	Restricted	102 stalls
C	Benson Lot #20	5th Ave S. & S. 9th St.	Public	56 stalls
D	Benson Parking Service	S. 4th Ave. & S. 10th St.	Public	68 stalls
E	Transpark Benson Lots #2 & #14	3rd Ave S. & S. 10th St.	Public	253 stalls
F	Benson Lot #13	3rd Ave S. & S. 10th St.	Public	67 stalls
G	Thrivent Lot #201	5th Ave S. & S. 6th St.	Restricted	103 stalls
H	Thrivent Lot #203	333 S. 7th Street	Public	630 stalls
I	Portland East	705 Portland Ave	Public	110 stalls
J	Impark Lot #73	620 S. 8th St.	Public	85 stalls
K	Standard Parking (Monthly)	S. 5th & Park Ave. S.	Restricted	96 stalls
L	First Covenant Church	S. 6th St. & Bud Grant Way	Public	207 stalls
M	Allied Parking	S. 8th St. & 11th Ave. S.	Public	144 stalls
N	Smith Brothers Lot #13	S. 8th Street & Chicago Ave S.	Public	166 stalls
O	Smith Brothers Lot #14	S. 9th Street & Park Ave S.	Public	48 stalls
P	Impark Lot #72	900 Centennial Place	Public	114 stalls
Q	North Central University	S. 9th St. & Centennial Pl.	Restricted	108 stalls
R	Plumbers Union Local #15	S. 10th St. & Park Ave S.	Restricted	51 stalls
S	Smith Brothers Lot #2	S. 10th St. & Chicago Ave S.	Public	113 stalls
T	Interstate Parking Lot	S. 10th St. & Park Ave S.	Public	173 stalls
U	Normandy Lot	415 South 9th Street	Public	207 stalls
V	Nrg Energy Center Parking Garage	324 South 9th Street	Public	500 stalls
W	Centre Village Ramp	700 5th Avenue S.	Public	1208 stalls
X	Hennepin County Medical Center Ramp	614 S. 7th Street	Public	1200 stalls
Y	"Hospital" Parking Ramp	812 S. 9th Street	Public	1300 stalls
TOTAL (approximate)				7,466 stalls (460 restricted)

(Source: Parking Information from various websites, including Allied parking, Impark, HCMC.)

The KA Block Redevelopment will displace approximately 300 stalls. While no parking occupancy study was required as part of this analysis, it appears that there are several thousand off-street parking stalls available in the area. Further, there are on-street parking stalls available along each side of the KA Block as well as throughout the surrounding area.

3.2 – ON-SITE PARKING

The KA Block Redevelopment will provide structured off-street residential, employee and customer parking. Two levels of underground parking are proposed with each level proposed to house 265 parking stalls, thus totaling 530 off-street parking stalls for the development.

Table 3-2 illustrates the results of a parking analysis of the projected uses for the site. Because of the mix of uses, the City's Municipal Code, Article III – Specific Off-Street Parking Requirements must be used to define minimum and maximum number of stalls allowed. The Base Zoning pertains to the rate at which the parking requirement is calculated. The Applied Zoning calculates the numbers of stalls required for each use.

Table 3-2: Minneapolis Zoning Code Parking Requirement

Land Use	Proposed DUs, Rooms, ksf or Occupants	Base Zoning		Applied Zoning	
		Minimum	Maximum	Minimum	Maximum
High Rise Apartment	306 units	*	1.6	6 stalls	490 stalls
Office (KA HQ)	95 ksf	0	1/1000	0 stalls	95 stalls
Office (Finnovation)	12 ksf	0	1/1000	0 stalls	12 stalls
Hotel	148 rooms	0	1/room	0 stalls	148 stalls
Hotel dining/mtg space	8,400 sf	0	30% capacity	0 stalls	168 stalls
Brewery (Production/ Processing/Storage)	12 ksf	0	1/1500	0 stalls	8 stalls
Event Center	13 ksf	0	30% capacity	0 stalls	260 stalls
TOTAL				**6 stalls**	**1,181 stalls**

* Minimum 1 guest stall per 50 dwellings

Therefore, the off-street parking being proposed for the KA Block Redevelopment will be approximately 50% of the maximum allowed by the City in their Off-Street Parking Requirements.

3.3 – COMPARISON WITH ITE PARKING GENERATION RATES

The Institute of Transportation Engineers (ITE) publication Parking Generation, 4th Edition, provides parking rates and equations for peak parking demand based on land use. Table 3-3 below lists the parking generation that was calculated based on the types and densities of land uses proposed for the KA Block Redevelopment.

Table 3-3: Estimated Parking Requirements per ITE

Land Use	ITE Code	Size	ITE Parking Rate or Equation	Weekday Peak Period Parking Demand
High Rise Apartment	222	306 units	Equation	448 stalls
Office (KA headquarters)	701-Urban	95 ksf	Equation	163 stalls
Office (Finnovation)	701-Urban	12 ksf	Equation	49 stalls
Hotel (incl. dining/mtg rooms)	310-Urban	148 rms.	Rate	148 stalls
Brewery (Prod. /Proc./Stor.)	140*	11.8 ksf	Rate	12 stalls
Event Center	595**	750 attn.	Rate	233 stalls
Tap Room (HTO Restaurant)	932 †	1.25 ksf	Rate	17 stalls
TOTAL				**1,070 stalls**

* The rate for Land Use 140 Manufacturing (1.02 veh/ksf) was used since ITE Parking Generation contained no parking rates for Brewery.

** The rate for Land Use 595 Convention Center (0.31 veh/attendee) was used since ITE Parking Generation contained no parking rates for Event Center.

† The rate for Land Use 932-Urban High-Turnover (Sit-Down) Restaurant (with Bar or Lounge) was used ITE Parking Generation contained no parking rates for Tap Room.

As was seen in Table 3-1, there are several pay parking lots in the immediate area that will be able to accommodate the additional demand. Further, because the development is located in the downtown area, numerous trips can be accommodated by transit, pedestrian, bicycle and taxi use.

3.4 – BICYCLE PARKING

Table 3-4 outlines the minimum bicycle parking required for this development by the City of Minneapolis and the amount of bicycle parking being provided by the development.

Section 541.180(c) of the Municipal Code states, "[d]evelopments with five hundred thousand (500,000) square feet of new or additional gross floor area in downtown districts shall provide bicycle parking and bicycle facilities as required by Chapter 549, Downtown Districts. All other developments in the downtown districts shall provide one (1) secure bicycle parking space for every twenty (20) automobile spaces provided, but in no case shall fewer than four (4) or more than thirty (30) bicycle parking spaces be required. For the purposes of this section, a secure bicycle parking space shall include a bicycle rack which permits the locking of the bicycle frame and one (1) wheel to the rack, and which supports the bicycle in a stable position without damage to wheels, frame or components. Residential uses in the downtown districts are subject to the requirements of Table 541-3, Bicycle Parking Requirements" (as shown below in Table 3-4).

Table 3-4: Bicycle Parking Requirements per City Code

Land Use	Units	Requirement	Required Spaces from Table 541-3 - Bicycle Parking Requirements	Number of Bicycle Stalls Being Provided by this Development
Apartment	306 units	1 space/2 dwelling units (not less than 90% shall be long term)	153 (138 long term; 15 short term)	306 (276 long term; 30 short term)
Office (KA)	95 ksf	3 spaces or 1 space per 15 ksf of GFA, whichever is greater (not less than 50% shall be long term)	6 (3 long-term; 3 short-term)	6 (3 long-term; 3 short-term)
Office (Finn)	12 ksf	3 spaces or 1 space per 15 ksf of GFA, whichever is greater (not less than 50% shall be long term)	3 (2 long-term; 1 short-term)	6 (3 long-term; 3 short-term)
Hotel	148 rms.	No bike parking requirement for this use	0	0
Hotel dining/mtg space	8,400 sf	3 spaces (not less than 50% shall be short term)	3 (2 long-term; 1 short-term)	3 (1 long-term; 2 short-term)
Brewery *	12 ksf	2 spaces or 1 space per 20,000 sq. ft. of GFA, whichever is greater (not less than 50% shall be long term)	2 (1 long-term; 1 short-term)	8 (4 long-term; 4 short-term)
Event Center	13 ksf	No bike parking requirement for this use	0	12 (2 long-term; 10 short-term)
TOTAL			**167 (146 long term; 21 short term)**	**341 (289 long term; 52 short term)**

*Assume Limited Production & Processing Industrial Use

It is noted that the City has experienced extensive bike parking demands being generated by brew pubs. Nevertheless, there is no minimum parking requirement at this point. To address this demand, additional convenience bike racks will be located along 5th Avenue South, and in the internal courtyard. The plan will show 8 loops out on 5th Avenue in front of the Brewery and 8 in the courtyard. These can park 2 bikes per loop. These bike racks will be an asset for visitors coming to the site.

The City has stipulated that for "unique" developments (e.g., convention center) an original bike parking forecast shall be conducted to attempt to estimate a more accurate actual demand. In this case, for 13 ksf event center space, twelve (12) spaces are committed for bicycle parking, with not less than ten (10) spaces being short term bicycle parking.

3.5 – LOADING SPACE

City Code specifies loading spaces based on all land uses within a development. Table 3-5 lists the loading space requirements by land use per code and the loading spaces proposed to be provided on site.

Table 3-5: Loading Space Requirements per City Code

Land Use	Code Requirement	Provided On Site
Residential	1 large (12'x50') or 2 small (2 x 10'x25')	1 large (12'x50')
Office	2 large (2 x 12'x50')	2 large (2 x 12'x50')
Hotel	2 large (2 x 12'x50')	1 large (12'x50')
Event Center	1 small (12'x50')	1 large (12'x50')
Food & Beverage	None	None

Figure 3-2 illustrates the proposed location and size of the loading spaces on the site plan. Residential loading will be located adjacent to the residential move-in elevator and trash room. One large space is being provided. Office loading will be located on the south side of the building. Two large spaces are being provided. Hotel loading will be provided on the east end of the building. One large space is being provided. The brewery/event center loading will be provided on the east side of the building. One large space is being provided.

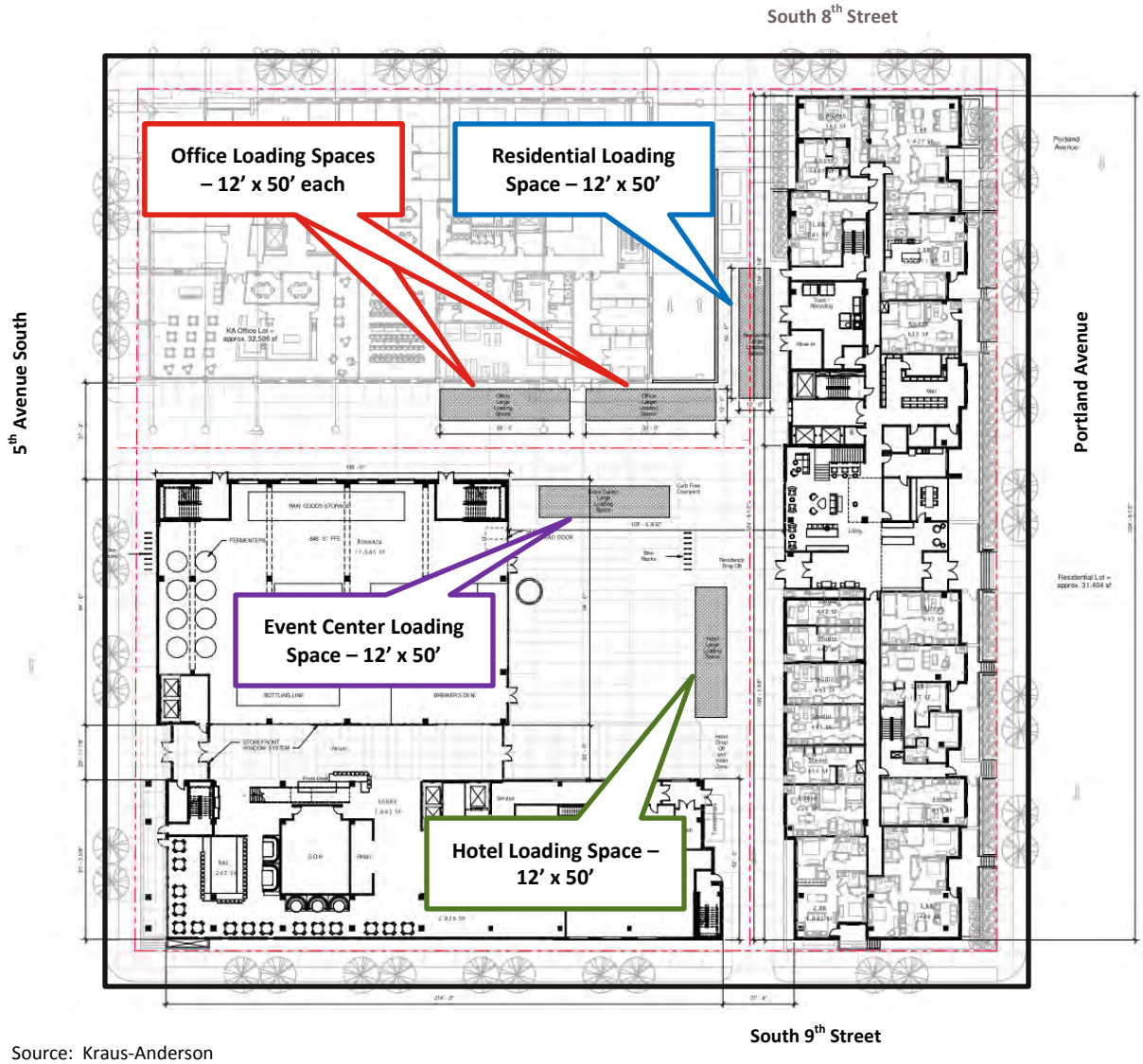
3.6 – VALET PARKING

The valet area is located in the internal courtyard south of the hotel loading area, and opposite the east entrance to the hotel. Valets will take customers' automobiles off site to a parking area to be contracted.

3.7 – PARKING SECURITY

KA will be using a parking access control and security system that will require proper credentials to be presented to gain entry into the parking garage. Credentials will be in the form of a proximity card or key fob for office employees and apartment residents. All other parking garage visitors will be permitted to gain access by taking a parking ticket upon entry and paying a parking fee when exiting.

Figure 3-2: Proposed Loading Locations



Source: Kraus-Anderson

4.0 – TRAFFIC CONSIDERATIONS

Table 4-1 illustrates the estimated trip generation calculated for the proposed conditions using the Institute of Transportation Engineers' (ITE's) Trip Generation Manual, Ninth Edition. The numbers shown do not reflect a reduction for shared trips, nor do they reflect any pass-by reduction, in order to provide a conservative comparison.

Table 4.1: Trip Generation Estimates for Proposed Land Use[1]

Lane Use (according to Site Plan)	Size	Unit	ITE Land Use	ITE Land Use Code	Gross Trip Generation Estimates				
					Daily	AM Peak Hour		PM Peak Hour	
						In	Out	In	Out
Hotel	148	Rooms	Hotel	310	1,210	46	32	45	44
Event Center	13	ksf	Event Center	*	260	32	4	61	8
Apartments	306	units	High-Rise Apartment	222	1,286	23	69	65	42
KA Headquarters	95	ksf	Single Tenant Office	715	1,106	152	19	25	141
Hotel Dining	200	seats	Quality Restaurant	981	931	3	3	35	17
Finnovation	12	ksf	Gen. Office Bldg.	710	132	16	2	3	15
Brewery	11.58	ksf	Light Industrial	110	82	10	1	1	10
Taproom	1.25	ksf	Tap Room	**	83	n.a.	n.a.	56	27
Total					**5,090**	282	130	291	304
						412		**595**	

Source: Westwood, October 15, 2015
[1] Rates and equations based on ITE Trip Generation Manual, Ninth Edition, 2012.
* Rate not found in ITE Trip Generation Manual. Used 20 trips/ksf, as described below.
** Rate not found in ITE Trip Generation Manual. Used peak capacity estimation to determine peak hour trips, as described below

There are certain assumptions made about these trip generation totals:

- According to the ITE Trip Generation Manual, Land Use 310 "Hotel" can include "…places of lodging that provide sleeping accommodations and supporting facilities such as restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, limited recreational facilities (pool fitness room), and/or other retail and service shops."

- It is the intent of the developer to bring in a name-brand restaurant to the hotel site. Therefore, the trip generation for the Quality Restaurant was added separately.

- The ITE Trip Generation Manual, 9th Edition does not present rates or equations for event centers. A web search showed traffic impact studies for two event centers (Noah's Event Venue in Sugar Land, TX, and The Ridge Event Center in Orem, UT). Both event centers were approximately 10,000 sq. ft.

  The traffic studies conducted for each had varying trip generation rates:

- The Sugar Land event center used a rate of 24 daily trips for every 1,000 sq. ft., as well as 2.8 trips/1000 sq. ft. in the AM peak hour and 5.3 trips/1000 sq. ft. in the PM peak hour.[3]
- The Orem event center traffic study did not present a daily trip rate, but assumed a rate of 16.6 trips/1000 sq. ft. in the weekday PM peak hour. This rate was based on a survey of comparable site traffic resulting in an estimation that 20 sq. ft./person is needed during a seated event and an average of 3 persons per vehicle, thus generating the PM peak hour rate.[4]
- Further, the Orem study provided estimations of 88% inbound and 12% outbound trip distribution.

Therefore, for the Brewtel's event center, a median rate of 20 trips/1000 sq. ft. was used. Further, the AM and PM peak hour rates from the Sugar Land study were used.

- There are no rates or data for micro-breweries, brewpubs or breweries listed in the ITE Trip Generation Manual. In addition, there are very few traffic impact studies found on the internet – and of those, the micro-breweries are in rural settings and the trip generation is based on barrels produced per year. Therefore, the brewery was classified as General Light Industrial for the sake of this analysis.

- As with micro-breweries, there are no rates listing in the ITE Trip Generation Manual for tap rooms. Of the few traffic impact studies for micro-breweries found on the internet, some did discuss having tap rooms, but no specific rates were disclosed. Therefore, an estimation of this facility's patronage and trip behavior were made:
  - Assuming the tap room's size of 1,250 sq. ft., and dividing it by 15 sq. ft. per person, the resulting occupancy is 83 people. Therefore, assuming full occupancy, a conservative estimate of 83 trips would be generated during the PM peak hour.
  - To estimate directional distribution, the inbound and outbound rates for ITE Lane Use Code 925 – Drinking Place were used; e.g., 67% inbound and 33% outbound in the PM peak hour. This translates into 56 trips inbound and 27 trips outbound.

The City of Minneapolis has established modal shift goals that reflect the reduction in single occupancy vehicle trips and the reliance on other modes (e.g., transit, biking and walking) to provide transportation in the downtown area. These goals are listed in Table 4-2.

[3] Donald R. Glenn, P.E., "Trip Generation of Noah's of Sugar Land", report prepared for the City of Sugar Land, Reynolds, Smith and Hills, Inc., Houston, TX, 01/21/2013.
[4] "The Ridge Event Center Traffic Impact Study", report prepared by Horrocks Engineers for the City of Orem, UT, August 9, 2010.

Table 4-2: Modal Split Goals

Mode Split	Goal
Auto	40%
Transit	50%
Bike/Walk	10%

By meeting these goals, the resulting trip generation volumes for vehicular traffic may be reduced by 60%. Table 4-3 illustrates the resulting trip generation for the site.

Table 4.3: Vehicular Trip Generation Estimates Assuming Modal Split

Lane Use (according to Site Plan)	Size	Unit	ITE Land Use	ITE Land Use Code	Gross Trip Generation Estimates				
					Daily	AM Peak Hour		PM Peak Hour	
						In	Out	In	Out
Hotel	148	Rooms	Hotel	310	484	18	13	18	18
Event Center	13	ksf	Event Center	*	104	13	2	24	3
Apartments	306	units	High-Rise Apartment	222	514	9	28	26	17
KA Headquarters	95	ksf	Single Tenant Office	715	442	61	8	10	56
Hotel Dining	200	seats	Quality Restaurant	981	372	1	1	14	7
Finnovation	12	ksf	Gen. Office Bldg.	710	53	6	1	1	6
Brewery	11.58	ksf	Light Industrial	110	33	4	0	0	4
Taproom	1.25	ksf	Tap Room	**	33	n.a.	n.a.	22	11
Total					**2,036**	113	52	116	122
						165		**238**	

(Source: Westwood, November 19, 2015)

Westwood analyzed several intersections around the KA Block site, and assessed for traffic operational performance. Intersections analyzed included:

- South 8th Street and Fifth Avenue South
- South 9th Street and Fifth Avenue South
- South 8th Street and Portland Avenue
- South 9th Street and Portland Avenue

A full discussion of traffic operation is provided in the Traffic Impact Study found in the Appendix of this TDMP. Briefly, the operational analysis from that study indicates that the street intersections and the proposed access intersections will operate at LOS-D or better.

Two time frames were analyzed – Short-term (2018 Build and No-Build) representing the year construction is completed, and Long-term (2035 Build and No-Build) representing twenty years hence.

The results of the traffic operations analysis indicates that the access and the adjacent intersections will operate at acceptable levels of service for the 2018 and 2035 Build conditions respectively (see Traffic Impact Study). Lane group delay and 95th percentile queue lengths will be at or better levels than were recorded for existing conditions. There are times when the through street traffic blocks the access driveways to and from the KA Block development, but those times are brief and are common among many driveways and parking ramp accesses in the downtown area.

Regarding the modeling of these future conditions, signal timings were optimized to reflect the best possible traffic operation at the signalized intersections. This is consistent with the City of Minneapolis' efforts to retime signals on a regular basis.

Full traffic performance and queuing results appear in the Technical Appendix of the Traffic Impact Study.

5.0 – TRAVEL DEMAND MANAGEMENT STRATEGIES

5.1 – CITY OF MINNEAPOLIS TRANSPORTATION GOALS

The City of Minneapolis has developed a Ten-Year Transportation Action Plan that provides a vision of the future that states, "Minneapolis will build, maintain and enhance access to multi-modal transportation options for residents and business through a balanced system of transportation modes that supports the city's land use vision, reduces adverse transportation impacts, decreases the overall dependency on automobiles, and reflects the city's pivotal role as the center of the regional transportation network." – The Minneapolis Plan for Sustainable Growth, (2008).

From this has emerged their "Transportation Vision for Minneapolis":

- Transportation is important to the economic viability of the city, the region and the state. *Access Minneapolis* will lay the transportation groundwork for achieving the long-range vision of Minneapolis as a vital and thriving metropolitan urban center that is a great place to live, work, play, visit and conduct business.

- The city must remain livable and walkable to maintain its regional and national competitiveness. In most cases, it is not feasible or desirable to increase the curb-to-curb width of roadways in the city. However, there are many opportunities for improving the operational capacity of the transportation system without street widening. *Access Minneapolis* will result in a city that is livable and walkable while optimizing the operational capacity of the transportation system.

- *Access Minneapolis* will result in a citywide transportation system that is multi-modal (pedestrian, bicycle, transit, automobile, freight), providing good transportation choices to people, including people with disabilities.

- *Access Minneapolis* will result in a citywide transportation system that serves anticipated employment and residential growth and optimizes access to destinations by all modes (pedestrian, bicycle, transit, automobile, freight) throughout the city, between neighborhoods, to/from and within downtown.

- Although all modes of transportation are important, transit is critical for maximizing the people carrying capacity of the transportation system. *Access Minneapolis* will result in a transit system that operates efficiently and effectively in downtown and throughout the city. Transit will become the mode of choice for Minneapolis residents, workers and visitors.

With this vision in mind, the City of Minneapolis has developed Transportation Policies from "The Minneapolis Plan for Sustainable Growth" (2008). Key goals of this include:

- Building the City through multi-modalism
- Developing modal priorities in a neighborhood context
- Creating a walkable city
- Making transit more effective
- Creating a bicycle-friendly city
- Managing vehicle traffic
- Managing freight movement
- Managing Parking
- Developing funding and pricing strategies
- Supporting a vibrant multi-modal Downtown

5.2 – CITY OF MINNEAPOLIS TRANSPORTATION POLICY POINTS

The following policy points for transportation are included in Chapter 2 of the Minneapolis Plan for Sustainable Growth[5]:

Policy 1: Encourage growth and reinvestment by sustaining the development of a multi-modal transportation system.

Policy 2: Support successful streets and communities by balancing the needs of all modes of transportation with land use policy.

Policy 3: Encourage walking throughout the city by ensuring that routes are safe, comfortable, pleasant, and accessible.

Policy 4: Make transit a more attractive option for both new and existing riders.

Policy 5: Ensure that bicycling throughout the city is safe, comfortable and pleasant.

Policy 6: Manage the role and impact of automobiles in a multi-modal transportation system.

Policy 7: Ensure that freight movement and facilities throughout the city meet the needs of the local and regional economy while remaining sensitive to impacts on surrounding land uses.

[5] http://www.ci.minneapolis.mn.us/cped/docs/02_Transportation_100209.pdf

Policy 8: Balance the demand for parking with objectives for improving the environment for transit, walking and bicycling, while supporting the city's business community.

Policy 9: Promote reliable funding and pricing strategies to manage transportation demand and improve alternative modes.

Policy 10: Support the development of a multi-modal Downtown transportation system that encourages an increasingly dense and vibrant regional center.

Policy 11: Minneapolis recognizes the economic value of Minneapolis-St. Paul International Airport and encourages its healthy competition to reach global markets in an environmentally responsible manner.

5.3 – GOAL OF THE TRAVEL DEMAND MANAGEMENT PLAN

To succeed, this Travel Demand Management (TDM) plan must assist the City of Minneapolis to achieve their transportation goals. Based on previous TDM Plans in the area and the types of proposed land uses, the modal split goals for the project have been identified by the developer, as shown in Table 4-2.

The owners and/or TDM Liaison will work to achieve a mode share goal percentage of 60% non-single-occupant-vehicles for the residential development, as identified by the City of Minneapolis.

5.4 – SPECIFIC TRAVEL DEMAND MANAGEMENT STRATEGIES

This section outlines specific Travel Demand Management strategies to be implemented by the owner/end user/property manager/etc. of this site. The strategies detail the responsibilities of the site's responsible party in addressing the issues regarding transportation cited above. Kraus-Anderson, Incorporated, or their successors, by accepting the responsibility of implementing the items below, desire to help Minneapolis to achieve their goals of enhancing the local transportation system. Implementation of the items noted will help to encourage use of alternate modes of travel, enhance pedestrian friendliness, and achieve a balance in the needs of all users of the transportation system. Kraus-Anderson, Incorporated, or their successors specifically commits to the implementation of the following measures:

<u>General</u>

1. The owners and/or property managers of the development commit to hosting sessions where TMO, Metro Transit and shared bike and shared car providers would come to the site to conduct a commuter fair and educate employees on commuting options.

2. The owners and/or property managers of the development will appoint designated TDM Liaisons to coordinate the various TDM strategies that require ongoing attention. The responsibilities of the TDM Liaison would include upkeep of transit information and other communications, carpool program coordination, and administration of a shared car program.

3. The owners and/or property managers of the development will provide Real Time Monitors with transit information in the hotel, the office building and the residential building. This is of value to employees, residents and guests of the project. Information would include items such as transit schedules, Metro Transit commuter/ carpool program information (Rideshare and the Guaranteed Ride Home), NiceRide MN and/or bicycle/pedestrian commuter information or maps.

4. The owners and/or property managers of the development will assemble and disseminate a move-in package for all new residents. The move-in package will include all the pertinent information available at no cost on travel information such as parking, alternate modes of travel, bus routes, NiceRide MN, car sharing options and bike routes.

5. The owners and/or property managers of the development will provide each resident and office employee a link to the Downtown Minneapolis Transportation Management Organization's Commuter Connection webpage, http://www.commuter-connection.org/, that provides a host of links to transit, biking, LRT, rideshare and walking opportunities in Downtown Minneapolis.

6. The owner/TDM Liaison of the hotel will maintain commuter information in the lobby area for hotel guests. Information should include items such as transit schedules, information or maps identifying nearby bus stops and LRT stations, NiceRide MN and bicycle/pedestrian route information or maps.

7. The owner/TDM Liaison of the office buildings will maintain commuter information in the common areas and break rooms for employees. Information should include items such as transit schedules, Metro Transit commuter/carpool program information (Rideshare and the Guaranteed Ride Home), NiceRide MN and bicycle/pedestrian commuter information or maps.

Transit/Carpool

1. The owners/property managers commit to providing information on shared car services that are accessible to the public. The "HOURCAR" program, detailed at www.hourcar.org , is an example of such a program that is available in downtown Minneapolis. Other shared vehicle providers, such as Car2Go (www.car2go.com/en/minneapolis/) Enterprise CarShare (https://www.enterprisecarshare.com/us/en/home.html) and Zipcar (www.zipcar.com/minneapolis/find-cars) offer vehicles at sites throughout Minneapolis.

2. The property manager/TDM liaison for the apartment building will manage and disseminate shared-car formation to the residents and employees. K-A understands that such a program is valuable to those residents who may not have a personal vehicle, and who from time to time need to use a personal vehicle.

3. To maintain an awareness of alternative modes of transportation to office employees, the owners/property managers will distribute information through e-mail, flyers, posters in frequented locations, etc. This information will also be provided in the offices, locker area, or break rooms in the office or retail areas.

4. The owners and/or property managers of the development will distribute information on Mn/DOT's real-time traveler information program: 5-1-1 or www.511mn.org .

5. To maintain an awareness of alternative modes of transportation to office employees, information may be distributed through e-mail, flyers, posters in frequented locations, etc. This information will also be provided in the offices, locker area, or break rooms in the office or retail areas.

6. Residents and employees will be informed of Met Transit's "Go-To Card" passes for hassle-free transit. The link www.metrotransit.org/passes-go-to-cards.aspx will be provided to residents at move-in, or upon orientation for new hires.

Bicycles

1. The owners/property managers commit to provide a total of 341 bicycle parking spaces. The bicycle commitment is 289 long-term bicycle stalls to be provided within the buildings for use by residents, customers, employees or visitors, with an additional 52 short-term spaces available for residents, customers, employees or visitors. This bike parking commitment is broken down by land use and is shown on Table 3-4 of this report.

2. The owners/property managers will actively promote biking as a mode of transportation to and from the site by providing outdoor bicycle parking spaces and a repair station for patrons, residents and employees within the indoor bicycle storage space. The bike repair station will be in a room on the P2 level of parking and accessible to residents and office employees.

3. The owners/property managers will provide maps and information to direct riders through the area and to adjacent bicycle trails.

4. The owners/property managers will provide bike shelters and racks at main entrances to public buildings and in proximity to accesses. The developer will work with the hotel and brewery management to determine the best locations for such bike facilities.

5. The owners/property managers will promote Nice Ride MN to employees, residents and visitors in the development site. NiceRide MN Stations exist near the K-A block – one at the corner of 4th Avenue South & South 9th Street; and another on 4th Avenue South between 6th and 7th Streets South. Other nearby Nice Ride MN stations are shown on Figures 2-2 and 2-4.

6. The owners/property managers will actively promote biking by providing shower/locker facilities for KA employees who commute via bicycle.

Deliveries

1. The owners/property managers will develop and maintain a policy that encourages truck and service deliveries to occur outside of peak traffic times. As a goal, 80% of truck and service deliveries will occur before noon, which is outside the peak hour. This would not include FedEx/UPS-type deliveries.

Parking

1. The owners/property managers will use appropriate signage to designate parking spaces for employees versus residents and hotel patrons.

2. The owners/property managers will be using a parking access control and security system that will require proper credentials to be presented to gain entry into the parking garage. Credentials will be in the form of a proximity card or key fob for office employees and apartment residents. All other parking garage visitors will be permitted to gain access by taking a parking ticket upon entry and paying a parking fee when exiting.

3. The owners/property managers will apply a residential parking ratio that is less than one-to-one, as this site is taking advantage of nearby bus lines and the LRT stations that are five blocks away at Government Plaza or at Downtown East Station.

4. Residential Parking will not be free. Residents will not be required to lease parking, but those who chose to do so will have reserved spaces in the ramp. The owners/property managers will apply a parking fee that will be market rate for downtown residential parking and will be a lease contract separate from apartment lease. Residential unit renters or homeowners' association will not lease or sell any residential parking stalls to any person other than a resident or tenant of the building.

5. The owners/property managers will meet the guest parking code requirement of 1 space per 50 DUs. Six dedicated guest parking spaces will be located on the P2 residential parking level. Guest will check in with the front desk in order to park in these spaces and get validation to exit the parking garage.

6. Brewery customers, hotel check-in/check-out and valet, additional residential guests/visitors and delivery services will have access to the internal drive on the ground floor of the buildings. No long-term internal drive parking will be provided. Short-term parking will be provided at the discretion of the property manager/owner within the P1 parking area.

7. Information regarding on-street parking and nearby public pay lots and ramps will be held by the hotel concierge and office manager for information from guests or employees and visitors.

Resident Surveys and TDMP Plan Status Reports

1. With the assistance of Commuter Connection, the owners/property managers shall conduct a baseline resident commuting survey within the first 6 months after 50% occupancy of the site. The owners/property managers will continue to conduct this survey every two years after that, for ten years or until the TDM Plan mode split goals are achieved.

TRAVEL DEMAND MANAGEMENT PLAN
KRAUS-ANDERSON BLOCK REDEVELOPMENT
525 SOUTH 8TH STREET
MINNEAPOLIS, MN

PLAN APPROVAL

Hennepin County Planning and Project Development Division

By: _____Dated: _____

Bruce Engelsma, Chief Executive Officer
Kraus-Anderson, Incorporated
525 South 8th Street
Minneapolis, MN 55404

Minneapolis Community and Economic Development Department

By: _____Dated: _____

Steve Poor, CPED Development Services Director

Minneapolis Public Works Department

By: _____Dated: _____

Steve Mosing, Traffic Operations Engineer

Westwood

APPENDIX A – Traffic Impact Study for

Kraus-Anderson Block Redevelopment

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Project Number: R0007118.00
Date: 11/19/2015

APPENDIX A – Traffic Impact Study for

Kraus-Anderson Block Redevelopment

Minneapolis, MN

November 19, 2015

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

Print Name: _____Stephen J. Manhart_____

Signature: _____

Date: __11/19/2015_____ License # _____22428_____

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FIGURES

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APPENDICES

1.0 -- INTRODUCTION

The Vision and Purpose of the proposed Kraus-Anderson Block Redevelopment is to transform an entire city block, consisting of a surface parking lot and antiquated office building into a vibrant, high-density mixed use destination in the Elliot Park neighborhood of downtown Minneapolis consistent with several key sources of guidance. This particular area of the city is currently characterized by several large surface parking lots and is in need of creative infill redevelopment. The proposed project will serve as a catalyst for future improvements and investment in this area of downtown Minneapolis.

1.1 -- MIXED USE PROGRAM SUMMARY

The program for this redevelopment includes three distinct and active uses:

- A new Kraus-Anderson (KA) Corporate Home Office of approximately 95,000 square feet. KA has been located on this site for over 75 years.
- A new Type 1 residential midrise building of approximately 306 dwelling units.
- A new 148-key Finnegan's House Boutique Hotel/ Micro Brewery/ Innovation Center.

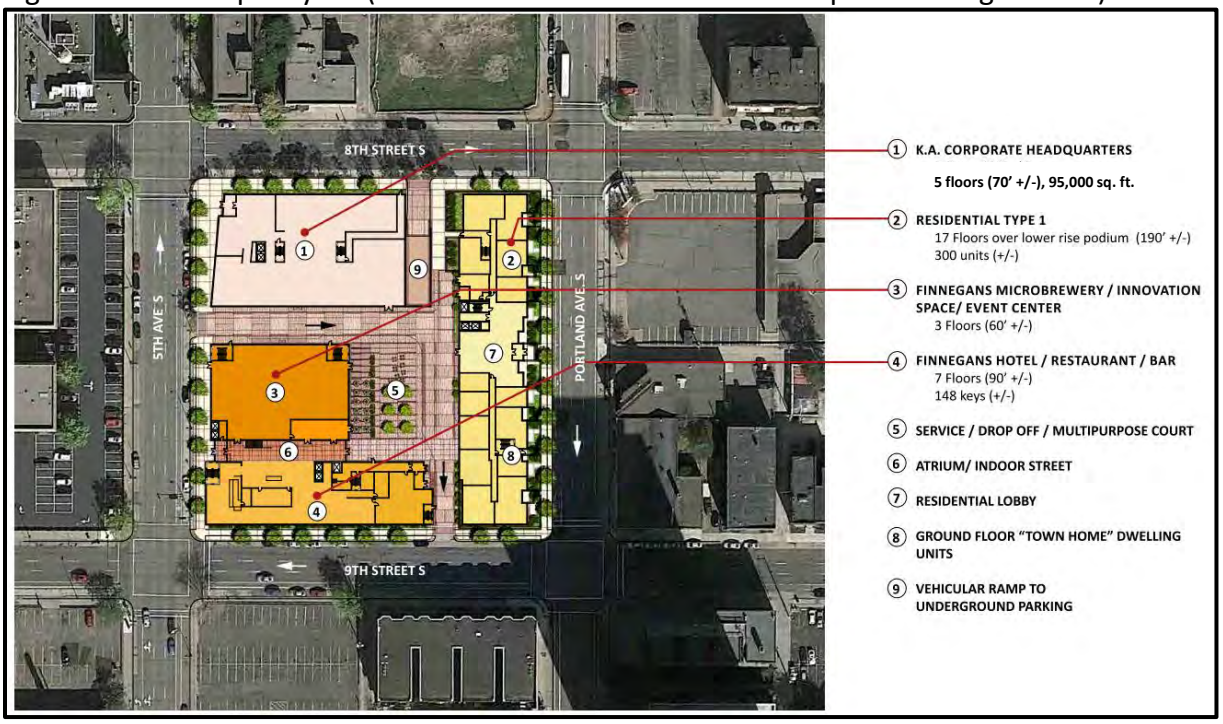
Table 1-1: Land Use Changes with Proposed Development

Existing Land Uses	Proposed Land Uses
Office Building (30 ksf.)	Office Headquarters Building (95 ksf)
Off-Street Parking (169 pay-parking stalls + 100 KA employee parking stalls + 13 visitor stalls = 299 total stalls)	Residential – 306 dwelling units (57 studio apts.; 75 alcove apts.; 82 1-BR apts.; 69 2-BR apts.; 4 2-BR+den apts.; 19 3-BR apts.)
	Finnovation Office Space (12ksf)
	"Brewtel" Boutique Hotel (148 rooms, 110,000 sq. ft.)
	Hotel dining/meeting space (8,400sf, 200 seats)
	Brewery (12 ksf)
	Event Center (13ksf, 750 seats)
	Underground Parking (530 stalls)

(Source: Westwood, September, 2015)

Figure 1-1: Site Location (Source: Block Mixed Use Redevelopment Design Vision)

Figure 1-2: Concept Layout (Source: Block Mixed Use Redevelopment Design Vision)



2.0 – EXISTING TRAFFIC CONDITIONS

2.1 -- Data Collection

Traffic volumes were analyzed at the following intersections that influence the KA Block development:

- South 8th Street and Fifth Avenue South
- South 9th Street and Fifth Avenue South
- South 8th Street and Portland Avenue
- South 9th Street and Portland Avenue

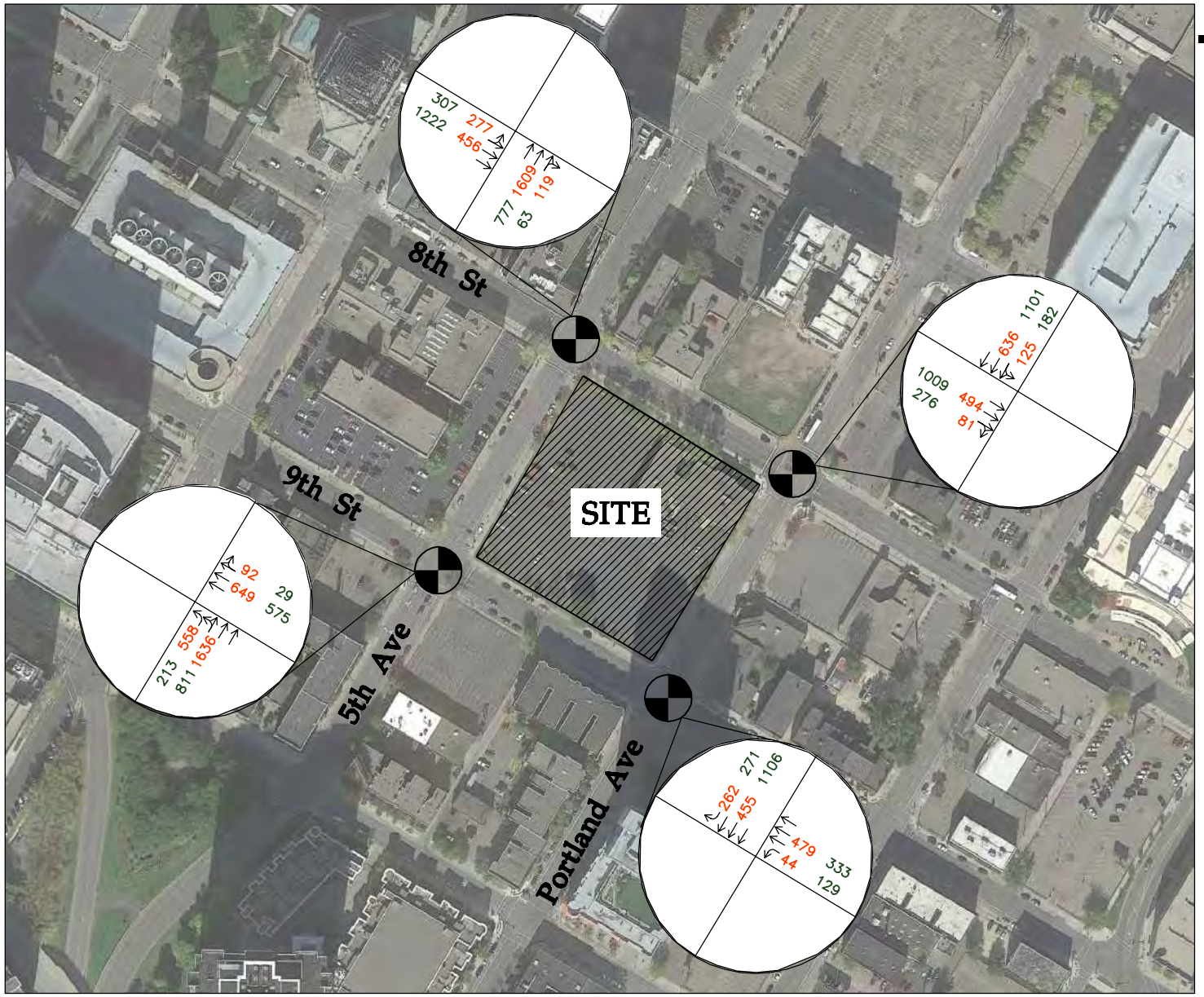
Turning movement counts were provided by the City of Minneapolis from their Traffic Count Management System (see Figure 2-1). The City Traffic Engineering staff allowed the use of these counts for this analysis. These counts were taken between April 2011 and July 2013. In addition, Westwood received the current signal timings from the City of Minneapolis Traffic Division for use in this analysis.

2.2 -- Existing Traffic Restrictions

The site is surrounded by one-way streets:

- 5th Avenue South is a three-lane arterial northbound
- Portland Avenue is a three-lane arterial southbound
- South 8th Street is a three-lane arterial eastbound
- South 9th Street is a three-lane arterial westbound

Each corner of the site is signalized. On-street parking is allowed along each side of the development. Currently, site access is provided by six driveways – two driveways onto S. 8th Street, two driveways onto Portland Avenue South, and one driveway each onto S. 9th Street and Fifth Avenue S.



Legend

LANE DESIGNATION	⇉
AM PEAK HOUR VOLUME	XX
PM PEAK HOUR VOLUME	XX
SIGNALIZED INTERSECTION	◔
UNSIGNALIZED INTERSECTION	◑

N

0' 250' 500'

Date: 10-20-2015

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Existing Traffic Volumes

Figure 2-1

2.3 – Operational Analysis Methodology

Traffic operations for the AM and PM peak hour conditions within the study area were analyzed using the industry-standard *Synchro/SimTraffic Version 9* software package, which uses the data and methodology contained in the 2010 Highway Capacity Manual, published by the Transportation Research Board (See Technical Appendix of this document). The software model was calibrated to replicate existing conditions as accurately as possible before being used to assess future conditions.

Westwood utilized the City-provided turning movement counts and signal timings to assess the traffic operation on the street network around the Block. The City's traffic counts included pedestrian movements at the intersections, which have been included in this analysis. The downtown pedestrian signals are not push-button actuated, but rather are fixed as part of the overall timing plans, all pedestrian movements are assumed to be accommodated. This assumption is carried into the future analyses as well.

Results of the *Synchro* traffic operational analysis for the existing AM and PM peak hours appear in Table 2-1. Ninety-fifth percentile vehicular queue lengths were calculated using the *SimTraffic* simulation program after five independently seeded runs.

Results of the analysis contained in Table 2-1 indicate that the study area intersections operate at acceptable overall LOS for 2014 existing peak hours. It should be noted that 95th percentile queue lengths for certain critical approaches extend beyond 300 feet, but these are along streets that do not block access points for the KA Block.

Table 2-1: Results of Existing Analysis – AM & PM Peak Hours

Intersection	Intersection		Critical Approach			
	Intersection Control Delay	Overall Intersection LOS	Approach	Lane Group Delay	Lane Group LOS	95th Percentile Queue Length
A.M. Peak Hour						
8th St & 5th Ave	13.2 sec	LOS-B	EB Thru	34.7 sec	LOS-C	355 ft
8th St & Portland Ave	12.4 sec	LOS-B	EB Thru	21.0 sec	LOS-C	179 ft
9th St & Portland Ave	17.6 sec	LOS-B	WB Thru	36.7 sec	LOS-D	234 ft
9th St & 5th Ave	16.0 sec	LOS-B	WB Thru	21.3 sec	LOS-C	183 ft
P.M. Peak Hour						
8th St & 5th Ave	21.7 sec	LOS-C	EB Thru	27.1 sec	LOS-C	363 ft
8th St & Portland Ave	18.2 sec	LOS-B	EB Thru	19.5 sec	LOS-B	295 ft
9th St & Portland Ave	11.8 sec	LOS-B	WB Thru	41.7 sec	LOS-D	204 ft
9th St & 5th Ave	12.8 sec	LOS-B	WB Thru	19.4 sec	LOS-B	238 ft

(Source: Westwood, October, 2015)

3.0 – NO-BUILD ALTERNATIVE

To address the impacts of a development on the surrounding roadway system, it is necessary to first analyze traffic conditions that would be present on the roadway system without the inclusion of the proposed development. The anticipated construction completion date for this development is 2018. Therefore, the 2018 No-Build scenario will serve as a basis with which to compare the 2018 Build scenario. A long-term analysis was also conducted, using 2035 as a design year.

3.1 – Background Growth

To remain consistent with other studies in the area, an annual background growth rate of one-half percent (0.5%) per year was used for this study. The growth rate was used for background traffic and site-generated traffic, and traffic generated from other adjacent projects was applied to City-supplied traffic volumes to arrive at the estimates for the 2018 No-Build and 2035 No-Build peak hour traffic volumes (shown on Figures 3-1 and 3-2-2, respectively).

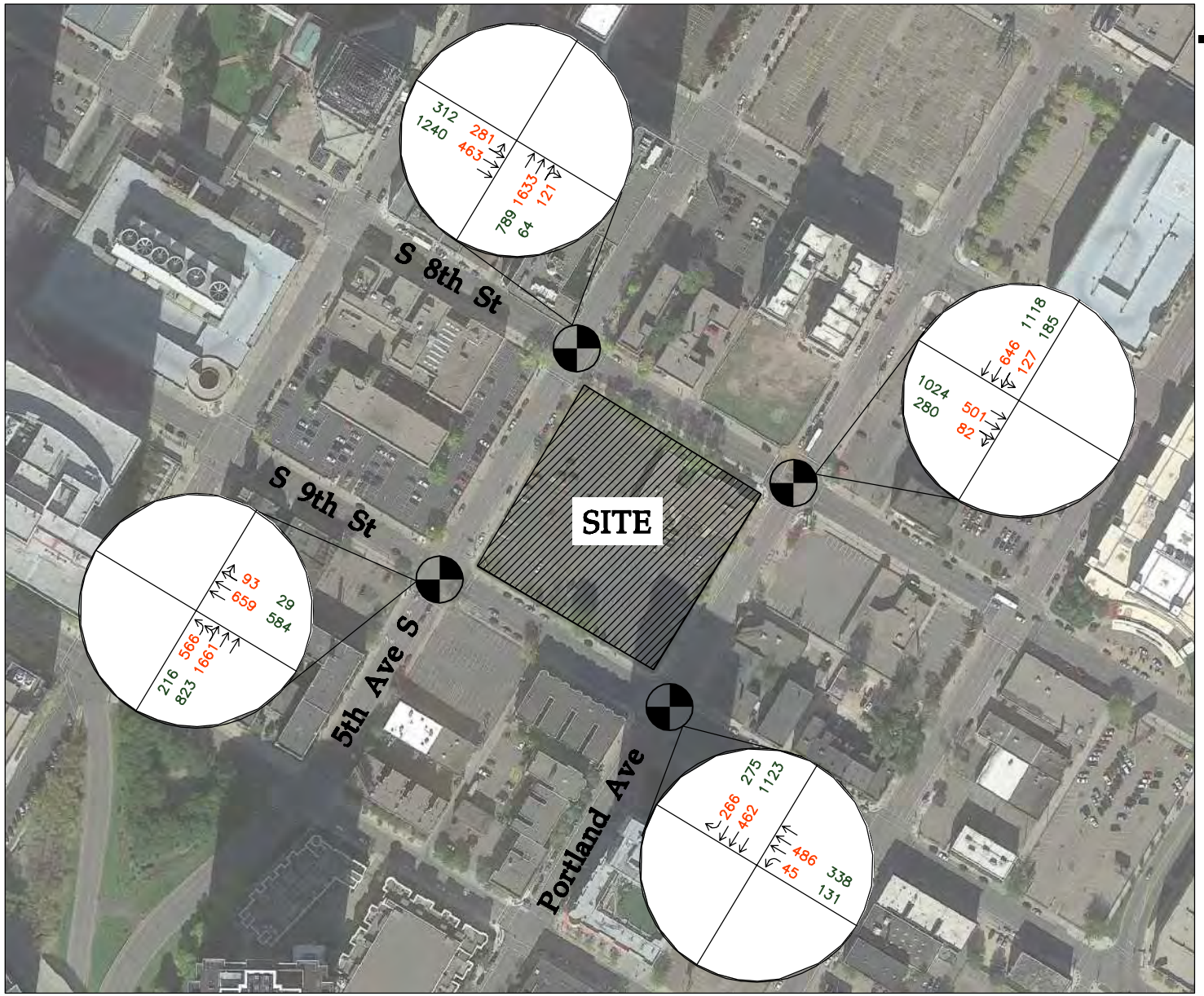
3-2 – Anticipated Improvements for 2018 and 2035 No-Build Conditions

The City of Minneapolis optimized downtown signal timing plans along corridors in 2012. Therefore, signal timing plans used in this study were based on these existing signal timings, and incorporated into the 2018 No-Build conditions. Similarly, optimized signal timing plans were generated and incorporated into the 2035 No-Build conditions.

In 2019, the City plans to reconstruct 0.72 miles of South 8th Street in downtown from Hennepin Avenue to Chicago Avenue. The project will consist of complete removal and replacement of the pavement, curb and gutter, and driveways. The project will also include landscaping, pedestrian level street lighting, and upgraded signals where warranted. Sidewalks may also be replaced and widened, particularly at bus stop locations. Multimodal elements will be included in the roadway reconstruction. No substantive capacity improvements are projected with this reconstruction.

3.3 – Results of Analysis; 2018 and 2035 No-Build Scenario

Table 3-1, which summarizes the results of the 2018 No-Build operational analysis, includes the LOS for each study area intersection. It is noted that the original signal timings were first incorporated into the No-Build analysis, and then optimized. The complete operational analysis output is available upon request.



Legend

LANE DESIGNATION	
AM PEAK HOUR VOLUME	XX
PM PEAK HOUR VOLUME	XX
SIGNALIZED INTERSECTION	
UNSIGNALIZED INTERSECTION	

N

0' 250' 500'

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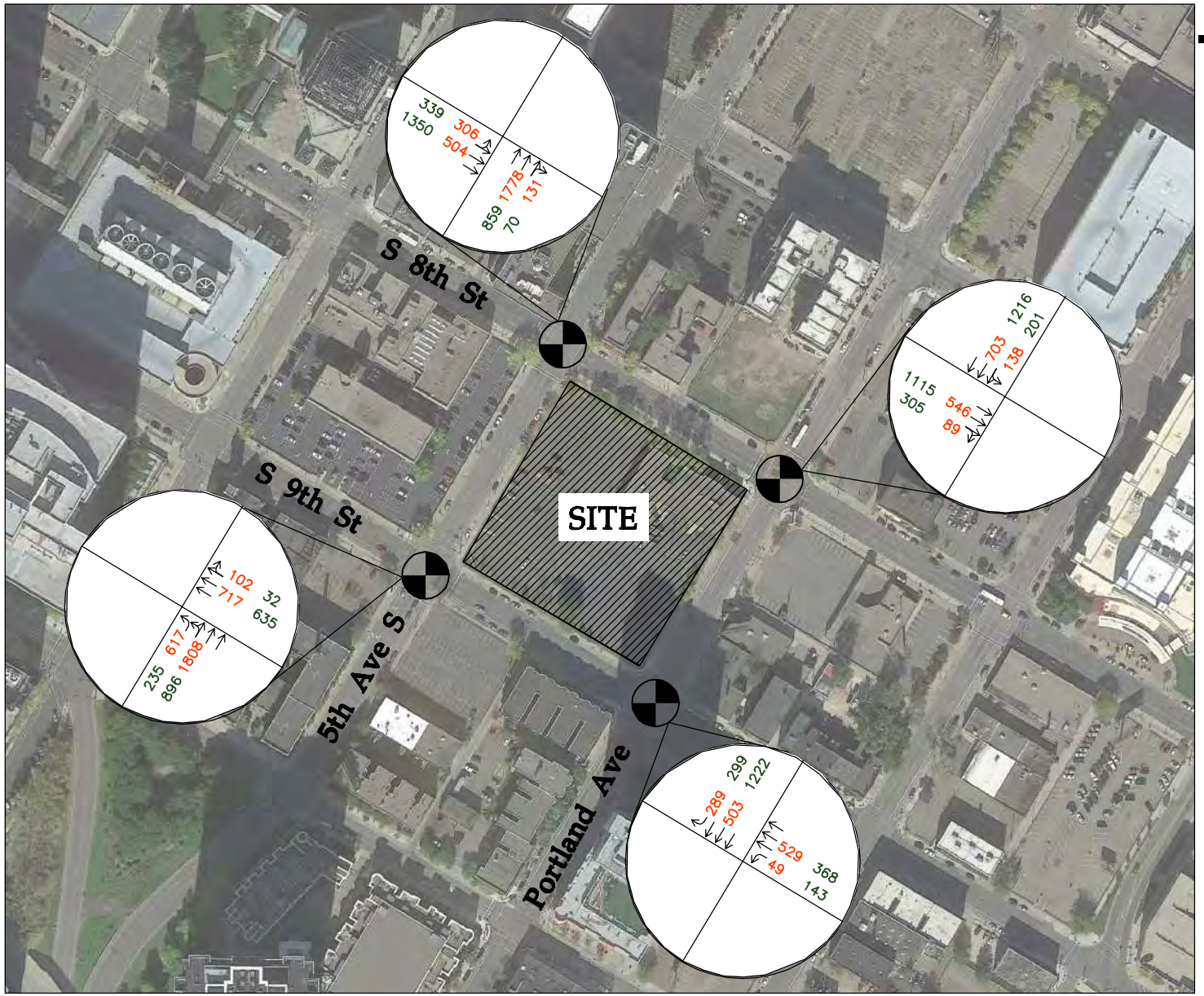
2018 No Build Traffic Volumes

Figure 3-1



Legend

LANE DESIGNATION	⇉
AM PEAK HOUR VOLUME	XX
PM PEAK HOUR VOLUME	XX
SIGNALIZED INTERSECTION	◔
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2035 No Build Traffic Volumes

Figure 3-2

Table 3-1: Results of Year 2018 No-Build Analysis – AM & PM Peak Hours

Intersection	Intersection		Critical Approach			
	Intersection Control Delay	Overall Intersection LOS	Approach	Lane Group Delay	Lane Group LOS	95th Percentile Queue Length
A.M. Peak Hour						
8th St & 5th Ave	13.9 sec	LOS-B	EB Thru	31.5 sec	LOS-C	378 ft
8th St & Portland Ave	13.1 sec	LOS-B	EB Thru	21.4 sec	LOS-C	159 ft
9th St & Portland Ave	16.5 sec	LOS-B	WB Thru	34.9 sec	LOS-C	240 ft
9th St & 5th Ave	16.9 sec	LOS-B	WB Thru	25.3 sec	LOS-C	214 ft
P.M. Peak Hour						
8th St & 5th Ave	19.2 sec	LOS-B	EB Thru	21.3 sec	LOS-C	358 ft
8th St & Portland Ave	15.1 sec	LOS-B	EB Thru	14.8 sec	LOS-B	218 ft
9th St & Portland Ave	10.6 sec	LOS-B	WB Thru	37.4 sec	LOS-D	204 ft
9th St & 5th Ave	12.7 sec	LOS-B	WB Thru	20.2 sec	LOS-C	185 ft

(Source: Westwood, October, 2015)

Results of the analysis contained in Table 3-1 above indicate that most study intersections will operate at roughly the same levels of service as were recorded for the Existing analysis. The westbound left approach of 9th Street South at Portland Avenue is expected to operate at LOS D. This critical approach is east of the KA Block but is not expected to block site driveways or accesses.

Year 2035 No-Build analysis is shown in Table 3-2. All study intersections operate at acceptable levels of service. As with the 2018 No-Build scenario, one critical approach is projected to operate at LOS-D – Westbound left approach of 9th Street South at Portland Avenue. As with the 2018 No-Build analysis, this critical approach does not block site driveways or accesses.

Regarding the modeling of these future conditions, signal timings were optimized to reflect the best possible traffic operation at the signalized intersections.

Full traffic performance and queuing results appear in the Technical Appendix of this report.

Table 3-2: Results of Year 2035 No-Build Analysis – AM & PM Peak Hours

Intersection	Intersection		Critical Approach			
	Intersection Control Delay	Overall Intersection LOS	Approach	Lane Group Delay	Lane Group LOS	95th Percentile Queue Length
A.M. Peak Hour						
8th St & 5th Ave	13.9 sec	LOS-B	EB Thru	35.7 sec	LOS-D	362 ft
8th St & Portland Ave	12.7 sec	LOS-B	EB Thru	21.1 sec	LOS-C	162 ft
9th St & Portland Ave	17.0 sec	LOS-B	WB Thru	36.1 sec	LOS-D	243 ft
9th St & 5th Ave	20.2 sec	LOS-C	WB Thru	45.0 sec	LOS-D	311 ft
P.M. Peak Hour						
8th St & 5th Ave	18.2 sec	LOS-B	EB Thru	18.9 sec	LOS-B	408 ft
8th St & Portland Ave	14.6 sec	LOS-B	EB Thru	10.2 sec	LOS-B	181 ft
9th St & Portland Ave	11.8 sec	LOS-B	WB Thru	40.6 sec	LOS-D	223 ft
9th St & 5th Ave	11.2 sec	LOS-B	WB Thru	13.8 sec	LOS-B	166 ft

(Source: Westwood, October, 2015)

4.0 – BUILD ALTERNATIVE

4.1 – Trip Generation

Table 4-1 illustrates the estimated trip generation calculated for the proposed conditions using the Institute of Transportation Engineers' (ITE's) Trip Generation Manual, Ninth Edition. The numbers shown do not reflect a reduction for shared trips, nor do they reflect any pass-by reduction, in order to provide a conservative comparison.

Table 4.1: Trip Generation Estimates for Proposed Land Use[1]

Lane Use (according to Site Plan)	Size	Unit	ITE Land Use	ITE Land Use Code	Gross Trip Generation Estimates				
					Daily	AM Peak Hour		PM Peak Hour	
						In	Out	In	Out
Hotel	148	Rooms	Hotel	310	1,210	46	32	45	44
Event Center	13	ksf	Event Center	*	260	32	4	61	8
Apartments	306	units	High-Rise Apartment	222	1,286	23	69	65	42
KA Headquarters	95	ksf	Single Tenant Office	715	1,106	152	19	25	141
Hotel Dining	200	seats	Quality Restaurant	981	931	3	3	35	17
Finnovation	12	ksf	Gen. Office Bldg.	710	132	16	2	3	15
Brewery	11.58	ksf	Light Industrial	110	82	10	1	1	10
Taproom	1.25	ksf	Tap Room	**	83	n.a.	n.a.	56	27
Total					**5,090**	282	130	291	304
						412		**595**	

Source: Westwood, October 15, 2015
[1] Rates and equations based on ITE Trip Generation Manual, Ninth Edition, 2012.
* Rate not found in ITE Trip Generation Manual. Used 20 trips/ksf, as described below.
** Rate not found in ITE Trip Generation Manual. Used peak capacity estimation to determine peak hour trips, as described below

There are certain assumptions made about these trip generation totals:

- According to the ITE Trip Generation Manual, Land Use 310 "Hotel" can include "…places of lodging that provide sleeping accommodations and supporting facilities such as restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, limited recreational facilities (pool fitness room), and/or other retail and service shops." Therefore it was assumed that the Event Center was included in the Hotel trip generation.

- It is the intent of the developer to bring in a name-brand restaurant to the hotel site. Therefore, the trip generation for the Quality Restaurant was added separately.

- The ITE Trip Generation Manual, 9th Edition does not present rates or equations for event centers. A web search showed traffic impact studies for two event centers

(Noah's Event Venue in Sugar Land, TX, and The Ridge Event Center in Orem, UT). Both event centers were approximately 10,000 sq. ft.

The traffic studies conducted for each had varying trip generation rates:

- The Sugar Land event center used a rate of 24 daily trips for every 1,000 sq. ft., as well as 2.8 trips/1000 sq. ft. in the AM peak hour and 5.3 trips/1000 sq. ft. in the PM peak hour.[1]
- The Orem event center traffic study did not present a daily trip rate, but assumed a rate of 16.6 trips/1000 sq. ft. in the weekday PM peak hour. This rate was based on a survey of comparable site traffic resulting in an estimation that 20 sq. ft./person is needed during a seated event and an average of 3 persons per vehicle, thus generating the PM peak hour rate.[2]
- Further, the Orem study provided estimations of 88% inbound and 12% outbound trip distribution.

Therefore, for the Brewtel's event center, a median rate of 20 trips/1000 sq. ft. was used. Further, the AM and PM peak hour rates from the Sugar Land study were used.

- There are no rates or data for micro-breweries, brewpubs or breweries listed in the ITE Trip Generation Manual. In addition, there are very few traffic impact studies found on the internet – and of those, the micro-breweries are in rural settings and the trip generation is based on barrels produced per year. Therefore, the brewery was classified as General Light Industrial for the sake of this analysis.

- As with micro-breweries, there are no rates listing in the ITE Trip Generation Manual for tap rooms. Of the few traffic impact studies for micro-breweries found on the internet, some did discuss having tap rooms, but no specific rates were disclosed. Therefore, an estimation of this facility's patronage and trip behavior were made:
  - Assuming the tap room's size of 1,250 sq. ft., and dividing it by 15 sq. ft. per person, the resulting occupancy is 83 people. Therefore, assuming full occupancy, a conservative estimate of 83 trips would be generated during the PM peak hour.
  - To estimate directional distribution, the inbound and outbound rates for ITE Lane Use Code 925 – Drinking Place were used; e.g., 67% inbound and 33% outbound in the PM peak hour. This translates into 56 trips inbound and 27 trips outbound.

[1] Donald R. Glenn, P.E., "Trip Generation of Noah's of Sugar Land", report prepared for the City of Sugar Land, Reynolds, Smith and Hills, Inc., Houston, TX, 01/21/2013.
[2] "The Ridge Event Center Traffic Impact Study", report prepared by Horrocks Engineers for the City of Orem, UT, August 9, 2010.

The City of Minneapolis has established modal shift goals that reflect the reduction in single occupancy vehicle trips and the reliance on other modes (e.g., transit, biking and walking) to provide transportation in the downtown area. These goals are listed in Table 4-2.

Table 4-2: Modal Split Goals

Mode Split	Goal
Auto	40%
Transit	50%
Bike/Walk	10%

By meeting these goals, the resulting trip generation volumes for vehicular traffic may be reduced by 60%. Table 4-3 illustrates the resulting trip generation for the site.

Table 4.3: Vehicular Trip Generation Estimates Assuming Modal Split

Lane Use (according to Site Plan)	Size	Unit	ITE Land Use	ITE Land Use Code	Gross Trip Generation Estimates				
					Daily	AM Peak Hour		PM Peak Hour	
						In	Out	In	Out
Hotel	148	Rooms	Hotel	310	484	18	13	18	18
Event Center	13	ksf	Event Center	*	104	13	2	24	3
Apartments	306	units	High-Rise Apartment	222	514	9	28	26	17
KA Headquarters	95	ksf	Single Tenant Office	715	442	61	8	10	56
Hotel Dining	200	seats	Quality Restaurant	981	372	1	1	14	7
Finnovation	12	ksf	Gen. Office Bldg.	710	53	6	1	1	6
Brewery	11.58	ksf	Light Industrial	110	33	4	0	0	4
Taproom	1.25	ksf	Tap Room	**	33	n.a.	n.a.	22	11
Total					**2,036**	113	52	116	122
						165		**238**	

(Source: Westwood, November 19, 2015)

4.2 – Trip Distribution and Assignment

The distribution of site-generated auto traffic from and to the adjacent street system was based on distribution patterns identified in the traffic impact study for other recent downtown developments and on existing traffic patterns. This distribution pattern is pictured on Figure 4-1, Trip Distribution. Using the initial distribution assumptions, the proposed trips were assigned across the study area roadway network.

Distribution patterns differed due to the change in location of accesses to and from the Block site. In the existing configuration, there are six driveway accesses onto the adjacent streets. In the proposed redevelopment layout, there are three:

- The vehicular ramp driveway to and from underground parking at 8th Street South.

- The inbound only access driveway from 5th Avenue South that serves as a drop-off drive to the hotel, brewery and event center, as well as the service driveway for the office, residential and hotel uses.

- The outbound only access driveway onto 9th Street South that exits the drop-off drive from the hotel, brewery and event center, as well as the service driveway exit from the office, residential and hotel uses.

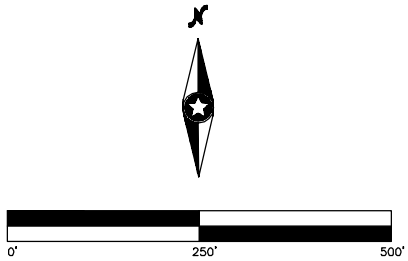
The majority of the development traffic will use the access along 8th Avenue South, as it accesses the underground parking for the site. This underground parking will serve office employees, apartment residents and hotel guests. Therefore, the majority of the traffic generated by the site will impact 8th Street South at this access.

Figure 4-2 illustrates the Traffic Assignment, which will be the same for both design years.

Legend

Trip Distribution Percentage Entering	XX
Trip Distribution Percentage Exiting	XX

NOTE: AM (PM)



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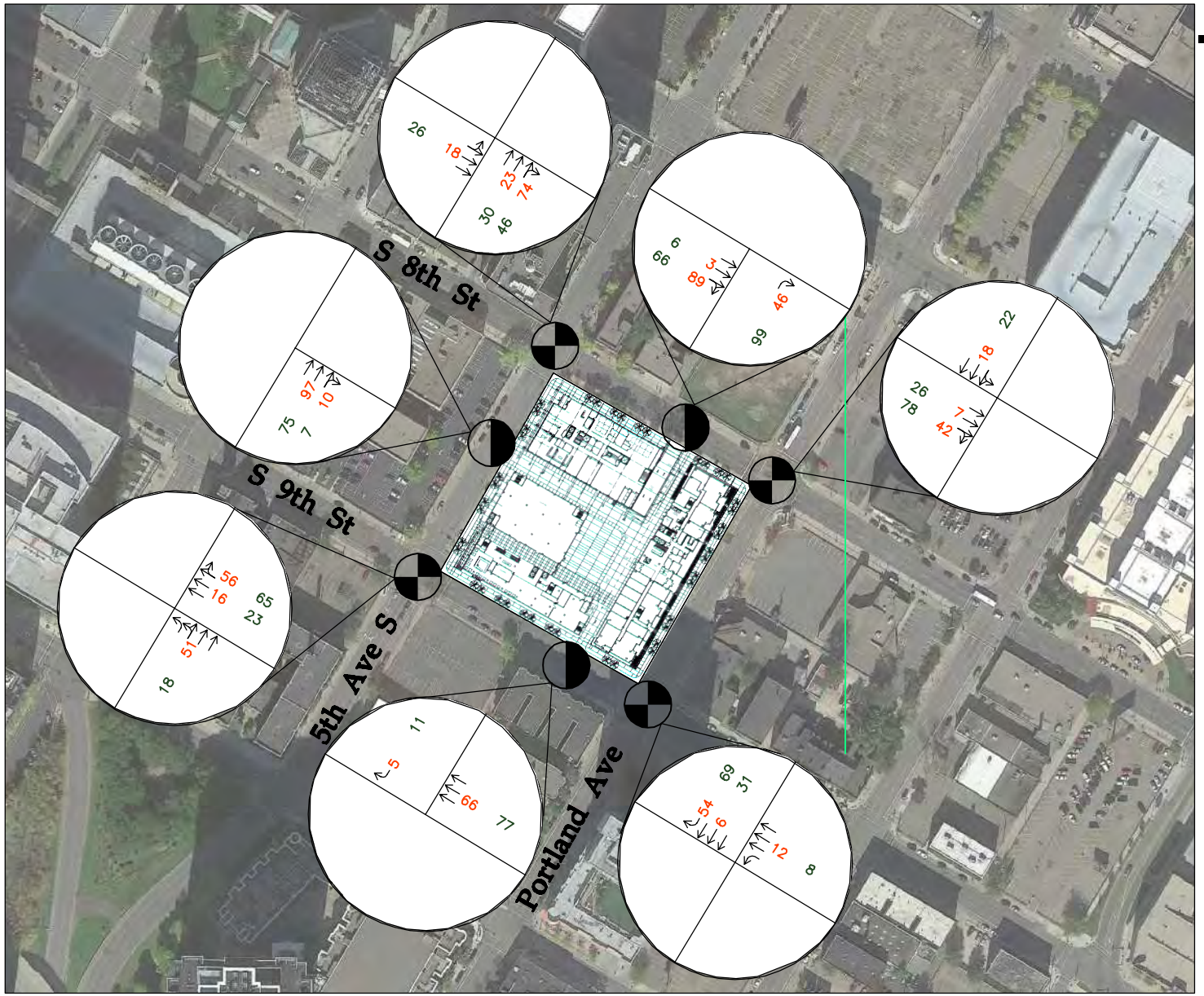
Trip Distribution Percentages

Figure 4-1



Legend

- LANE DESIGNATION
- AM PEAK HOUR VOLUME XX
- PM PEAK HOUR VOLUME XX
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION

N

0' 250' 500'

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Kraus-Anderson Block Redevelopment

Minneapolis, MN

Trip Assignment

Figure 4-2

4.3 – Results of Analysis: 2018 and 2035 Build Scenarios

Figures 4-3 and 4-4 illustrate the study area's 2018 Build and 2035 Build volumes, respectively. To test the traffic operation of these scenarios, Westwood modeled the 2018 and 2035 Build scenarios using the *Synchro/SimTraffic Version 9* software. Tables 4.4 and 4.5 reflect the updated impacts of 2018 and 2035 Build networks, respectively.

The results of the traffic operations analysis indicates that the access and the adjacent intersections will operate at acceptable levels of service for the 2018 and 2035 Build conditions respectively (see Tables 4.4 and 4.5). Lane group delay and 95th percentile queue lengths will be at or better levels than were recorded for the previous development scenarios. There are times when the through street traffic blocks the access driveways to and from the KA Block development, but those times are brief and are common among many driveways and parking ramp accesses in the downtown area.

Table 4.4: Results of Year 2018 Build Analysis – AM & PM Peak Hours

Intersection	Intersection		Critical Approach			
	Intersection Control Delay	Overall Intersection LOS	Approach	Lane Group Delay	Lane Group LOS	95th Percentile Queue Length
A.M. Peak Hour						
8th St & 5th Ave	12.1 sec	LOS-B	EB Thru	31.4 sec	LOS-C	321 ft
8th St & Portland Ave	21.5 sec	LOS-C	EB Thru	42.8 sec	LOS-D	182 ft
9th St & Portland Ave	16.8 sec	LOS-B	WB Thru	39.1 sec	LOS-D	230 ft
9th St & 5th Ave	15.0 sec	LOS-B	WB Thru	19.6 sec	LOS-B	277 ft
8th St & Parking Garage Access	3.6 sec	LOS-A	NB Right	15.1 sec	LOS-C	53 ft
5th Ave & Drop Off Entrance	1.8 sec	LOS-A	NB Right	0.8 sec	LOS-A	38 ft
9th St & Drop Off Exit	1.6 sec	LOS-A	SB Right	9.4 sec	LOS-A	28 ft
P.M. Peak Hour						
8th St & 5th Ave	17.6 sec	LOS-B	EB Thru	18.7 sec	LOS-B	389 ft
8th St & Portland Ave	14.3 sec	LOS-B	EB Thru	7.9 sec	LOS-A	187 ft
9th St & Portland Ave	11.3 sec	LOS-B	WB Thru	39.8 sec	LOS-D	217 ft
9th St & 5th Ave	11.4 sec	LOS-B	WB Thru	13.7 sec	LOS-B	211 ft
8th St & Parking Garage Access	3.4 sec	LOS-A	NB Right	9.0 sec	LOS-A	68 ft
5th Ave & Drop Off Entrance	1.6 sec	LOS-A	NB Right	1.7 sec	LOS-A	24 ft
9th St & Drop Off Exit	1.2 sec	LOS-A	SB Right	3.7 sec	LOS-A	38 ft

(Source: Westwood, October, 2015)

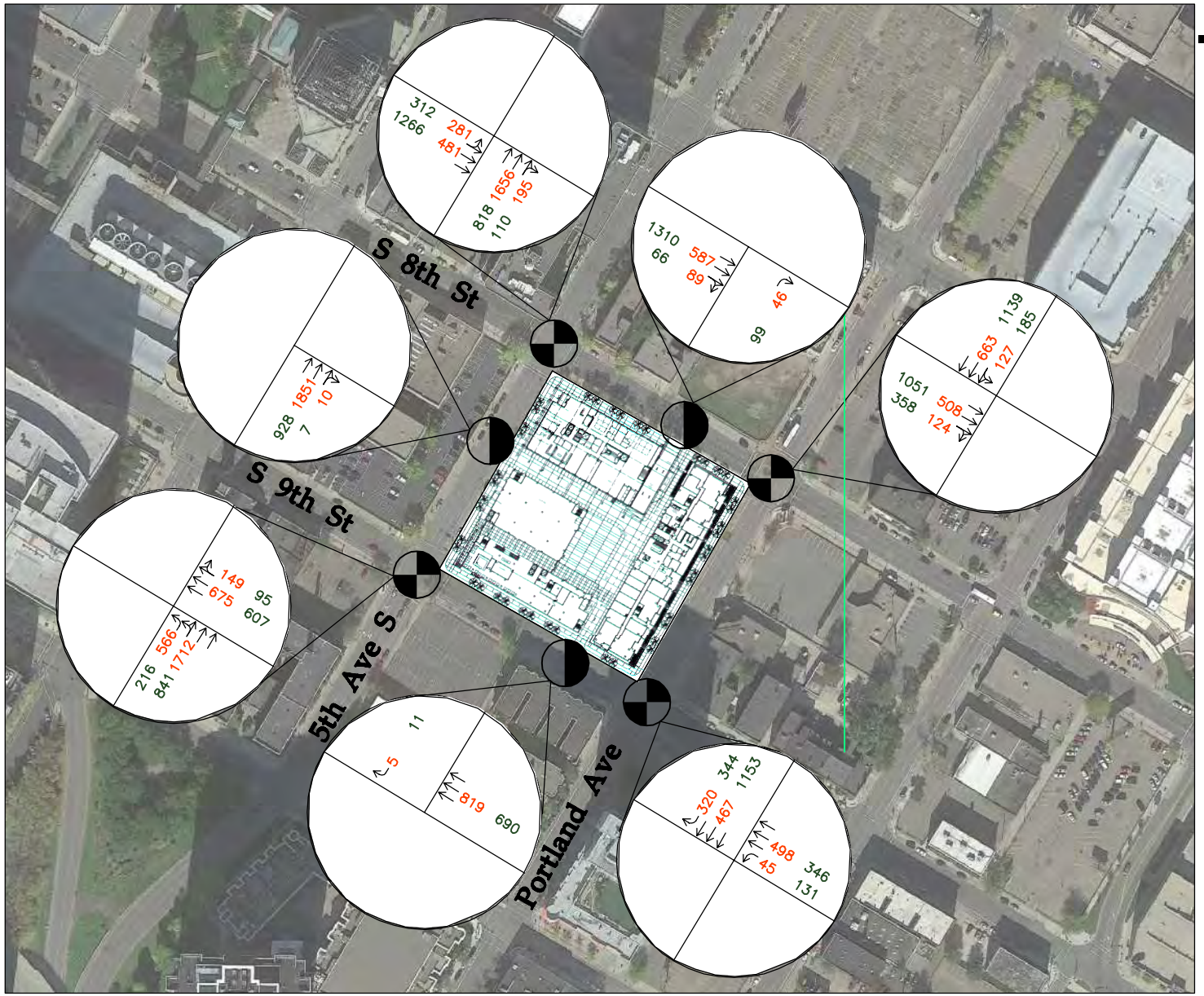
Table 4.5: Results of Year 2035 Build Analysis – AM & PM Peak Hours

Intersection	Intersection		Critical Approach			
	Intersection Control Delay	Overall Intersection LOS	Approach	Lane Group Delay	Lane Group LOS	95th Percentile Queue Length
A.M. Peak Hour						
8th St & 5th Ave	13.7 sec	LOS-B	EB Thru	34.9 sec	LOS-C	383 ft
8th St & Portland Ave	19.9 sec	LOS-B	EB Thru	33.7 sec	LOS-C	188 ft
9th St & Portland Ave	15.2 sec	LOS-B	WB Thru	32.6 sec	LOS-C	240 ft
9th St & 5th Ave	15.6 sec	LOS-B	WB Thru	20.3 sec	LOS-C	267 ft
8th St & Parking Garage Access	4.0 sec	LOS-A	NB Right	10.4 sec	LOS-B	52 ft
5th Ave & Drop Off Entrance	1.9 sec	LOS-A	NB Right	0.7 sec	LOS-A	20 ft
9th St & Drop Off Exit	1.7 sec	LOS-A	SB Right	6.1 sec	LOS-A	14 ft
P.M. Peak Hour						
8th St & 5th Ave	18.0 sec	LOS-B	EB Thru	20.4 sec	LOS-C	392 ft
8th St & Portland Ave	15.8 sec	LOS-B	EB Thru	10.5 sec	LOS-B	201 ft
9th St & Portland Ave	12.0 sec	LOS-B	WB Thru	37.7 sec	LOS-D	257 ft
9th St & 5th Ave	12.5 sec	LOS-B	WB Thru	14.0 sec	LOS-B	213 ft
8th St & Parking Garage Access	7.1 sec	LOS-A	NB Right	31.7 sec	LOS-D	128 ft
5th Ave & Drop Off Entrance	1.7 sec	LOS-A	NB Right	0.0 sec	LOS-A	13 ft
9th St & Drop Off Exit	1.3 sec	LOS-A	SB Right	2.4 sec	LOS-A	24 ft

(Source: Westwood, October, 2015)

Regarding the modeling of these future conditions, signal timings were optimized to reflect the best possible traffic operation at the signalized intersections. This is consistent with the City of Minneapolis' efforts to retime signals on a regular basis.

Full traffic performance and queuing results appear in the Technical Appendix of this report.



Legend

LANE DESIGNATION	⇉
AM PEAK HOUR VOLUME	XX
PM PEAK HOUR VOLUME	XX
SIGNALIZED INTERSECTION	◕
UNSIGNALIZED INTERSECTION	◑

N

0' 250' 500'

Date: 10-20-2015

Prepared for:
Kraus-Anderson, Incorporated
525 S. 8th Street
Minneapolis, MN 55404

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Phone (952) 937-5150
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Crew: .
Checked: .
Drawn: .
Record Drawing by/date: .

Kraus-Anderson Block Redevelopment

Minneapolis, MN

2018 Build Traffic Volumes

Figure 4-3

Legend

LANE DESIGNATION	
AM PEAK HOUR VOLUME	XX
PM PEAK HOUR VOLUME	XX
SIGNALIZED INTERSECTION	
UNSIGNALIZED INTERSECTION	

N

0' 250' 500'

Date: 10-20-2015

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Kraus-Anderson Block Redevelopment

Minneapolis, MN

2035 Build Traffic Volumes

Figure 4-4

5.0 – ACCESS CIRCULATION

The proposed site plan has been reviewed to assess the operational effectiveness of the proposed ingress and egress points. Figure 1-2 schematically depicts the site layout.

In the proposed redevelopment layout, there are three access points:

- The vehicular ramp driveway to and from underground parking at 8th Street South.
- The inbound-only access driveway from 5th Avenue South that serves as a drop-off drive to the hotel, brewery and event center, as well as the service driveway for the office, residential and hotel uses.
- The outbound-only access driveway onto 9th Street South that exits the drop-off drive from the hotel, brewery and event center, as well as the service driveway exit from the office, residential and hotel uses.

City Code specifies loading spaces based on all land uses within a development. Table 5-1 lists the loading space requirements by land use per code and the loading spaces proposed to be provided on site.

Table 5-1: Loading Space Requirements per City Code

Land Use	Code Requirement	Provided On Site
Residential	1 large (12'x50') or 2 small (2 x 10'x25')	1 large (12'x50')
Office	2 large (2 x 12'x50')	2 large (2 x 12'x50')
Hotel	2 large (2 x 12'x50')	1 large (12'x50')
Event Center	1 small (12'x50')	1 large (12'x50')
Food & Beverage	None	None

Residential loading will be located adjacent to the residential move-in elevator and trash room. One large space is being provided. Office loading will be located on the south side of the building. Two large spaces are being provided. Hotel loading will be provided on the east end of the building. One large space is being provided. The brewery/event center loading will be provided on the east side of the building. One large space is being provided.

The valet area is located in the internal courtyard south of the hotel loading area, and opposite the east entrance to the hotel. Valets will take customers' automobiles off site to a parking area to be contracted.

Residential parking will be on level P2 and secured for residents only, with access provided by a credential reader system at the P1 level. P1 Office parking may also be secured by a credential reader system so only office employees can enter that level. Credentials will be in the form of a proximity card or key fob for office employees and apartment residents. All other parking garage visitors will be permitted to gain access by taking a parking ticket upon entry and paying a parking fee when exiting.

6.0 – CONCLUSIONS

The preceding analysis has evaluated the potential traffic impacts of the proposed redevelopment of the Block on the operations of the study area intersections surrounding the site in downtown Minneapolis.

Two scenarios, a No-Build and a Build scenario were analyzed and compared to assess the development's impact of vehicular traffic to the roadway system. Two design years were chosen – 2018 corresponding to the year after build-out of the site; and the long-term design year of 2035.

The Proposed Plan consists of several uses – a 95,000 sq. ft. office headquarters for Kraus-Anderson; a high-rise apartment building with 306 units; a 148-room hotel with dining and meeting space; a brewery with tap room, and a 12,000 sq. ft. office space for the brewery. The uses will be integrated on the block so that a courtyard/service drive area will be common to all. Underground parking will be provided for all uses.

The overall Block development is expected to generate 5,090 trips per average weekday. AM Peak Hour Trips were estimated at 412, and PM peak hour trips were estimated at 595.

Applying the City's modal shift goals to the trips reduced the overall auto traffic to 2,036 vehicular trips generated per weekday. This relates to 165 vehicular trips in the AM and 238 vehicular trips in the PM peak hour. These totals reflect a goal of 40% auto traffic. The other 60% of these trips would be served by other modes (– e.g., pedestrian, bus, LRT, streetcar, bike, etc.), all of which have excellent proximity to this development (as is noted in travel demand management plan).

Results of the operational analyses indicate that under the No-Build and Build scenarios, vehicular traffic operation performs at the same or better levels of service. The high modal share from this development significantly reduces the single-occupant traffic impact of the site, and does not significantly burden surrounding intersection congestion levels beyond their existing or No-Build conditions. There will be some queuing on 8th Street South in the future Build conditions that extends to and slightly beyond the underground parking drive, but these incidences are short-lived, and are typical within a downtown traffic environment.

7.0 – RECOMMENDATIONS

Recommendations include the following:

- Provide systematic signal timing updates at each corner to reflect changing traffic conditions.

- Initiate and follow through with travel demand management strategies for tenants, residents, employees and guests that will encourage the use of alternate forms of transportation to and from the Block site. (NOTE: Overall strategies are presented in the Travel Demand Management Plan.)

TECHNICAL APPENDIX

I. Operational Analysis Methodology

II. SYNCHRO & SimTraffic Control Delay and Queuing Reports

A. Existing A.M. & P.M.

B. 2018 No-Build A.M. & P.M.

C. 2018 Build A.M. & P.M.

D. 2035 Build A.M. & P.M.

TECHNICAL APPENDIX I

Operational Analysis Methodology

Traffic operations for the AM and PM peak hour conditions within the study area were analyzed using the industry-standard *Synchro/SimTraffic Version 9* software package, which uses the data and methodology contained in the 2010 Highway Capacity Manual, published by the Transportation Research Board. The software model was calibrated to replicate existing conditions as accurately as possible before being used to assess future conditions.

The operating conditions of transportation facilities, such as traffic signals, stop-controlled intersections and roundabouts, are evaluated based on the relationship of the theoretical capacity of a facility to the actual traffic volumes on that facility. Various factors affect capacity, including travel speed, roadway geometry, grade, number and width of travel lanes, and intersection control. The current standards for evaluating capacity and operating conditions are contained in the 2010 Highway Capacity Manual (HCM). The procedures describe operating conditions in terms of a Level of Service (LOS). Facilities are given letter designations from A, representing the best operating conditions, to F, representing the worst. Generally, Level of Service D (LOS-D) represents the threshold for acceptable overall intersection operating conditions during a peak hour.

At intersections, Levels of Service are assigned differently for signalized or unsignalized intersections (which include Two-Way Stop Control [TWSC], All-way Stop Control [AWSC] and roundabouts). For signalized intersections, Level of Service is calculated by taking the total Intersection Delay and converting it to a letter grade as shown in the left side of Table A-1. For an unsignalized intersection, Level of Service is calculated by taking the Intersection Delay and converting it to a letter grade, as shown in the right side of Table A-1. While similar, the signalized control delay totals are higher than that of unsignalized intersections. In any condition, when the LOS by Volume to Capacity Ratio exceeds 1.0, the LOS is always F.

Table A-1: Level of Service vs. Control Delay - Signalized and Unsignalized Intersections (TWSC, AWSC & Roundabouts)

TWSC, AWSC & Roundabouts	
LOS by Volume to Capacity Ratio (≤ 1)*	Control Delay per Vehicle (Seconds)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Signalized Intersections	
LOS by Volume to Capacity Ratio (≤ 1)*	Control Delay per Vehicle (Seconds)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Per the 2010 Highway Capacity Manual, published by the Transportation Research Board.
* NOTE: When LOS by Volume to Capacity Ratio >1.00, LOS is F.

Under the 2010 HCM, common movements are included into lane groups. Control Delay is then determined for each lane group and Levels of Service are based on this Control Delay. For each lane group, Control Delay is quantified by number of seconds. Control Delay is measured by comparison with the uncontrolled condition. It is the difference between the travel time that would have occurred in the absence of the intersection control, and the travel time that results because of the presence of the intersection control. Levels of Service are then based on the control delay per vehicle.

The acceptable Level of Service threshold for a particular movement at an intersection depends on both the priority assigned to that movement and its traffic volume. In general, the higher the priority and the higher the traffic volume, the more stringent the acceptable threshold will be. For example, the acceptable threshold for a high-priority/high-volume rural movement might be C, while LOS F on a low-priority/low-volume urban movement might be appropriate.

For two-way stop-controlled intersections, a key measure of operational effectiveness is the side street LOS. Since the mainline does not have to stop, the majority of delay is attributed to the side-street/minor approaches. Long delays and poor LOS can sometimes result on the side street, even if the overall intersection is functioning well, making it a valuable design criterion. As the side-street/minor approach delay approaches and exceeds 60 seconds per vehicle, drivers may divert to another route or become impatient and accept gaps in the mainline traffic that are less than acceptable/safe gaps resulting in the potential for traffic safety concerns. Therefore, depending on priority and traffic volume, acceptable side-street LOS can range from D to F. Side streets can operate at LOS F without the intersection warranting a change in traffic control.

A final fundamental component of operational analyses is a study of vehicular queuing, or the line of vehicles waiting to pass through an intersection. An intersection can operate with an acceptable Level of Service, but if queues from the intersection extend back to block entrances to turn lanes or accesses to adjacent land uses, unsafe operating conditions could result.

In reporting Levels of Service, the information from the signalized intersection analysis comes directly from the *Synchro 9* and *SimTraffic 9* reports (found in Technical Appendix II). Intersection Levels of Service are reported based on the Control Delay calculated for the overall intersection and for each critical movement as determined by *SimTraffic 9*.

For queuing, *SimTraffic* reports found in the Appendix list the Mean Queue, the 95th Percentile and the Maximum Queue Lengths that are generated after five runs. In this report, the 95th Percentile Queue Length is used to discern adequate lengths of turn lanes. The 95th Percentile Queue Length refers to that length of queue that has only a five-percent probability of being exceeded during an analysis period. This is the standard factor used to determine optimal turn lane lengths.

TECHNICAL APPENDIX II

SYNCHRO & SimTraffic Control Delay and Queuing Reports

A. Existing A.M. & P.M.

B. 2018 No-Build A.M. & P.M.

C. 2018 Build A.M. & P.M.

D. 2035 Build A.M. & P.M.

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	0.8	0.3	0.0	0.0	0.1
Total Del/Veh (s)	34.7	33.4	4.4	4.4	13.2

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.2	0.1
Total Del/Veh (s)	21.0	13.9	6.6	6.1	12.4

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	3.0	0.1	0.0	0.0	0.1
Total Del/Veh (s)	9.1	36.7	5.9	3.5	17.6

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	2.0	0.9	0.9
Total Del/Veh (s)	21.3	14.8	17.4	13.4	16.0

Total Network Performance

Denied Del/Veh (s)	0.8
Total Del/Veh (s)	28.5

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	352	292	139	215	260	248
Average Queue (ft)	258	164	64	25	50	64
95th Queue (ft)	355	276	120	116	140	143
Link Distance (ft)	337	337	337	293	293	293
Upstream Blk Time (%)	3					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	286	296	272	138	127	97
Average Queue (ft)	35	57	93	87	32	45
95th Queue (ft)	134	149	179	136	82	88
Link Distance (ft)	341	341	341	380	380	380
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	174	242	188	114	158	123	52	120
Average Queue (ft)	42	181	124	50	62	24	5	46
95th Queue (ft)	144	234	201	103	124	81	26	92
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)		51						2
Queuing Penalty (veh)		23						3

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	183	188	246	250	392	392	384
Average Queue (ft)	52	91	117	189	351	273	146
95th Queue (ft)	150	164	183	314	460	425	271
Link Distance (ft)	338	338	338		377	377	377
Upstream Blk Time (%)					10	3	0
Queuing Penalty (veh)					0	0	0
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				1	27		
Queuing Penalty (veh)				6	75		

Network Summary

Network wide Queuing Penalty: 106

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	3.4	1.5	0.0	0.0	1.3
Total Del/Veh (s)	27.1	25.1	14.4	12.1	21.7

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.2	0.1
Total Del/Veh (s)	19.5	18.9	19.7	16.6	18.2

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	3.3	0.1	0.0	0.0	0.3
Total Del/Veh (s)	11.1	41.7	4.5	3.1	11.8

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.1	0.1
Total Del/Veh (s)	19.4	12.1	10.2	8.6	12.8

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	33.0

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	371	352	352	219	210	145
Average Queue (ft)	325	255	191	124	105	81
95th Queue (ft)	403	363	326	200	190	151
Link Distance (ft)	337	337	337	293	293	293
Upstream Blk Time (%)	14	4	4			
Queuing Penalty (veh)	0	0	0			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	354	362	358	335	268	199
Average Queue (ft)	88	96	124	238	161	117
95th Queue (ft)	268	284	295	357	276	201
Link Distance (ft)	341	341	341	380	380	380
Upstream Blk Time (%)	1	1	3			
Queuing Penalty (veh)	5	6	14			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	174	227	167	123	156	101	74	54
Average Queue (ft)	66	141	92	28	84	54	16	29
95th Queue (ft)	140	204	161	73	139	97	52	52
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)	2	44					0	
Queuing Penalty (veh)	3	56					1	

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	326	378	346	249	334	194	92
Average Queue (ft)	46	94	130	42	161	73	28
95th Queue (ft)	161	201	238	168	286	165	67
Link Distance (ft)	338	338	338		377	377	377
Upstream Blk Time (%)	0	0	0				
Queuing Penalty (veh)	0	0	0				
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				0	7		
Queuing Penalty (veh)				0	8		

Network Summary

Network wide Queuing Penalty: 94

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	0.7	0.2	0.0	0.0	0.1
Total Del/Veh (s)	34.3	31.5	5.5	5.2	13.9

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.4	0.2	0.1
Total Del/Veh (s)	21.4	16.1	7.5	6.9	13.1

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	3.2	0.1	0.0	0.0	0.2
Total Del/Veh (s)	8.7	34.9	5.9	2.8	16.5

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	1.9	1.1	1.0
Total Del/Veh (s)	25.3	18.3	17.9	13.0	16.9

Total Network Performance

Denied Del/Veh (s)	0.8
Total Del/Veh (s)	29.4

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	352	285	152	293	293	224
Average Queue (ft)	290	192	44	45	72	82
95th Queue (ft)	378	283	115	186	200	148
Link Distance (ft)	337	337	337	293	293	293
Upstream Blk Time (%)	4			0	0	
Queuing Penalty (veh)	0			1	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	190	249	241	207	155	113
Average Queue (ft)	44	52	94	97	33	47
95th Queue (ft)	108	119	159	182	100	99
Link Distance (ft)	341	341	341	380	380	380
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	56	274	244	191	154	119	68	56
Average Queue (ft)	23	160	93	67	68	35	6	35
95th Queue (ft)	54	240	189	136	138	94	31	59
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)	0	45					0	0
Queuing Penalty (veh)	0	21					0	0

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	318	333	348	249	411	402	342
Average Queue (ft)	60	109	135	149	337	233	142
95th Queue (ft)	178	214	258	305	484	405	267
Link Distance (ft)	338	338	338		377	377	377
Upstream Blk Time (%)		0	0		12	1	
Queuing Penalty (veh)		0	0		0	0	
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				0	26		
Queuing Penalty (veh)				4	74		

Network Summary

Network wide Queuing Penalty: 100

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	1.0	0.4	0.0	0.0	0.3
Total Del/Veh (s)	24.5	21.3	14.5	11.4	19.2

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.1	0.1
Total Del/Veh (s)	14.8	11.7	19.1	15.5	15.1

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	3.3	0.2	0.0	0.0	0.3
Total Del/Veh (s)	11.3	37.4	4.4	2.7	10.6

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.1	0.1
Total Del/Veh (s)	20.2	16.1	10.6	8.1	12.7

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	29.6

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	352	352	337	261	201	160
Average Queue (ft)	322	239	156	122	117	85
95th Queue (ft)	395	350	277	194	195	159
Link Distance (ft)	337	337	337	293	293	293
Upstream Blk Time (%)	9	1	0			
Queuing Penalty (veh)	0	0	0			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	341	358	355	395	300	176
Average Queue (ft)	69	73	101	242	176	92
95th Queue (ft)	191	204	218	351	299	164
Link Distance (ft)	341	341	341	380	380	380
Upstream Blk Time (%)	0	0	0	0		
Queuing Penalty (veh)	2	2	2	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	174	217	156	134	137	135	92	72
Average Queue (ft)	65	133	82	23	80	61	20	26
95th Queue (ft)	142	204	153	72	131	129	65	54
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)	1	36					0	0
Queuing Penalty (veh)	2	47					1	0

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	164	213	248	229	388	200	97
Average Queue (ft)	37	83	109	29	160	82	32
95th Queue (ft)	122	164	185	138	284	178	83
Link Distance (ft)	338	338	338		377	377	377
Upstream Blk Time (%)					0		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				0	7		
Queuing Penalty (veh)				0	8		

Network Summary

Network wide Queuing Penalty: 63

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	0.7	0.2	0.0	0.0	0.1
Total Del/Veh (s)	35.7	34.4	5.1	3.6	13.9

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.2	0.1
Total Del/Veh (s)	21.1	10.7	7.5	7.6	12.7

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	2.9	0.1	0.0	0.0	0.2
Total Del/Veh (s)	10.3	36.1	4.9	3.4	17.0

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	2.0	1.2	1.0
Total Del/Veh (s)	45.0	37.6	15.0	10.9	20.2

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	31.7

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	352	302	159	194	204	181
Average Queue (ft)	274	169	65	49	77	88
95th Queue (ft)	362	298	135	146	181	159
Link Distance (ft)	337	337	337	293	293	293
Upstream Blk Time (%)	4					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	182	246	263	198	133	160
Average Queue (ft)	30	46	93	95	41	64
95th Queue (ft)	93	119	162	176	100	137
Link Distance (ft)	341	341	341	380	380	380
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	175	267	206	127	98	72	51	96
Average Queue (ft)	63	188	126	51	44	28	15	34
95th Queue (ft)	179	243	197	106	81	63	46	69
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)		49						1
Queuing Penalty (veh)		24						1

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	245	338	388	250	392	390	289
Average Queue (ft)	149	169	195	156	328	224	121
95th Queue (ft)	241	262	311	314	452	367	222
Link Distance (ft)	338	338	338		377	377	377
Upstream Blk Time (%)		0	1		10	1	
Queuing Penalty (veh)		0	2		0	0	
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				0	22		
Queuing Penalty (veh)				4	67		

Network Summary

Network wide Queuing Penalty: 98

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	1.1	0.6	0.0	0.0	0.4
Total Del/Veh (s)	20.1	18.9	17.2	11.5	18.2

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.6	0.2	0.1
Total Del/Veh (s)	10.2	9.1	21.0	19.0	14.6

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	3.3	0.2	0.0	0.0	0.3
Total Del/Veh (s)	12.6	40.6	4.7	3.3	11.8

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.2	0.1
Total Del/Veh (s)	13.8	9.6	12.8	9.2	11.2

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	28.8

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	365	352	352	228	233	184
Average Queue (ft)	304	214	163	131	125	100
95th Queue (ft)	408	337	273	208	216	168
Link Distance (ft)	337	337	337	293	293	293
Upstream Blk Time (%)	9	1	1			
Queuing Penalty (veh)	0	0	0			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	163	289	234	395	338	310
Average Queue (ft)	63	80	96	271	192	132
95th Queue (ft)	122	175	181	393	324	236
Link Distance (ft)	341	341	341	380	380	380
Upstream Blk Time (%)				1		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	174	246	232	154	159	172	116	55
Average Queue (ft)	76	148	110	39	75	57	31	35
95th Queue (ft)	161	223	197	107	131	120	81	58
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)	2	41					1	0
Queuing Penalty (veh)	2	59					2	0

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	121	158	182	242	331	225	94
Average Queue (ft)	29	78	107	35	197	107	33
95th Queue (ft)	92	133	166	156	294	201	74
Link Distance (ft)	338	338	338		377	377	377
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				0	12		
Queuing Penalty (veh)				0	14		

Network Summary

Network wide Queuing Penalty: 77

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	0.6	0.3	0.0	0.0	0.1
Total Del/Veh (s)	31.4	31.4	4.2	3.8	12.1

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.2	0.1
Total Del/Veh (s)	42.8	16.3	7.6	7.9	21.5

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	3.4	0.1	0.0	0.0	0.2
Total Del/Veh (s)	8.7	39.1	3.7	4.2	16.8

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	1.1	0.5	0.5
Total Del/Veh (s)	19.6	22.3	16.1	12.3	15.0

13: Ramp Access & 8th St Performance by movement

Movement	EBT	EBR	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.0	2.2	15.1	3.6

15: 5th Ave & Drop Off Entrance Performance by movement

Movement	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.8	0.8	1.8

17: 9th St & Drop Off Exit Performance by movement

Movement	WBT	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	1.6	9.4	1.6

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	32.2

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	351	275	136	116	117	201
Average Queue (ft)	244	147	78	39	67	105
95th Queue (ft)	321	259	131	89	119	169
Link Distance (ft)	336	336	336	127	127	127
Upstream Blk Time (%)	1			0	0	1
Queuing Penalty (veh)	0			0	0	7
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	166	166	167	232	187	222
Average Queue (ft)	102	114	137	109	35	67
95th Queue (ft)	175	164	182	195	116	149
Link Distance (ft)	96	96	96	380	380	380
Upstream Blk Time (%)	31	37	32			
Queuing Penalty (veh)	64	78	67			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	174	247	196	123	76	54	52	101
Average Queue (ft)	34	154	97	71	42	21	6	50
95th Queue (ft)	103	230	196	123	71	50	30	89
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)	0	49						3
Queuing Penalty (veh)	0	22						4

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	265	221	282	250	392	392	376
Average Queue (ft)	94	129	189	136	344	243	152
95th Queue (ft)	158	226	277	301	463	395	268
Link Distance (ft)	222	222	222		377	377	377
Upstream Blk Time (%)	0	0	3		8	1	0
Queuing Penalty (veh)	0	0	9		0	0	0
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				0	24		
Queuing Penalty (veh)				3	68		

Intersection: 13: Ramp Access & 8th St

Movement	EB	EB	EB	NB
Directions Served	T	T	TR	R
Maximum Queue (ft)	32	167	181	72
Average Queue (ft)	2	7	14	21
95th Queue (ft)	13	58	72	53
Link Distance (ft)	191	191	191	165
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: 5th Ave & Drop Off Entrance

Movement	NB
Directions Served	TR
Maximum Queue (ft)	96
Average Queue (ft)	5
95th Queue (ft)	38
Link Distance (ft)	120
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: 9th St & Drop Off Exit

Movement	WB	SB
Directions Served	T	R
Maximum Queue (ft)	73	30
Average Queue (ft)	5	7
95th Queue (ft)	29	28
Link Distance (ft)	73	54
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 324

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	0.9	0.4	0.0	0.0	0.3
Total Del/Veh (s)	22.0	18.7	14.5	14.1	17.6

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.6	0.2	0.1
Total Del/Veh (s)	7.9	8.1	23.1	20.4	14.3

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	3.5	0.1	0.0	0.0	0.3
Total Del/Veh (s)	12.5	39.8	4.1	3.8	11.3

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	0.4	0.1	0.1
Total Del/Veh (s)	13.7	12.0	11.1	9.5	11.4

13: Ramp Access & 8th St Performance by movement

Movement	EBT	EBR	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.0	2.8	9.0	3.4

15: 5th Ave & Drop Off Entrance Performance by movement

Movement	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.7	0.7	1.6

17: 9th St & Drop Off Exit Performance by movement

Movement	WBT	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	1.2	3.7	1.2

Total Network Performance

Denied Del/Veh (s)	0.4
Total Del/Veh (s)	29.6

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	357	351	332	188	184	187
Average Queue (ft)	306	233	174	113	98	111
95th Queue (ft)	389	342	295	184	168	181
Link Distance (ft)	336	336	336	127	127	127
Upstream Blk Time (%)	5	0	0	4	2	5
Queuing Penalty (veh)	0	0	0	11	7	17
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	152	162	167	395	301	254
Average Queue (ft)	33	68	125	270	197	141
95th Queue (ft)	98	138	187	361	294	229
Link Distance (ft)	96	96	96	380	380	380
Upstream Blk Time (%)	0	3	18	0		
Queuing Penalty (veh)	2	15	84	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	175	230	169	123	116	98	79	74
Average Queue (ft)	59	141	93	45	58	38	34	33
95th Queue (ft)	129	217	176	96	103	88	79	67
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)	4	41					1	0
Queuing Penalty (veh)	4	54					3	1

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	121	220	254	242	330	285	96
Average Queue (ft)	33	106	141	35	169	88	44
95th Queue (ft)	105	176	211	147	280	191	89
Link Distance (ft)	222	222	222		377	377	377
Upstream Blk Time (%)		0	0				
Queuing Penalty (veh)		0	1				
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				0	8		
Queuing Penalty (veh)				0	8		

Intersection: 13: Ramp Access & 8th St

Movement	EB	EB	EB	NB
Directions Served	T	T	TR	R
Maximum Queue (ft)	26	53	139	78
Average Queue (ft)	1	2	25	32
95th Queue (ft)	9	18	94	68
Link Distance (ft)	191	191	191	165
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: 5th Ave & Drop Off Entrance

Movement	NB	NB
Directions Served	T	TR
Maximum Queue (ft)	38	55
Average Queue (ft)	2	3
95th Queue (ft)	17	24
Link Distance (ft)	120	120
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: 9th St & Drop Off Exit

Movement	SB
Directions Served	R
Maximum Queue (ft)	30
Average Queue (ft)	13
95th Queue (ft)	38
Link Distance (ft)	54
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 206

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	1.2	0.5	0.0	0.0	0.2
Total Del/Veh (s)	37.4	34.9	4.0	4.1	13.7

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.4	0.2	0.1
Total Del/Veh (s)	33.7	24.2	10.4	10.3	19.9

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	3.2	0.1	0.0	0.0	0.2
Total Del/Veh (s)	10.0	32.6	4.7	4.2	15.2

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	2.1	1.2	1.1
Total Del/Veh (s)	20.3	21.8	17.6	12.7	15.6

13: Ramp Access & 8th St Performance by movement

Movement	EBT	EBR	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.8	2.7	10.4	4.0

15: 5th Ave & Drop Off Entrance Performance by movement

Movement	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.9	0.7	1.9

17: 9th St & Drop Off Exit Performance by movement

Movement	WBT	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	1.7	6.1	1.7

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	32.2

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	375	330	244	183	188	187
Average Queue (ft)	290	193	104	34	63	94
95th Queue (ft)	383	305	189	92	124	164
Link Distance (ft)	336	336	336	127	127	127
Upstream Blk Time (%)	8	0		0	0	3
Queuing Penalty (veh)	0	0		2	3	19
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	166	166	167	290	205	184
Average Queue (ft)	85	97	137	141	48	75
95th Queue (ft)	163	167	188	257	142	147
Link Distance (ft)	96	96	96	380	380	380
Upstream Blk Time (%)	22	32	34			
Queuing Penalty (veh)	50	72	77			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	174	293	270	175	140	135	50	141
Average Queue (ft)	53	175	114	53	47	23	8	49
95th Queue (ft)	147	240	196	112	102	69	32	99
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)	0	49						2
Queuing Penalty (veh)	0	24						4

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	248	241	307	250	411	402	368
Average Queue (ft)	114	139	177	178	361	287	160
95th Queue (ft)	203	220	267	305	456	418	270
Link Distance (ft)	222	222	222		377	377	377
Upstream Blk Time (%)	0	0	2		13	2	0
Queuing Penalty (veh)	1	1	7		0	0	0
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				1	28		
Queuing Penalty (veh)				6	86		

Intersection: 13: Ramp Access & 8th St

Movement	EB	EB	EB	NB
Directions Served	T	T	TR	R
Maximum Queue (ft)	81	190	203	74
Average Queue (ft)	4	9	22	21
95th Queue (ft)	29	70	97	52
Link Distance (ft)	191	191	191	165
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		0	1	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: 5th Ave & Drop Off Entrance

Movement	NB	NB
Directions Served	T	TR
Maximum Queue (ft)	27	60
Average Queue (ft)	1	2
95th Queue (ft)	9	20
Link Distance (ft)	120	120
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: 9th St & Drop Off Exit

Movement	WB	SB
Directions Served	T	R
Maximum Queue (ft)	120	30
Average Queue (ft)	7	2
95th Queue (ft)	46	14
Link Distance (ft)	73	54
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	2	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 354

1: 5th Ave & 8th St Performance by movement

Movement	EBL	EBT	NBT	NBR	All
Denied Del/Veh (s)	1.8	0.9	0.0	0.0	0.7
Total Del/Veh (s)	23.6	20.4	12.7	13.2	18.0

2: Portland Ave & 8th St Performance by movement

Movement	EBT	EBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.6	0.2	0.1
Total Del/Veh (s)	10.5	12.9	22.6	20.2	15.8

3: Portland Ave & 9th St Performance by movement

Movement	WBL	WBT	SBT	SBR	All
Denied Del/Veh (s)	3.1	0.2	0.0	0.0	0.3
Total Del/Veh (s)	14.8	37.7	4.8	4.3	12.0

4: 5th Ave & 9th St Performance by movement

Movement	WBT	WBR	NBL	NBT	All
Denied Del/Veh (s)	0.0	0.0	0.5	0.2	0.1
Total Del/Veh (s)	14.0	10.3	13.2	11.4	12.5

13: Ramp Access & 8th St Performance by movement

Movement	EBT	EBR	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	5.3	7.9	31.7	7.1

15: 5th Ave & Drop Off Entrance Performance by movement

Movement	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	1.8	0.0	1.7

17: 9th St & Drop Off Exit Performance by movement

Movement	WBT	SBR	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	1.3	2.4	1.3

Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	32.5

Intersection: 1: 5th Ave & 8th St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	370	351	346	225	188	187
Average Queue (ft)	325	256	217	108	89	101
95th Queue (ft)	392	373	345	195	184	172
Link Distance (ft)	336	336	336	127	127	127
Upstream Blk Time (%)	13	2	0	3	3	3
Queuing Penalty (veh)	0	0	0	11	9	11
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Portland Ave & 8th St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	TR	LT	T	T
Maximum Queue (ft)	166	166	203	396	324	286
Average Queue (ft)	50	92	155	282	205	158
95th Queue (ft)	127	163	201	389	324	274
Link Distance (ft)	96	96	96	380	380	380
Upstream Blk Time (%)	3	10	32	1		
Queuing Penalty (veh)	17	50	167	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Portland Ave & 9th St

Movement	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	L	T	T	T	T	T	T	R
Maximum Queue (ft)	174	308	171	156	158	97	120	97
Average Queue (ft)	84	143	102	56	77	51	42	47
95th Queue (ft)	162	257	175	126	132	99	96	93
Link Distance (ft)		333	333	333	289	289	289	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75							75
Storage Blk Time (%)	6	41					2	2
Queuing Penalty (veh)	7	59					6	7

Intersection: 4: 5th Ave & 9th St

Movement	WB	WB	WB	NB	NB	NB	NB
Directions Served	T	T	TR	L	LT	T	T
Maximum Queue (ft)	125	207	205	245	344	215	161
Average Queue (ft)	42	108	141	41	198	114	51
95th Queue (ft)	123	190	213	147	283	220	111
Link Distance (ft)	222	222	222		377	377	377
Upstream Blk Time (%)		0	0				
Queuing Penalty (veh)		0	0				
Storage Bay Dist (ft)				150			
Storage Blk Time (%)				0	15		
Queuing Penalty (veh)				1	17		

Intersection: 13: Ramp Access & 8th St

Movement	EB	EB	EB	NB
Directions Served	T	T	TR	R
Maximum Queue (ft)	274	273	210	158
Average Queue (ft)	9	27	72	59
95th Queue (ft)	92	132	184	128
Link Distance (ft)	191	191	191	165
Upstream Blk Time (%)	1	1	1	0
Queuing Penalty (veh)	3	4	4	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: 5th Ave & Drop Off Entrance

Movement	NB	NB	NB
Directions Served	T	T	TR
Maximum Queue (ft)	98	92	32
Average Queue (ft)	8	5	2
95th Queue (ft)	45	35	13
Link Distance (ft)	120	120	120
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: 9th St & Drop Off Exit

Movement	SB
Directions Served	R
Maximum Queue (ft)	30
Average Queue (ft)	5
95th Queue (ft)	24
Link Distance (ft)	54
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 374