

CITY COUNCIL SPECIAL WORK SESSION
February 28, 2023
6:00 p.m.
Robbinsdale City Hall
4100 Lakeview Avenue North

A G E N D A

1. CITY COUNCIL SPECIAL WORK SESSION CALLED TO ORDER BY MAYOR PRO TEM
2. ROLL CALL: Parisian, Webb, Wagner, Murphy, Mayor Blonigan
3. Discussion: Blue Line Extension Light Rail
4. Staff Updates
5. Council Updates
6. ADJOURNMENT



TO: Mayor and City Council

FROM: Tim Sandvik, City Manager

DATE: February 28, 2023

RE: Blue Line Extension Light Rail

Analysis:

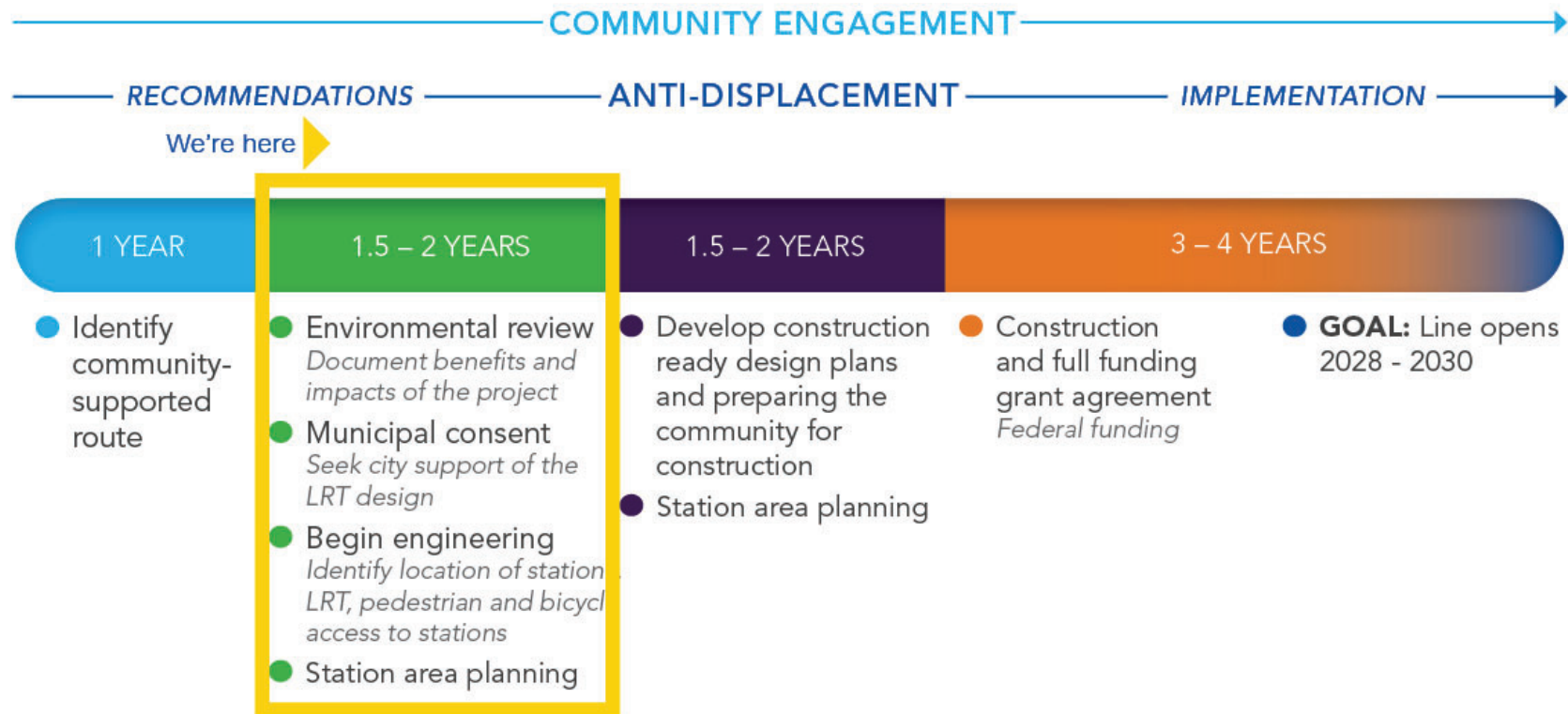
Council has scheduled a special Work Session to discuss the Blue Line Extension Light Rail project. To join the City Council and City staff, staff has invited personnel from Metro Transit, Hennepin County, HNTB, and Bolton and Menk, Inc. Staff will introduce the conversation, and provide opportunity for all to participate, but the goal of the special Work Session is to gain feedback from City Council, to better understand desires for next steps.

Packet materials have been included to help guide conversation, and staff will introduce the following:

- Workgroup/Committees governing the process
 - Corridor Management Committee (CMC), Community Advisory Committee (CAC), Business Advisory Committee (BAC), Issue Identification Team (IIT)/Issue Resolution Team (IRT), Anti Displacement Work Group (ADWG), and others...
- Timelines
 - Project Schedule and CMC Work-plan (pg 3 - 6)
 - City Timeline
 - 2/28/23 Work Session
 - 3/1/23-3/2/23 Station Area Planning
 - 3/6/23 Robbinsdale Open House (more available, including online)
 - 3/14/23 Council/Staff Work Session
 - 3/21/23 Council Meeting
 - *special Work Session/Meeting(s) as needed
 - April 2023 – Robbinsdale presents to the CMC
- Objective Review and Options Analysis (pg 7 - 10)
 - This was the outline used to solicit (eventually) HNTB for an independent review.
- City of Robbinsdale – Supplemental Environmental Impact Statement (pg 11 - 12)
- DRAFT Report from HNTB (pg 13)
 - Included in your packet is a DRAFT HNTB report, based on work over the past months. Staff will highlight areas of concern(s), and look for Council feedback, to complete the report in the coming weeks.
- Station Area Planning – Bolton and Menk, Inc.

Tim Sandvik, City Manager

Project Schedule



LRT projects are complex and unforeseen challenges arise. Schedules and timelines are subject to change.



2023 CMC Workplan

- 2023 Outreach and Engagement & CMC Workplan
 - Designed to develop policy recommendations for preferred route(s) where SDEIS includes more than one option
 - “Line, Lanes and Stations” recommendation included in SDEIS
 - One corridor city reviewed by CMC each month Feb - May



SDEIS: Supplemental Draft Environmental Impact Statement



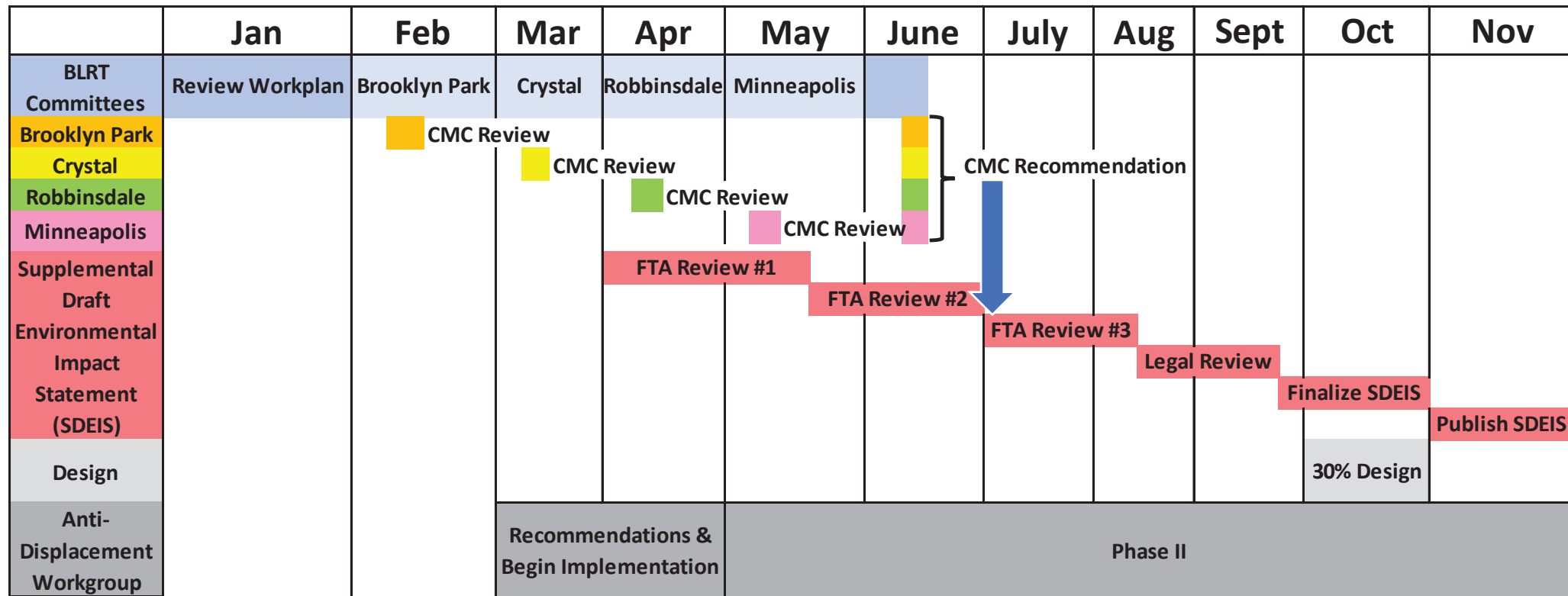
2023 CMC Workplan



	Jan	Feb	Mar	Apr	May	June	July	Aug
BLRT Committees	Review Workplan	Brooklyn Park	Crystal	Robbinsdale	Minneapolis			
Brooklyn Park		CMC Review						
Crystal			CMC Review					
Robbinsdale				CMC Review				
Minneapolis					CMC Review			
						CMC Recommendation		



2023 CMC Workplan



METRO Blue Line Extension – Objective Review & Options Analysis

PROJECT INFORMATION

The City of Robbinsdale is seeking a consultant to provide objective review and analysis services on the METRO Blue Line Extension. The proposed route within the City of Robbinsdale consists of approximately 2.3 miles of guideway along County Road 81 and includes proposed stations at North Memorial and Downtown Robbinsdale. The project has recently released a route modification report and is expecting to progress to the 30% Design Phase in the next 12 months. Robbinsdale seeks expedited information on critical impacts in the corridor to focus on problem areas as soon as possible in the process with assistance from a firm independent from the work being performed by the project. Key concerns are feasibility of the project within available width, reduction in potential redevelopment site footprints, maintaining safe pedestrian crossing including those with walkers and wheelchairs, and preventing diversion of traffic onto West Broadway and other Robbinsdale streets, as well as analysis of traffic circulation in and around the downtown area related to changes made in the CR81 corridor access and turning movements.

More information about the project can be found here:

<https://metro council.org/Transportation/Projects/Light-Rail-Projects/METRO-Blue-Line-Extension.aspx>

The selected consultant will perform the Scope of Services described below on behalf of and for the purpose of representing the interests of the City of Robbinsdale.

GENERAL INFORMATION

QUALIFICATIONS

The preferred consultant would ideally have experience working with the City of Robbinsdale or surrounding cities, have an understanding of local, county, and state transportation engineering design standards.

The Consultant will function as an extension of the City of Robbinsdale staff in providing engineering technical reviews and options analysis on project impacts, including those beyond the current curbs, pedestrian crossing, traffic diversion, and general functionality, meeting with city staff members and/or at Issue Resolution Team meetings (IRTs) when there are findings to report to the project team. There will also be two to three updates provided to the Robbinsdale City Council once there are findings to report. City and IRT meetings shall be assumed as In-person for budgeting purposes. A single individual supported by subject matter experts (SMEs) is preferred so as to streamline communication and coordination amongst partners with a focus in the following technical skills:

- Understanding of Hennepin County State Aid requirements
- Pedestrian and Accessibility Design
- Highway Design
- Drainage Design
- Public and Private Utility Engineering
- Understanding of Complete Streets Principles

METRO Blue Line Extension – Objective Review & Options Analysis

- Transit Engineering
- NEPA Compliance
- Traffic and Transportation Planning
- Redevelopment Market Analysis

BUDGET

Anticipated project budget: \$100,000

DBE GOAL

XX% indicated in the Master Services Contract

SCHEDULE

Services are expected to support through 6-12 months from Notice To Proceed (NTP) for budgeting purposes. Additional scope or contract renewal options may be authorized if deemed necessary by the Robbinsdale City Council/Hennepin County Board, signed by authorized representatives, and compliant with FTA procurement practices.

SCOPE OF SERVICES

The Supplemental Support Services Consultant shall work collaboratively with City staff to expedite examination of identified areas of concern.

Task 1 – Project Management

- Invoice preparation, administer subcontracts, scheduling, and coordination over project duration.
- Prepare monthly progress reports including bulleted narrative on work completed to date, one month look ahead, and identify potential out of scope requests or delays.

Task 2 – Stakeholder Collaboration and Meetings

- Participate in an initial in-person meeting (2hrs) to discuss concerns of Robbinsdale representatives.
- Actively prepare for and participate in meetings (1-2hrs each) on a two-weekly basis with City staff to provide information and communicate progress of action items. These meetings can be in person or remote depending on need.
- Provide any updates and /or discussion to/with the Issues Resolution Team (IRT) Meeting (1hr each) on a monthly basis. This meeting is generally remote.
- Provide progress findings to the City Council at Work Session Meetings and/or City Council Meetings. Allow for 4 meetings (1hr each).
- Assume a total of 54 hours for budgeting purposes.

METRO Blue Line Extension – Objective Review & Options Analysis

Task 3 – Technical Review and Analysis

- Review engineering memoranda, traffic analysis, and design concepts as requested up to 100 hours of support.
- Review the most recent available design drawings within the City of Robbinsdale limits to compare with independently derived information.
- Collect supplemental data as needed, prepare an objective review and options analysis of the following issues –
 - Traffic issues associated with removal of one turn lane on County Road 81 (CR81) to westbound County Road 9 (CR9); elimination of two southbound access points to boat ramp areas; removal of southbound slip lanes; removal of the ramp entry on northbound CR81 from northbound Highway 100 and impacts on other existing turn lanes at intersections along CR81 through the City. The options analysis should review impacts to surrounding streets (especially through the downtown) of any anticipated diversions and include whether the traffic issues would be ameliorated by the LRT being elevated through sections of the City.
 - Review impact of reducing the speed limit on CR81 to 35mph in terms of capacity of the road and intersections, and need for right turn lanes.
 - Review the impact of closing frontage roads and slip lanes in terms of loading additional vehicle trips into major intersections.
 - Review the impact of potential grade changes on the eastern side of intersections along the corridor, particularly at 41st Avenue for impacts on pedestrian accessibility and vehicle traction during winter.
 - Pedestrian access and safety across the proposed tracks, including impacts to mobility impaired members of the community. The options analysis should review whether these issues would be ameliorated by the LRT being elevated through sections of the City.
 - Broad environmental impacts due to the destruction of the existing landscaped median including the additional runoff impacts.
 - Impact on infrastructure within the corridor, including crossings and significantly sized routes that run parallel to the proposed guideway under the existing eastside curb.
 - Impact beyond current curbs to existing homes, businesses (including access & parking), wetlands, and parks.
 - Explore options to achieve no net loss of commercial space within the City along the corridor. Options analysis should review whether any adverse commercial site viability could be avoided by the LRT being elevated through sections of the City.
 - Broad level market comparison of existing threatened commercial areas with different scenarios to achieve equivalent tax capacity, including –

METRO Blue Line Extension – Objective Review & Options Analysis

- Preserving the existing commercial areas
- Replacing the existing commercial with high density residential.
- Replacing the existing commercial with mixed commercial at ground level with high density residential above.
- Provide analysis of market viability impact as a result of significant parking loss (30%) and reduction/constriction of commercial site access.
- Provide analysis of the spending habits of corridor transit riders compared with existing commercial retail and service demand.
- Provide analysis of the cost of relocating displaced commercial uses and what form the replaced commercial development would take.
- Circulate reviews and analyses through internal stakeholders at the City of Robbinsdale.
- Provide one final set of findings through Blue Line Project Office including City of Robbinsdale comments, by the conclusion of this contract.

Task 4 – Additional Tasks as Authorized by the City Manager

- To provide services, support, or assistance as necessary and as authorized by the City Manager.
- The fee for this contingency task should be equal to 10% of total contract value for the defined Scope of Work (Tasks 1-3)



City of Robbinsdale

4100 Lakeview Avenue North
Robbinsdale, Minnesota 55422-1898
Phone: (763) 537-4534
Fax: (763) 537-7344

Neha Damle
Environmental Lead
Blue Line Extension Project Office
6465 Wayzata Boulevard, Suite 500
St Louis Park, MN 55426

November 7, 2022

In response to the Metropolitan Council – Metro Blue Line Extension’s Project Office’s “Supplemental Environmental Impact Statement (EIS)” notice, the City of Robbinsdale (in no specific order) has prepared the following comments/concerns for consideration.

Traffic, Engineering, Displacement, and Environmental Considerations:

- Traffic issues associated with removal of one turn lane on County Road 81 (CR81) to westbound County Road 9 (CR9)
- The (potential) elimination of two southbound access points to boat ramp areas
- The (potential) removal of southbound slip lanes
- The (potential) removal of the ramp entry on northbound CR81 from northbound Highway 100
- Impacts on other existing turn lanes at intersections along CR81 through the City
- Impacts of proposed park and ride (unknown size and location)
- Additional trip generation through the City, to include potential impact on local roads and intersections
- Impact of reducing the speed limit on CR81 to 35mph in terms of capacity of the road and intersections; and need for right turn lanes
- Impact of closing frontage roads and slip lanes in terms of loading additional vehicle trips into major intersections and affected local streets with West Broadway of particular concern
- Impact of potential grade changes on the eastern side of intersections along the corridor, particularly at 41st Avenue for impacts on pedestrian accessibility and vehicle traction during winter
- Pedestrian access and safety across the proposed tracks, including impacts to mobility impaired members of the community. More specifically, whether these issues would be ameliorated by the LRT being elevated through sections of the City
- Broad environmental impacts due to the destruction of the existing landscaped median including the additional runoff impacts
- Impact on infrastructure within the corridor, including crossings and significantly sized routes that run parallel to the proposed guideway under the existing eastside curb
- Impact beyond current curbs to existing homes, businesses (including access & parking), wetlands, and parks
- Net loss of commercial space within the City along the corridor
- Tax capacity implications, including –
 - Existing commercial areas
 - Potential commercial with high density residential

- Existing residential
- Potential residential (including potential mitigation)
- Significant parking loss and reduction/constriction of commercial site access.
- Commercial impacts of transit riders
- All displaced commercial uses
- Impacts to the intersection functions, frontage roads and loss of access and parking, the option of grade separation or elevating the light rail and station platform(s) need to be considered for the 40th, 41st and 42nd Ave. N. intersections.
- Impacts of increased congestion caused by introducing the bus/transit hub and a parking ramp to the 40th, 41st and 42nd Ave. N. intersections and frontage roads.

Public Safety Considerations:

- FD and PD staff will need to be trained on how to respond to a handle a derailment. This may require an increase in staffing (and potential change in staffing models) to both Police and Fire Departments
 - Currently, 50% of Paid on Call Firefighters live on the east side of Highway 81 which would be problematic in response time for half the department in a derailment situation any response to a light rail emergency
 - Metropolitan Council, or agencies otherwise, would need to cooperate with Robbinsdale Police and Fire Departments to coordinate surrounding/assisting Police and Fire Departments to ensure proper training has occurred and proper equipment has been acquired
- Robbinsdale Fire Department and Robbinsdale Police Department personnel will need to be trained on how to handle a situation with any electrical issues that may arise
 - Metropolitan Council, or agencies otherwise, would need to cooperate with Robbinsdale Police and Fire Departments to coordinate surrounding/assisting Police Fire Departments to ensure proper training has occurred and proper equipment has been acquired
- On occasion, Robbinsdale Public Safety Personnel have been required to close County Road 81 in the case of emergencies; for similar, agencies will be required to coordinate emergency management, including Light Rail operations
- There has been limited clarification on expectations of Robbinsdale Public Safety regarding emergency management specific to a Light Rail system (for example: high voltage power lines, high voltage controls, and failure of the catenary system)
- Limited response has been provided as to the responsibilities/expectations of Metro Transit Police along the corridor entirely, and specific to Robbinsdale

Respectfully Submitted



Tim Sandvik
City Manager – City of Robbinsdale, MN

Robbinsdale BLRT Evaluation

Contents

Robbinsdale BLRT Evaluation.....	1
Purpose and Scope of Study	1
Study Understanding	2
Station Concepts	2
Other Project Discussion and Concerns.....	6
Supplemental EIS Process and Mitigation Requirements.....	8
Resources Evaluated in a SEIS.....	9
Economic Development Potential of High-Capacity Transit.....	10
Existing Market Conditions	10
Transit Rider Spending Habits.....	11
Economic Development Findings and Recommendations	12
Evaluation of Traffic Impacts	12
Removal of the 42 nd Avenue Dual NBL	13
Elimination of the Two SB Access Points to Boat Ramps.....	13
Removal of SB Slip Lane to 39 th Avenue N.....	14
NB TH 100 to NB CR 81 Loop Ramp	15
Elevating the BLRT	15
Other Vissim Observations	15
Reduced Speed Limit and Right Turn Lanes.....	19
Longitudinal Grade Changes	20
Pedestrian Safety	20
Evaluation of Potential Robbinsdale Segment Park-and-Ride Options	22
Evaluation Methodology and Findings	23
Traffic Impact Evaluation	24
Parking and Pedestrian Access Impacts.....	37
Land Use and Redevelopment Impacts	39
Summary of Evaluation Findings.....	42
Using City Priorities to Site Park-and-Ride.....	44
Appendix A: SEIS Evaluation Methodology (selected)	48
Transportation	48

Acquisitions and Displacements	49
Economic Development.....	49
Parks and Recreational Amenities	50
Visual and Aesthetics	50
Appendix B: Technical Memorandum - Geometric Considerations	52
Appendix C: Park-and-Ride Sizing Evaluation	57
US Bank Lot	57
Elim Church	60
Gearty Delmore Funeral Lot	62
Walgreens Lot	64

DRAFT

Purpose and Scope of Study

The METRO Blue Line Extension (herein referred to as the "Project") began seeking feedback in March 2021 on revised routes that do not use freight rail property, as was previously planned. Details about the processes and work completed through 2022 can be found [here](#). Based on technical considerations, community input, and past project work, a route recommendation was released in April 2022. The current planned alignment connects communities from northwestern Minneapolis to Brooklyn Park.

The proposed route within the City of Robbinsdale (herein referred to as "the City") consists of approximately 2.3 miles of guideway along County Road 81, and includes proposed stations at North Memorial Health Hospital and Downtown Robbinsdale. Information presented at the Metro Blue Line Extension Open House for Robbinsdale in October 6, 2022, including potential station areas and park-and-ride locations, is available here: [Robbinsdale Meeting Materials \(metrocouncil.org\)](#).

A Draft Supplemental Environmental Impact Statement (SEIS) is now underway with publication anticipated in fall / early winter 2023. The SEIS will update the anticipated social, economic, and environmental impacts to reflect the refined project alignment. The Final SEIS/Record of Decision (ROD) is anticipated in late 2024¹ and will document proposed mitigation of any project impacts. The Project plans to progress to 30% design by fall / early Winter 2023.

The City has sought a consultant to provide objective review and analysis services on the Project. Key areas of concern include:

- Feasibility of the Project within available right-of-way (ROW);
- Reduction in site footprints of potential redevelopments;
- Maintaining safe pedestrian crossings, in particular for those with walkers and wheelchairs;
- Preventing diversion of traffic onto West Broadway and other local streets; and
- Analyzing traffic circulation in and around the downtown area related to changes made in the County Road 81 corridor access and turning movements.

Specific questions related to these concerns were used as a guide to provide an objective review and analysis of the potential impact of the Project on the downtown Robbinsdale area. Additionally, the location of a park-and-ride and associated station locations were reviewed and compared as part of this evaluation.

¹ [Environmental - Metropolitan Council \(metro council.org\)](#)

Study Understanding

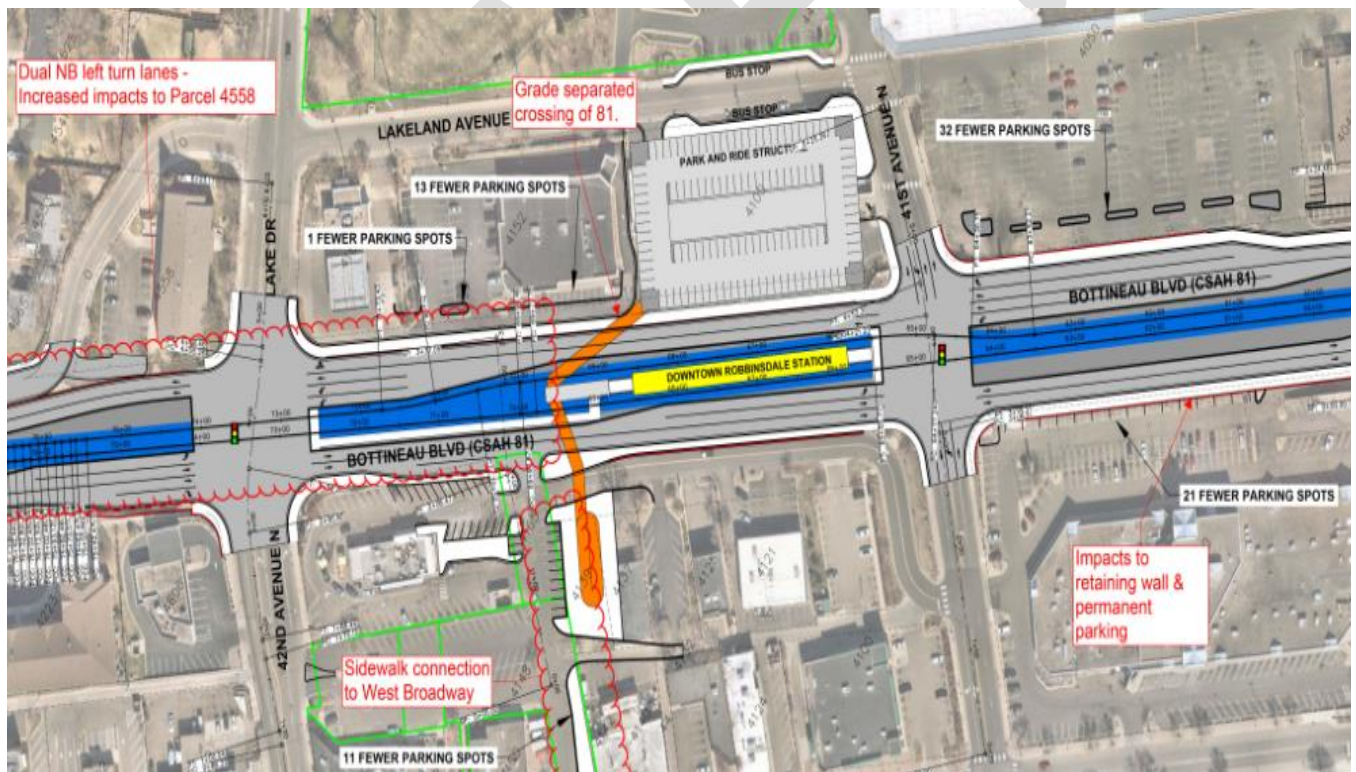
Station Concepts

It is anticipated that the Blue Line Light Rail Transit (BLRT) would serve the downtown Robbinsdale with a transit station and associated 250 stall park-and-ride facility. The City provided two potential station boarding platform locations at the Project kickoff meeting on October 6, 2022. The first station location option is at 41st Avenue (Station Options A1 and A2) with a proposed park-and-ride structure located at the northeast corner of 41st Avenue and County Road (CR) 81. The second station location option is at 40th Avenue (Station Options B, C, and D) with a proposed park-and-ride structure near the southwest corner of 40th Avenue and CR 81.

Station Option A1

Station Option A1 Includes one center-loading platform north of 41st Avenue, as shown in **Exhibit 1**. This option would include a pedestrian bridge and an access tower connection across CR 81, and results in 14 fewer parking stalls north of the parking garage, 32 fewer stalls at lower Robin Center, 21 fewer stalls at upper Robin Center, 11 fewer stalls at Ace Hardware, and a parking lot reconfiguration at the McDonald's.

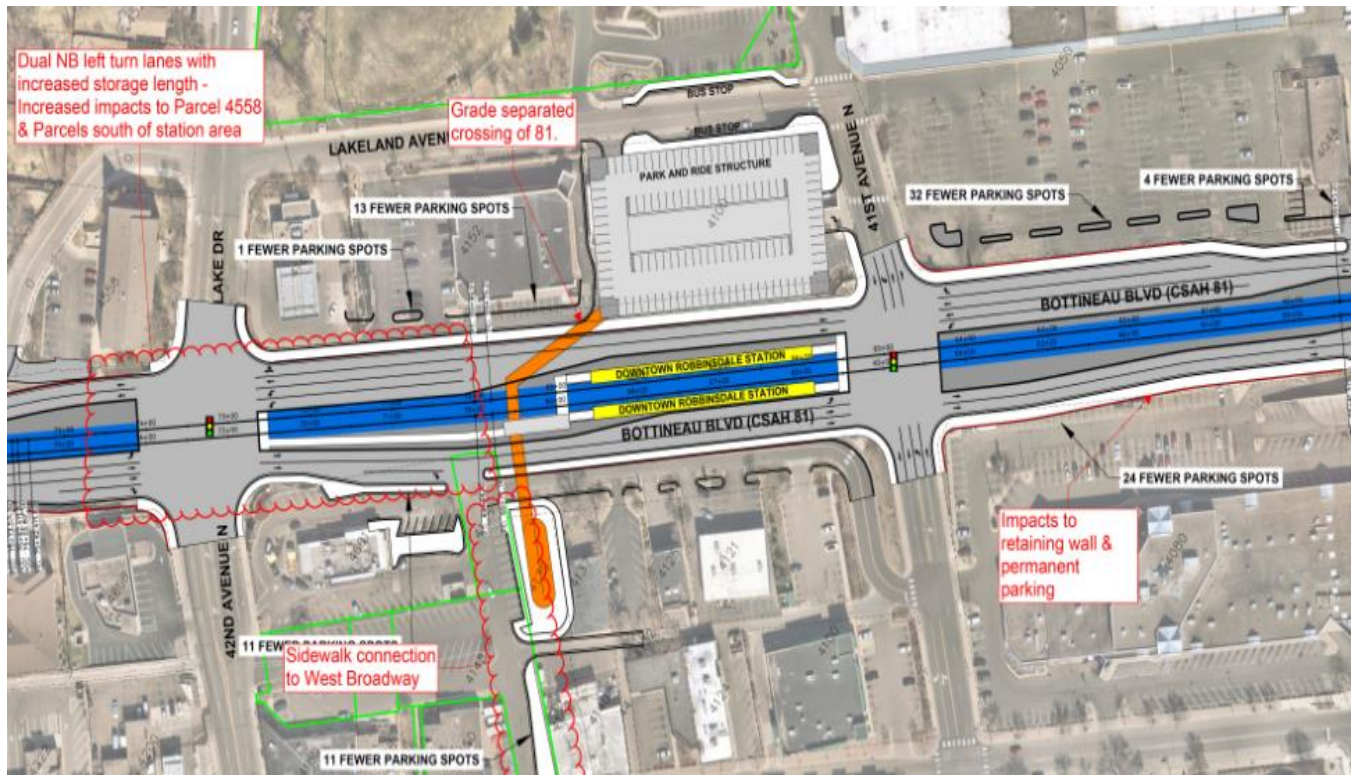
Exhibit 1: Station Option A1 (Image with notes provided by METRO Blue Line Extension Project Team)



Station Option A2

Station Option A2 is variation of Station Option A1 that includes two side-loading platforms north of 41st Avenue, as shown in **Exhibit 2**. This option includes a pedestrian bridge and access tower connection across CR 81, and results in 14 fewer parking stalls north of the parking garage, 36 fewer stalls at lower Robin Center, 24 fewer stalls at upper Robin Center, 22 fewer stalls at Ace Hardware, and a parking lot reconfiguration at the McDonald's.

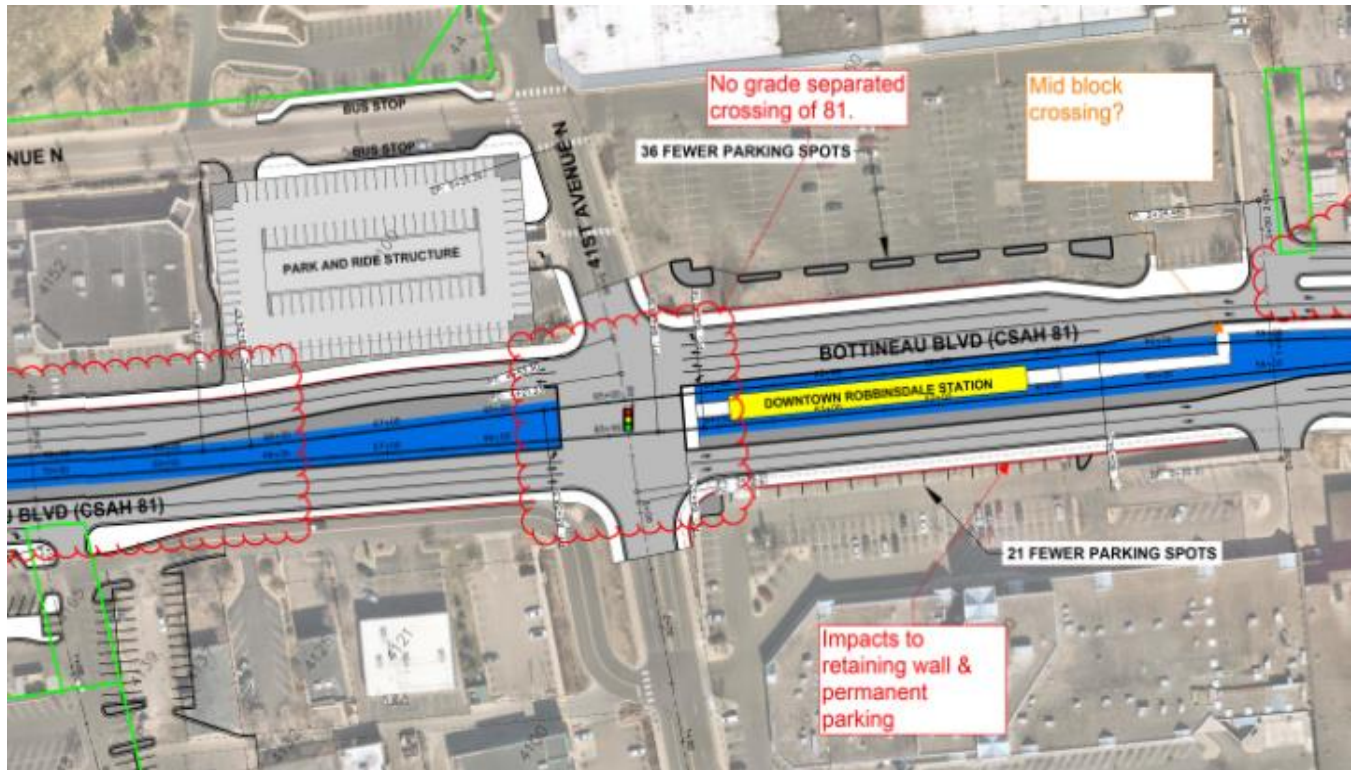
Exhibit 2: Station Option A2 (Image with notes provided by METRO Blue Line Extension Project Team)



Station Option B

Station Option B Includes one center-loading platform south of 41st Avenue, as shown in **Exhibit 3**. This option does not include pedestrian bridge connection across CR 81, and would result in one parking stall removed north of the parking garage, 36 fewer stalls at lower Robin Center, 21 fewer stalls at upper Robin Center, and a parking lot reconfiguration at both Ace Hardware and McDonald's.

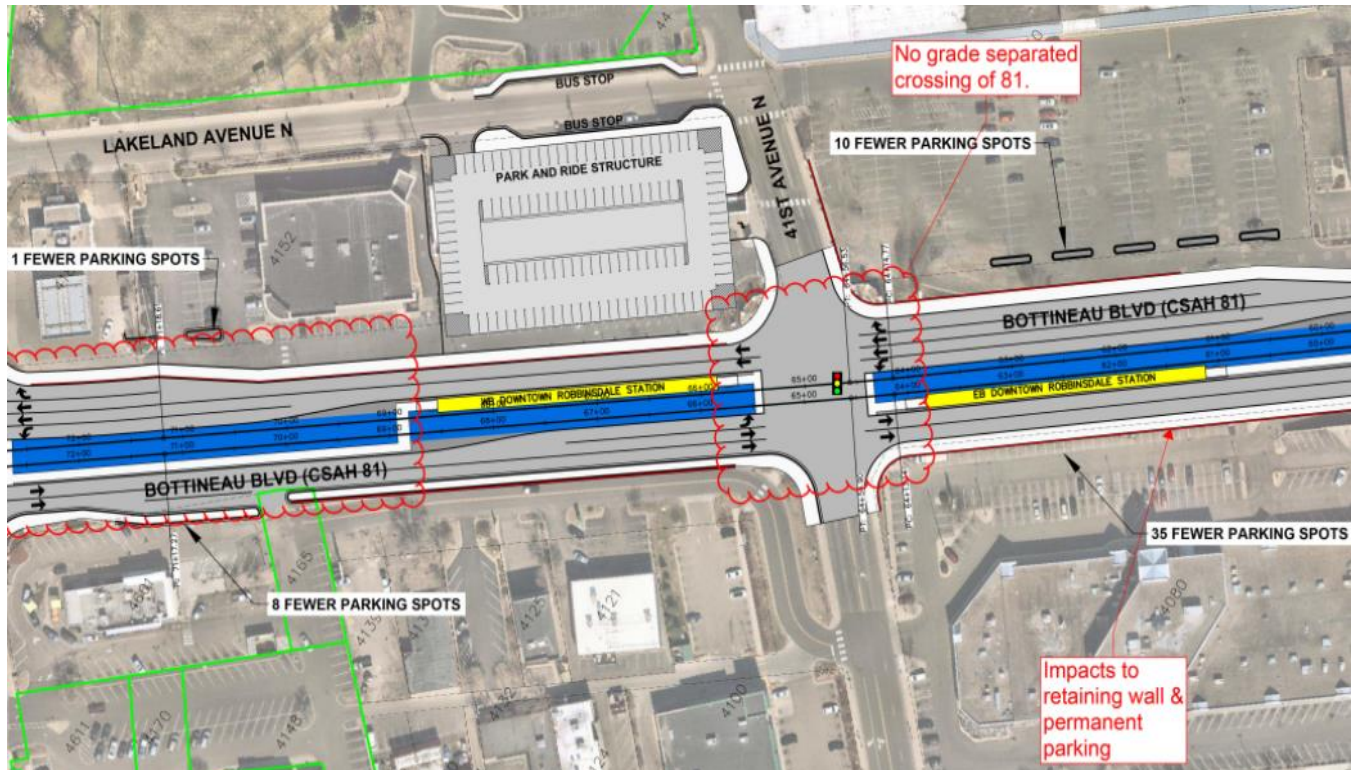
Exhibit 3: Station Option B (Image with notes provided by METRO Blue Line Extension Project Team)



Station Option C

Station Option C includes platforms split across 41st Avenue, as shown in **Exhibit 4**. This option would not have a pedestrian bridge connection across CR 81, and would result in 1 parking stall removed north of the parking garage, 10 fewer stalls at lower Robin Center, 35 fewer stalls at upper Robin Center, and 8 fewer stalls at the McDonald's.

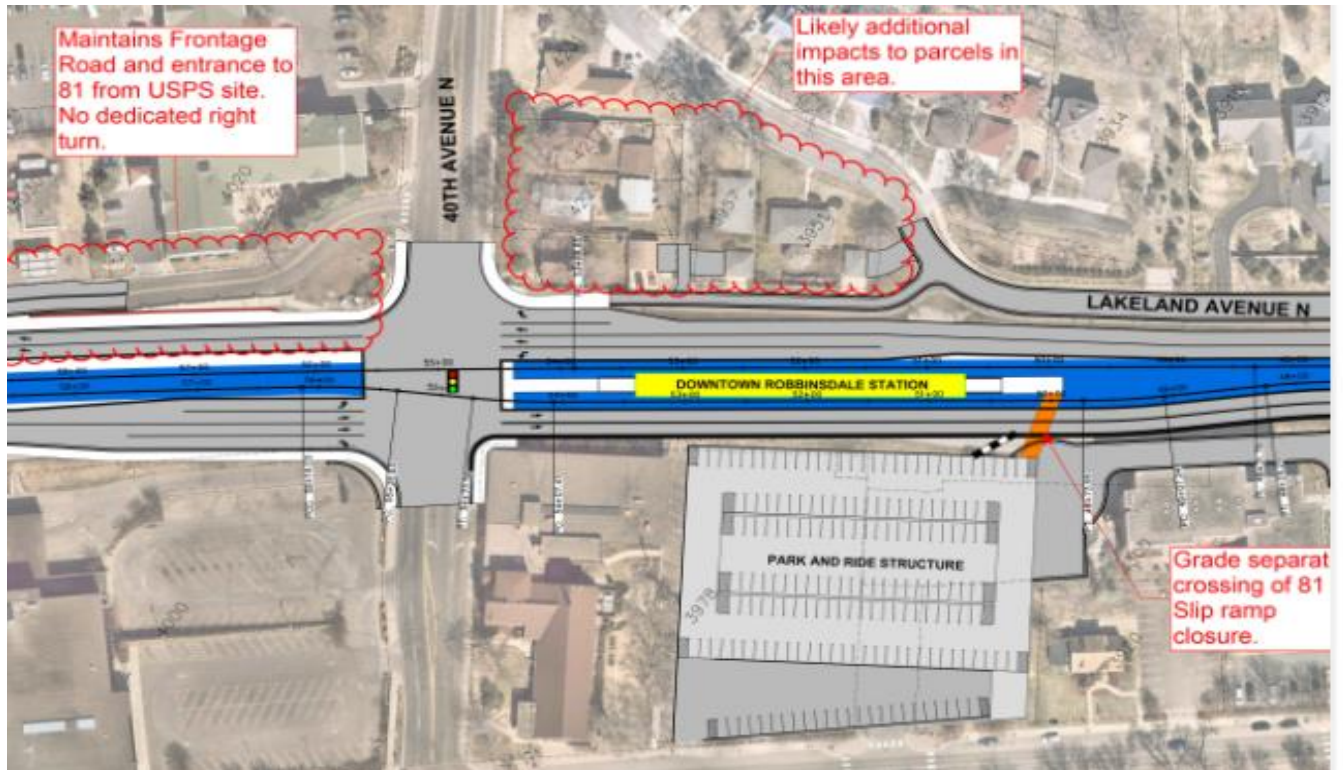
Exhibit 4: Station Option C (Image with notes provided by METRO Blue Line Extension Project Team)



Station Option D

Station Option D includes one center-loading platform south of 40th Avenue, as shown in **Exhibit 5**. This option includes a pedestrian bridge connection across CR 81 and would result in 36 fewer parking stalls at lower Robin Center. It should be noted that the City has approved a redevelopment on the proposed garage site and has identified a potential alternative garage site one block south at 39th Street.

Exhibit 5: Station Option D (Image with notes provided by METRO Blue Line Extension Project Team)



Other Project Discussion and Concerns

The City has articulated several local concerns related to the proposed updated alignment included in a resolution passed on May 17, 2022 by the City Council² during the Scoping comment period for the SEIS. These considerations and concerns are generally summarized below:

- Changes to traffic flow (e.g., elimination of turn lanes) could lead to additional congestion in the downtown area. CR 9 across CR 81 is a major route for funeral processions from the west to Crystal Lake Cemetery. Additionally, Winter weather is challenging for traffic moving east to west due traction issues. The City seeks assurance that traffic capacity and flow on CR 81 would be sufficient to prevent traffic diversion onto West Broadway Avenue.
- A Significant multi-family residential redevelopment is underway within the vicinity of the downtown area. This redevelopment will convert commercial properties along CR 81 into 500 to 650 units.

² City of Robbinsdale Resolution No. 7979, 2022. [Res 7979 \(robbinsdalemn.com\)](https://robbinsdalemn.com/resolutions/7979/)

- The proposed new BLRT alignment and relocated garage and bus transfer facility would displace existing commercial properties, including those with the highest traffic visibility and value, with tax-exempt property.
- The 2006 reduction in parking capacity for the CR 81 reconstruction led to one major business relocating and contributed to parking from the shopping center and remaining restaurant overflowing into the City Hall and adjacent lower Robin Center parking lots.
- It will be imperative to continue local bus service (Route 14) to destinations on West Broadway Avenue.
- The proposed impact to Robin Center would narrow the potential redevelopment footprint and restrict access to Robin Center, which could hinder future developments. Robin Center is the largest, one-owner, potential redevelopment area in Robbinsdale. Redevelopment of Robin Center, in addition to difficulty in finding available areas to relocate existing businesses in an already full commercial area, will be challenging given the narrowed footprint and costs to remediate poor soils on the east side of CR 81.
- Robbinsdale values its small-scale main street, as shown in the transit-oriented development (TOD) overlay district and earlier station area plans highlighting the preservation of the one to two-story downtown area. The TOD planning effort and zoning updates did not consider which land uses would benefit from transit, and which land uses would not realize a reduction of the need for parking. Overall, the reduction of parking requirements needs to be revisited and increased depending on land use.

Added clarification of City concerns was provided at a coordination meeting between HNTB and City staff held on November 21, 2022. This information is summarized below:

- Traffic concerns center around intersection capacity, specifically the ability to accommodate the additional traffic generated by park-and-ride garage users and rerouted buses.
- Bus routes into the City are primarily to allow for transfers rather than directly serving the downtown, moving the routes away from the current Hubbard Marketplace building is desirable. Making sure bus service is convenient for multi-family residents is important as this type of development is increasing just south of the downtown on CR 81.
- At the current proposed park-and-ride garage location, the City has the following concerns:
 - In addition to the displacement of the existing multi-tenant commercial building, ingress and egress for the adjacent CVS directly to the north would be compromised.
 - The proposal to relocate the time bus transfer facility to curbside along Lakeview Avenue adjacent to City Hall is “workable but not ideal.”
- The 2006 expansion project to reconstruct CR 81 through Robbinsdale impacted the “edges” of several adjacent parking lots and necessitated the construction of frontage roads to maintain access to individual parcels. This frontage road configuration is particularly prominent in the downtown area along the west side of CR 81 between 41st Avenue and 40th Avenue.
- The Elim Church site at 40th Avenue and CR 81 has proposed a redevelopment. As a result, this site is likely no longer available as a potential park-and-ride garage location. However, the Gearty Delmore

Funeral Chapel located at 3888 West Broadway Avenue and associated parking lot one block to the south is a potential site that is in close proximity to multi-family residences and would not displace active commercial land use.

- The station area plan that was developed based on the prior proposed station location at the BNSF tracks included a number of ideas that did not have broad local support, including:
 - A mid-block “pedway” for circulation east-west. Circulation along 41st Avenue would work just as well, and the recent approval of the expansion of the Ace Hardware makes this midblock connection impossible to pursue.
 - A relocation/replacement of City Hall, though mixed-use redevelopment options over time at Robin Center would be considered.
- Robin Center (upper and lower) are the most visible commercial properties, and most “ripe” for potential redevelopment. However, the Center was built over a prior waterway and likely has significant soil quality issues that could hamper redevelopment.
- West Broadway between 41st and 42nd Avenues is the “sacred” core of the downtown. The City does not wish to impact this corridor with additional density or traffic, but instead maintain the walkable environment that supports small businesses.
- Recent construction of multi-family residential developments has occurred further south on CR 81, extending down to 36th Avenue primarily on the east. Additionally, there is a great deal of naturally occurring affordable housing in that area, primarily on the westside.
- While the overall tax base may increase more with new multi-family residential compared new commercial developments, City staff are concerned about becoming overly reliant upon new multi-family residential construction and wish to maintain balance by not losing commercial business capacity over time.

Supplemental EIS Process and Mitigation Requirements

The National Environmental Policy Act (NEPA) requires consideration of the direct and indirect impacts of a proposed action and its alternatives on the environment. Direct effects are those that are caused by the action and occur at the same time and place. Indirect effects are those that are caused by the action and occur later or farther away (off-site) but are still reasonably foreseeable. Potential measures to mitigate adverse environmental effects also must be considered. Section 1508.20 of CEQ Regulations defines mitigation as including:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

The Supplemental Environmental Impact Statement (SEIS) for the Project, anticipated to be complete in fall / early winter 2023, will summarize the existing human and natural environment within the study area and document the effects of the Project on the resources listed below. For each resource, the

potential direct and indirect construction and operational impacts of the Project will be analyzed and documented. Additionally, measures to minimize harm or mitigate impacts will be identified. For ease of reference, **Appendix A: SEIS Evaluation Methodology (selected)** describes in more detail the processes for evaluating the effects on the transportation system and access, acquisitions (property impacts), economic development, recreational amenities, and visual and aesthetics, which the City has indicated are of greatest interest / concern in the upcoming SEIS process.

Resources Evaluated in a SEIS

- **Transportation** – evaluates effects on transit, freight rail, pedestrian and bicycle facilities, traffic, and parking.
- **Land Use and Zoning** – assesses potential changes in land use and zoning and consistency with land use plans, zoning, and development policies.
- **Acquisitions and Displacements** – identifies areas where property would need to be acquired as part of the Project.
- **Socioeconomics and Economic Development** – describes the effects on population and employment, including transit-dependent and elderly populations, and populations with disabilities. This evaluation also discusses the economic development potential at station areas and estimates the jobs and revenues that would be generated by Project construction and operations.
- **Neighborhoods and Community Resources** – considers the effects of the Project on neighborhoods, community cohesion, and community resources. Community resources include, but are not limited to, educational facilities, parks and recreational facilities, cultural centers, places of worship, emergency response providers, and community centers.
- **Environmental Justice** – evaluates whether the Project would have disproportionately high and adverse impacts on low-income and minority populations. The environmental justice analysis is typically completed after the impact assessments for the other environmental resources are complete to ensure that any potential disproportionately high or adverse effects on environmental justice populations have been fully considered and documented.
- **Parks and Recreation** – assesses the impacts of the Project on parks and recreational facilities.
- **Cultural Resources** – evaluates the potential for impacts to historic and archaeological resources.
- **Noise and Vibration** – measures the noise and vibration impacts of the Project on noise-sensitive receptors, such as adjacent residential uses, educational facilities, medical facilities, places of worship, and parklands.
- **Visual and Aesthetics** – assesses how the Project would affect visually-sensitive resources and visual changes in the study area. Consideration is given to the visual compatibility of the Project with the aesthetic of the existing neighborhoods and community resources, historic resources, and parks and recreational areas. Photos of existing conditions in the study area and sample renderings of the Project are included in the analysis.
- **Air Quality** – forecasts the potential effects of the Project on air quality using vehicle miles traveled (VMT) produced by the ridership model and hot spot analysis for failing intersections, if applicable.
- **Energy and Electromagnetic Disruption** – assesses the potential effects the Project would have on energy consumption, including potential energy needs and savings associated with VMT reductions. Electromagnetic field (EMF) impacts associated with the electrified project are also discussed.
- **Soils and Geology** - identifies impacts related to how soils and geologic resources may affect the construction or operation of the Project.

- **Water Resources** – determines impacts to wetlands, surface waters, floodplains, water quality, groundwater, and stormwater.
- **Threatened and Endangered Species** – evaluates potential impacts to threatened and endangered species and critical habitats located in the study area.
- **Hazardous Materials** – identifies hazardous materials in the study area and describes the effects of those sites on the Project.
- **Safety and Security** – describes the safety and security impacts and benefits on emergency response, passenger safety, and bicycle and pedestrian safety.
- **Utilities** – identifies what utilities would need to be relocated due to the Project.

Economic Development Potential of High-Capacity Transit

The City has an established downtown that is home to restaurants, shops, goods and services, and recreational areas—all of which generate a local and regional attraction. As stated in the City’s 2040 Comprehensive Plan,³ the downtown area hosts a concentration of employment and economic activity, including several family-owned business, within a pedestrian-friendly environment. Further, the Citywide plan states a potential BLRT station on the west edge of the downtown area would likely increase activity, including pedestrian traffic and redevelopment initiatives, such as TOD opportunities that foster mixed-use, higher-density buildings within a walkable, connected network, to create a thriving commercial district. The proposed alignment of the BLRT in the median of CR 81 requires an adjustment of localized land use strategies, but is within the same expectation of an overall positive impact for downtown Robbinsdale.

Existing Market Conditions

Per City’s 2040 Comprehensive Plan, business development and population growth have been steadily increasing since 2010. Robbinsdale continues to generate a consistent number of residents that live and work in town, while also drawing employees that live elsewhere, mostly in Minneapolis.

According to the U.S. Census⁴, from 2017 to 2021, about 19 percent of average household incomes were spent on housing and 16 percent on transportation. In Robbinsdale, approximately 28 percent of households spent more than 30 percent of their household income on housing, which is above the statewide average of 26 percent. Based on these statistics, it can be concluded that most Robbinsdale residents have a relatively moderate rate of spending power that can influence local and regional consumer spending.

The City is also home to a variety of businesses serving both a local and regional customer base. Per the most recent U.S. Census data⁴, most businesses are in retail/trade, technical and professional services, healthcare and social services, food services and accommodations, and public administration and related governmental businesses. Business sales and revenue numbers have increased over 20 percent (reaching over \$1 billion) since 2012, indicating positive and stable growth. While these numbers are not

³City of Robbinsdale, *Robbinsdale 2040 Comprehensive Plan*, 2021. [Robbinsdale 2040 Comprehensive Plan | Robbinsdale, MN \(robbinsdalemn.com\)](https://robbinsdalemn.com/2040-Comprehensive-Plan/)

⁴ All U.S. Census American Community Survey data provided online for 5-Year Average Estimates, 2017-2021. [American Community Survey \(ACS\) \(census.gov\)](https://census.gov/acs/)

solely associated with businesses in the City's downtown core, businesses in and around downtown have contributed to this healthy uptick in economic growth.

In the absence of existing market conditions and consumer spending information of residents and visitors in downtown Robbinsdale, it is reasonable to assume the moderate rate of household buying power combined with business and revenue growth would support additional business development located at or near a future BLRT station in the downtown environs.

In the event that new development or redevelopment of existing parcels occurs along the proposed BLRT alignment, the expected resulting increase in housing, jobs, and businesses would generate a greater level of attraction for new and existing residents, employees, and visitors. In addition, the proposed BLRT would provide another alternative for commuting to Robbinsdale from other areas, increasing out-of-town spending from employees and visitors.

Transit Rider Spending Habits

There are several case studies and precedents that illustrate the relationship between consumer expenditures and trip-making behavior before and after the implementation of a major transit investment, such as high-frequency bus rapid transit, LRT, or similar services. Furthermore, with increased emphasis on livability, environment, public health, and economic impacts of transportation, cities increasingly understand the broader benefits of major transit investments on local businesses.

While skepticism or resistance can still exist from the business community due to uncertainty surrounding the benefits and burdens of these projects, most of the skepticism is based largely upon the perception that investments and policies that encourage transit, cycling, and walking may inhibit vehicle use, and therefore interfere with their business model that depends largely upon an auto-oriented customer base.

The American Public Transportation Association (APTA) is an organization comprised of members and representatives from every public transportation agency in the United States. APTA has conducted several studies to assess the performance of transit agencies and their services. In 2017, APTA completed a report to understand the demographics and socioeconomic background of transit riders.⁵ Key takeaways of the report are that 79 percent of all transit riders fall into the most economically active age range (25 to 54 years old), 71 percent of all riders are employed, and 7 percent are students. Therefore, it can be concluded that 78 percent of transit riders are either currently employed or preparing for employment. More importantly, the study concluded that a total of 87 percent of transit trips involve direct economic impact on the local economy. This includes getting to/from work (49 percent), shopping (21 percent), and recreational spending in the local economy (17 percent).

While dedicated transit service and related facilities (e.g., transit station and rider amenities) can yield positive economic returns, the presence of more multimodal investments in and around transit station areas can also support local commerce and social activity. Recent studies have shown the economic benefits of multimodal investments on community streets, and how such actions have supported local businesses adjacent to these transportation projects. A study conducted in Portland, Oregon looked at the demographics of various patrons of local businesses throughout the City. Interestingly, the study

⁵ American Public Transit Association (APTA), *Who Rides Public Transportation – Passenger Demographics & Travel Report*, 2017. [Who Rides Public Transportation - American Public Transportation Association \(apta.com\)](https://www.apta.com/who-rides-public-transportation)

concluded that car drivers spent more money on single visits to grocery stores and restaurants, while people arriving via foot, bicycle, or public transit visited these locations more often.⁶ In Memphis, Tennessee, community organizations worked with the City to transform the Broad Avenue Art District by implementing a road diet, removing on-street parking, adding bike lanes, and widening sidewalks. As a result, since 2010 there has been over \$6 million in new private investment and nearly 40 new businesses opened in the district⁷.

Economic Development Findings and Recommendations

There is a direct nexus between major transit service and multimodal infrastructure and economic performance related to homes, businesses, and jobs located at and near these transportation investments. Research studies have shown a correlation in increased localized consumer spending and an increase in mobility opportunities, largely associated with “permanent” investments such as dedicated, frequent transit service, bike lanes, and reallocating space for pedestrian amenities, such as outdoor seating. Those who drive, ride public transit, and frequently or occasionally bike will all continue to shop and patronize local businesses.

The introduction of the BLRT service and supporting transit-supportive businesses coming to Downtown Robbinsdale aligns with established goals for the City’s future. While downtown currently draws a local and regional market for residents, employees, businesses, and visitors, the BLRT service can further expand consumer spending and increased resident and non-resident spending power for businesses, while further contributing the City’s positive economic growth.

It is recommended that the City develop a method to collect and analyze consumer spending (e.g., patronage demand, receipts, mode choice surveys, etc.) and work with businesses to identify economic and market conditions, and to track economic performance before and after the potential BLRT service is in operation.

Evaluation of Traffic Impacts

HNTB completed a review of traffic impacts of concern to the City. This includes concerns associated with:

- Removal of one turn lane on County Road 81 (CR 81) to westbound County Road 9 (CR 9).
- Elimination of two southbound access points to boat ramp areas.
- Removal of a southbound slip lane.
- Removal of the ramp entry to northbound CR 81 from northbound TH 100.
- Impacts on other existing turn lanes at intersections along CR 81 through the City.

The options analysis should also review impacts to surrounding streets (especially through the downtown) of any anticipated diversions and include whether the traffic issues would be ameliorated by the BLRT being elevated through sections of the City. Discussion specific to BLRT elevation is included in **Appendix B: Technical Memorandum - Geometric Considerations**.

⁶Bicycle Coalition, “Bicycles are Business: What Research Says about Bicycling’s Economic Benefit”, 2014. [Bicycles are Business: What Research Says About Bicycling's Economic Benefits - Bicycle Coalition of Greater Philadelphia](#)

⁷ Smart Growth America. <https://transportation.art/2021/04/06/broad-avenue-arts-district/>

Removal of the 42nd Avenue Dual NBL

There are existing dual 300-foot northbound left (NBL) turn bays on CR 81 at 42nd Avenue. The Future Build Vissim model includes a single 350-foot turn bay, and 2040 Build Peak Hour volumes are 159/234 (AM/PM). Visual observation of the AM and PM peak hour models shows queues dissipate within one cycle length. The *Traffic Operations Technical Memorandum – Metro Blue Line LRT Extension (BLRT)* states that operations are under capacity and therefore these volumes can likely be accommodated with a single NBL turn lane and the signal timings modeled.

Elimination of the Two SB Access Points to Boat Ramps

Crystal Lake

The southbound left (SBL) movement at Lakeland Avenue N to Crystal Lake is removed in the Future Build Vissim model. The Future No Build Vissim model has no volume to this boat ramp, and the existing SBL turn lane is not included. StreetLight Data was used to gather 2019 existing turning movement volumes. On average, 13 SBL turning vehicles are observed in the weekday daily volume set analyzed. All vehicles were observed between 2:30pm and 6:00pm. On weekends, average 18 SBL turning vehicles were observed between 10:45pm and 7:00pm.

As an alternative route, U-turns at the 36th Avenue signal may be undesirable/impossible for vehicles pulling trailers, and there is not another realistic or reasonable alternate route available using CR 81. Diversion to France Avenue is likely undesirable as shown in **Exhibit 6**. The Project could investigate establishing a connection or frontage road to the northern parking lot and the boat ramp from 36th Avenue. If no new connection is provided, vehicles could be directed to use TH 100 to 36th Avenue.

Exhibit 6: SBL at Lakeland Avenue to Crystal Lake –Alternate Route if Using CR 81

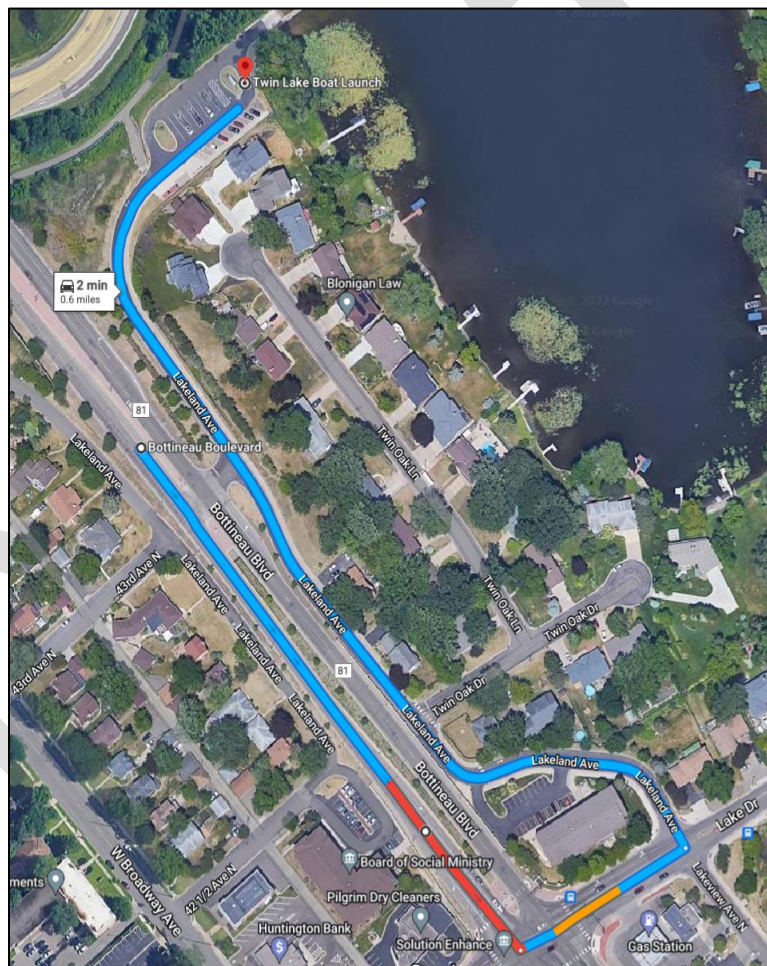


Twin Lake

The SBL at Lakeland Avenue N to Twin Lake remains in the Future Build Vissim model, but does not have a route or any vehicles making the movement. The Future No Build Vissim model maintains the SBL movement, but similarly has no volume to the boat ramp. StreetLight Data was used to gather 2019 existing turning movement volumes. 41 SBL turning vehicles are observed in the daily volume set analyzed. Between 11:00am and 7:00pm, the highest hourly volume making a SBL movement is 4. On weekends, 18 average SBL turning vehicles were observed between 1:15pm and 7:00pm.

If the movement is removed, this location has existing access that would be maintained from Lake Drive and make a logical detour that could be utilized with vehicles pulling trailers. (See **Exhibit 7.**) While this is a low volume movement, the route does provide access to several homes.

Exhibit 7: SBL at Lakeland Avenue North to Twin Lake - Alternate Route



Removal of SB Slip Lane to 39th Avenue N

The southbound (SB) slip lane to 39th Avenue N is removed in the Future Build Vissim model, meaning vehicles would need to use the 40th Avenue signal and Broadway Avenue. 2040 Build Volumes for the southbound right (SBR) to 40th Avenue are 36/65 in the AM/PM peak hours. The Future No Build Vissim model also does not include the SB slip lane. StreetLight Data was used to gather 2019 existing turning movement volumes. 981 SB vehicles are observed on the slip ramp in the daily volume set analyzed. The

highest AM hourly volume on the SB approach is 51 vehicles (7:00am), and the highest PM hourly volume is 79 vehicles (3:00pm).

If forecasts do not already include the rerouted existing slip lane volumes, this is a small amount of traffic for the roadway network to accommodate.

NB TH 100 to NB CR 81 Loop Ramp

The Build Alternative modeled in Vissim retains the existing northbound (NB) TH 100 to NB CR 81 loop ramp, and 2040 Build Volumes are 403/1024 (AM/PM). The three roll plot alternatives also retain the ramp. In one alternative drawing it is shown combined with the signalized intersection, this may be less desirable for vehicle operations but could provide some benefit to other modes of travel depending on the chosen alternative. More information would be necessary to evaluate this change.

Elevating the BLRT

Elevating the BLRT is discussed in more detail in **Appendix B: Technical Memorandum - Geometric Considerations**. Based solely on observation of the models, the Build 2040 volumes are accommodated within the corridor. Queues dissipate quickly and signal timings allow for progression.

Other Vissim Observations

Queues

Queues are observed in both the AM and PM peak hour Build Vissim models. Queues tend to clear within one signal cycle length and dissipate quickly. In the AM peak hour, queueing was seen SB at 42nd Avenue and 36th Avenue. See **Exhibit 8** and **Exhibit 9**.

Exhibit 8: 42nd Avenue 7:03 (AM)

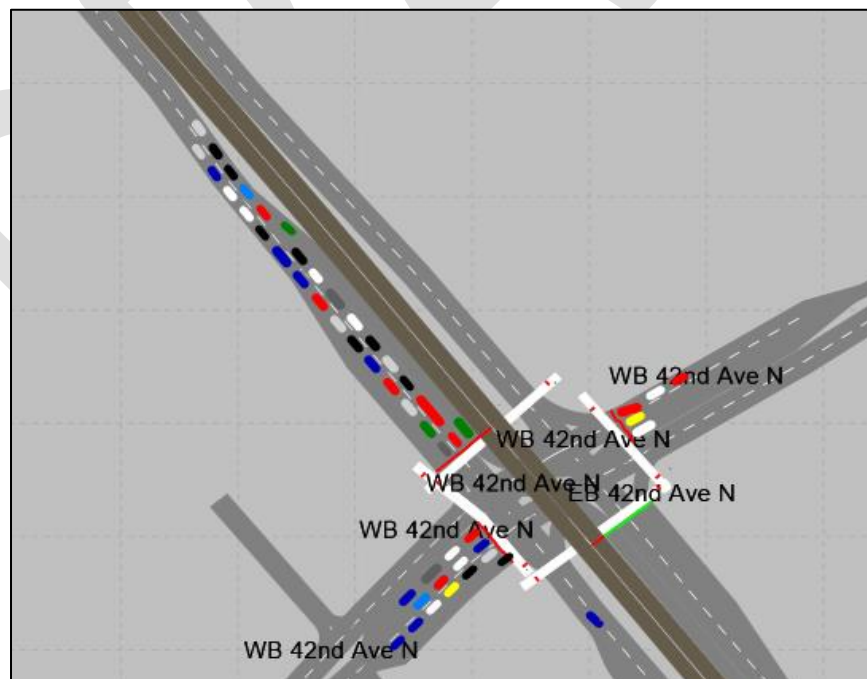
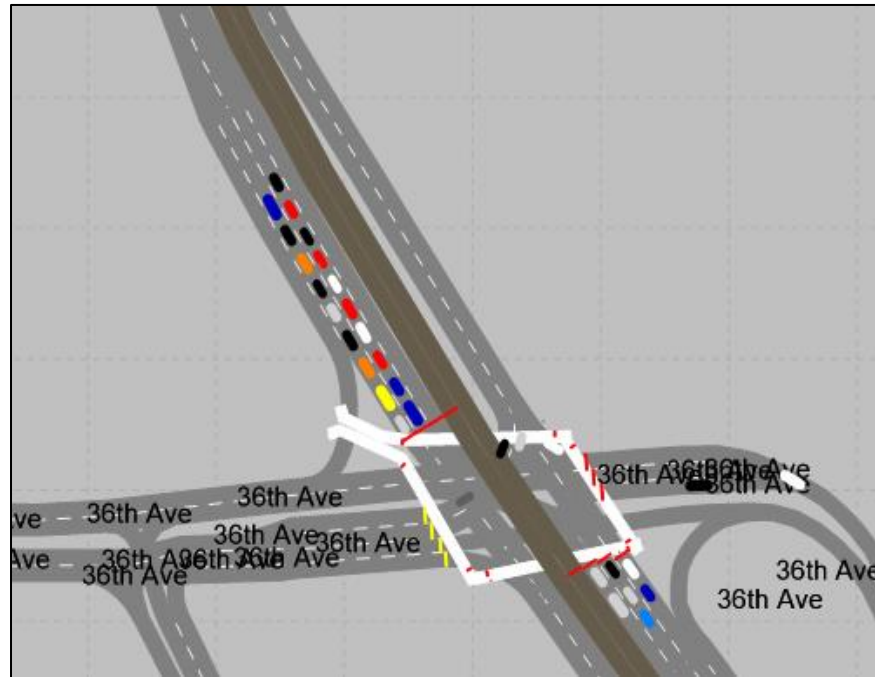


Exhibit 9: 36th Avenue 7:22 (AM)



In the PM peak hour, queuing was observed NB at 40th Avenue and 41st Avenue. See **Exhibit 10** and **Exhibit 11**.

Exhibit 10: 40th Avenue 16:21 (PM)

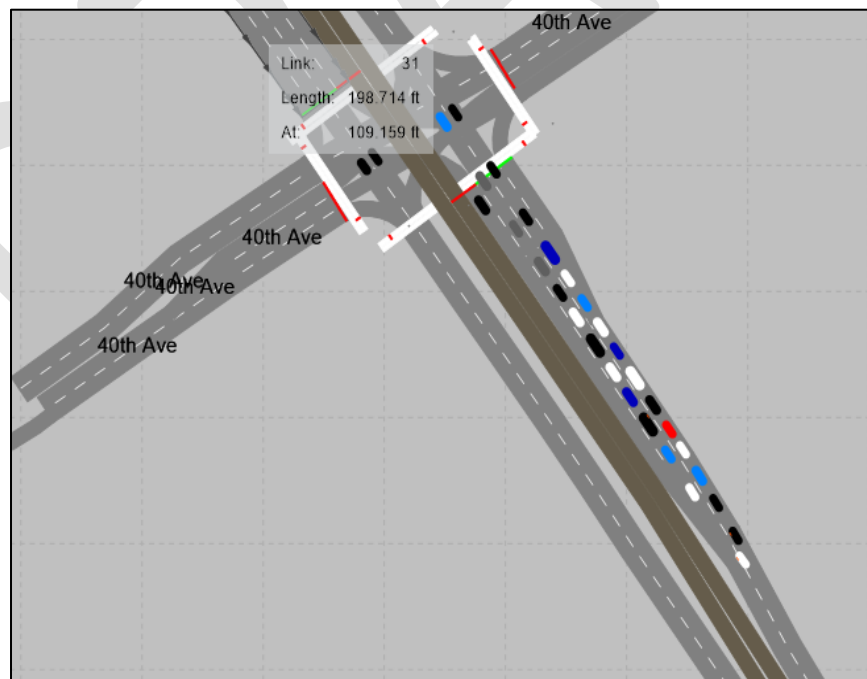
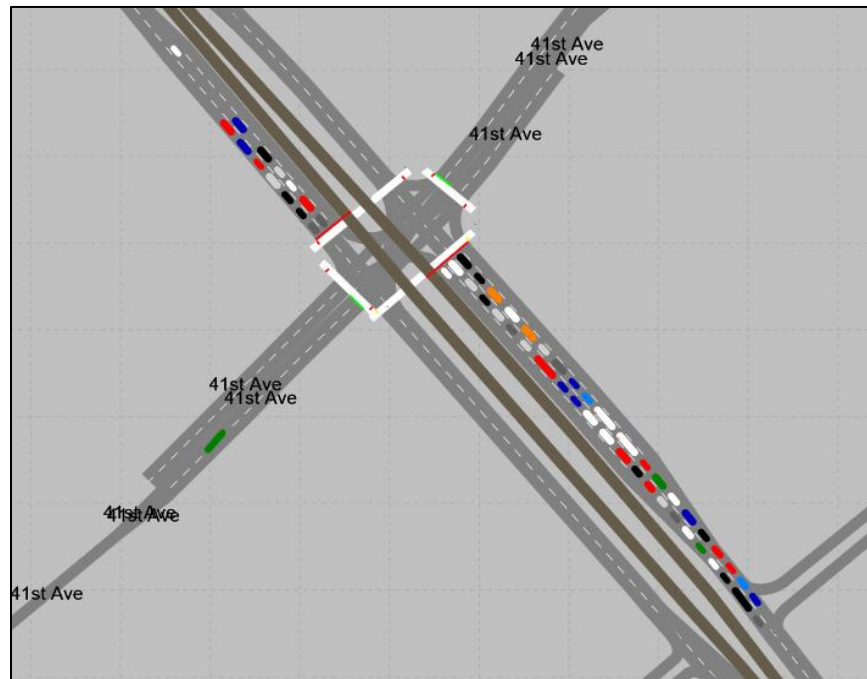


Exhibit 11: 41st Avenue 16:19 (PM)



Park-and-Ride Access

A proposed park-and-ride will increase vehicle demands at the adjacent intersections. A park-and-ride location is not yet determined, and evaluation of different alternatives is discussed later in this report. A preliminary park-and-ride location is shown in **Exhibit 12**. The 2040 Build and No Build turning movement forecasts at 42nd Avenue and 41st Avenue are shown in **Exhibit 13**. Because the Park-and-Ride location has not been determined, the Future Build model does not currently include the projected forecasts for the additional volume to and from the proposed park-and-ride location. Depending on ridership at this station, an increase in turning volumes could be operationally impactful at these intersections. ***Evaluation of Potential Robbinsdale Segment Park-and-Ride Options*** provides detail to guide a decision on placement of a park-and-ride that will increase the benefits and minimize negative impacts to the City.

Exhibit 12: Park-and-Ride Structure North of 41st Avenue

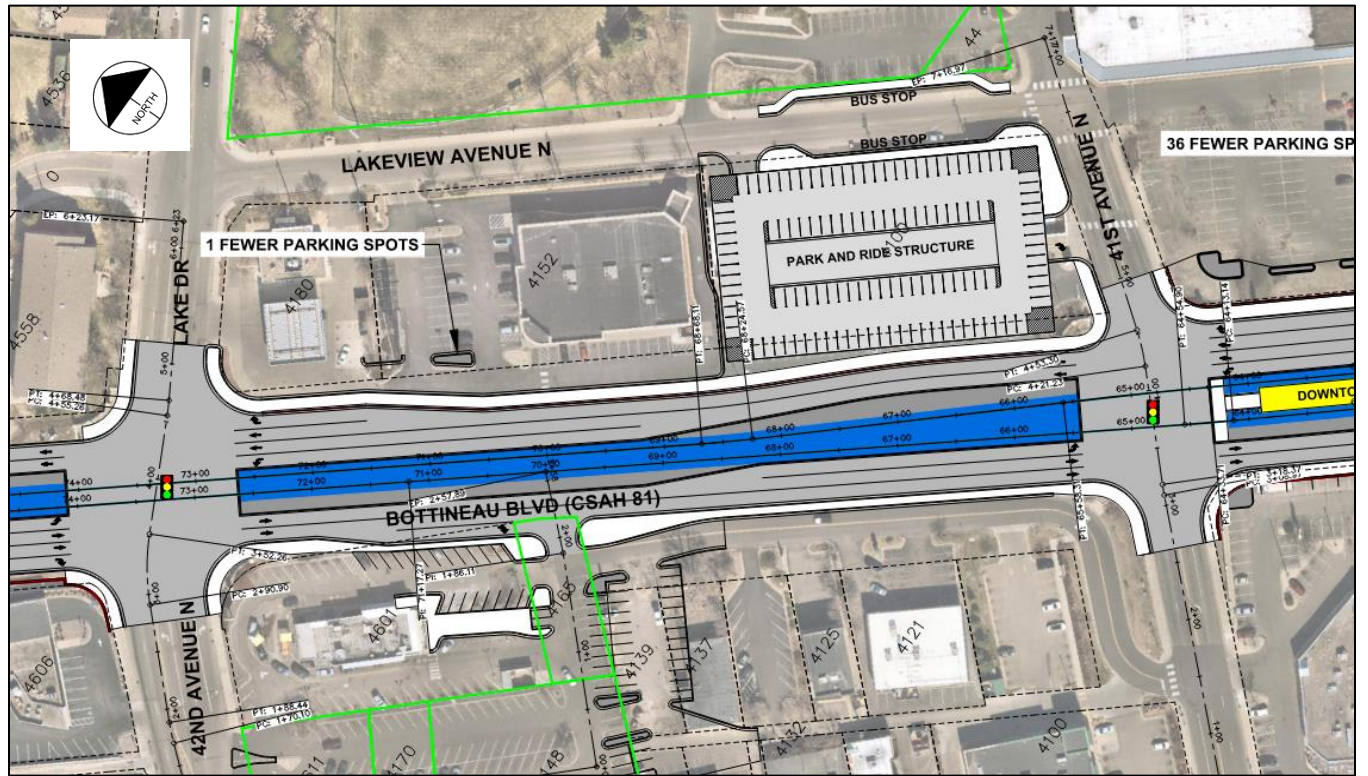


Exhibit 13: 2040 Turning Movement Volumes

Intersection	Movement	2040 No Build		2040 Build	
		AM Peak Hour Demand	PM Peak Hour Demand	AM Peak Hour Demand	PM Peak Hour Demand
42 nd Avenue	SBL	57	165	57	165
	NBR	35	110	35	110
	EBT	188	188	188	188
	WBL	57	73	57	73
	WBT	214	214	214	214
	WBR	86	141	86	141
41 st Avenue	SBL	9	38	9	38
	NBR	4	18	4	18
	EBT	9	9	9	9
	WBL	3	27	3	27
	WBT	11	11	11	11
	WBR	10	47	10	47

BLRT Headways

The Build Vissim model inputs have the NB BLRT departing every 10 minutes (600 seconds) in both the AM and PM peak hours. No SB BLRT demands are modeled, as shown in **Exhibit 14**, which is likely a result of creating the sub-area model of Robbinsdale. The 10-minute BLRT headways give the signals enough time between trains to get back to coordination and progression for vehicle traffic. Vehicle queues and demands are accommodated.

Exhibit 14: Public Transport Lines – Departure Times

Count: 7	PTLine	Dep	Occup
1	13: NB LRT	600.0	0
2	13: NB LRT	1200.0	0
3	13: NB LRT	1800.0	0
4	13: NB LRT	2400.0	0
5	13: NB LRT	3000.0	0
6	13: NB LRT	3600.0	0
7	13: NB LRT	4200.0	0

Other Model Observations

- No SB BLRT demands are included in the build models. HNTB added the SB BLRT demand into the 2040 Build Vissim model.
- The BLRT dwell time at each station is set at 20 seconds.
- The 2040 Build and No Build peak hour volumes tables show U-turn volumes in addition to left turn volumes along NB and SB CR 81. The VISSIM model static routes omit the U-turning traffic. This was discussed with the Project team and the U-turn volume was not intentional.
- Pedestrians are modeled but are set to a default five per hour. No pedestrian trips to/from the proposed park-and-ride structure are modeled.
- As modeled, the point-to-point routing results in last-minute lane changes and backups that will likely not occur in reality. Drivers will know their route upstream and begin making required lane changes in advance. This may improve field operations compared to the Vissim model.
- The northern end of the model includes the SB right-turn exit only lane to TH 100. The short weaving distance causes false congestion.
- Stuck/stopped vehicles were observed on NB CR 81 at the three-lane to lane-lane transition north of TH 100.
- All lane change distances are set to the default value.
- The arterial vehicle behavior is set to the default value.

Reduced Speed Limit and Right Turn Lanes

HNTB reviewed the impact of reducing the speed limit on CR 81 to 35 mph in terms of roadway capacity and the need for right turn lanes. The idea of solely changing signs from 40 mph to 35 mph posted speed will likely not have much consequence. Overall speed, and by extension, capacity, will not change without design changes incorporated to promote a lower 35 mph operating speed. Per the surrounding land use and roadway context, a maximum target operating speed of 35 mph seems appropriate with

possible further decreases between CR 9 and 40th Avenue if there is a desire to further densify with transit-oriented development around the proposed BLRT station.⁸

Capacity

The received 2040 Build Vissim models maintain a 40 mph desired speed distribution on CR 81. Therefore, we are unable to comment on changes in model capacity due to the posted speed limit.

Generalized daily service volumes suggest that a 45 mph to 35 mph posted speed change for a four-lane street does not have an impact on capacity at level of service (LOS) E per Exhibit 16-15 of the Highway Capacity Manual (HCM). At LOS D, there is relative change of 4,000 to 6,000, which could roughly suggest a 2,000 to 3,000 change going from 40 mph to 35 mph. This is dependent on the traffic k-factor and directional distribution.

Turn Lane Safety

Per some academic literature⁹, right-turn lanes are not necessarily needed from a Safe System Approach perspective (assuming a 10 percent risk tolerance) if posted speed is 35mph or less, as the fatal and serious injury risk between two vehicles is about 10 percent. Left-turn lanes, restricting left-turns and cross-traffic, and access management are more effective solutions from a Safe System Approach perspective being above the 10 percent threshold at 25mph or greater.

Longitudinal Grade Changes

HNTB reviewed the impact of potential grade changes on the eastern side of intersections along the corridor, particularly at 41st Avenue for impacts on pedestrian accessibility and vehicle traction during winter. Longitudinal grade changes should not be an issue provided they are not substantial, the snow and ice are cleared, and sidewalks maintained with salt/sand during the winter.

Pedestrian Safety

HNTB reviewed pedestrian access and safety across the proposed tracks, including impacts to mobility impaired members of the community. With proper design of the track crossings, there should be minimal impact on pedestrian access and safety.

Overall discussion related to pedestrian access and safety include:

- There is minimal existing or proposed linear active transportation facilities along CR 81 and its frontage roads, forcing pedestrians and bicyclists to walk and ride on the frontage roads themselves to access destinations along the corridor. This poses a barrier to visually impaired and mobility-impaired users, along with kids, elderly, or pedestrians and bicyclists with low tolerance levels to higher stress. It can also result in out-of-direction travel for active transportation users.
- Some of the existing intersection pedestrian ramps are fan shaped, which can create difficulty for visually impaired users navigating crossings and determining the direction of the crossing.

⁸ NACTO. City Limits. Setting Safe Speed Limits on Urban Streets. https://nacto.org/wp-content/uploads/2020/07/NACTO_CityLimits_SinglePages.pdf.

⁹ Science Direct. [Exploration of Vehicle Impact Speed – Injury Severity Relationships for Application in Safer Road Design - ScienceDirect](#)

- Traffic signals themselves are listed as a risk factor in the 2021 MnDOT Statewide Pedestrian Safety Analysis Final Report¹⁰ for fatal and serious injury crashes on roads of all jurisdictions throughout Minnesota. CR 81 is classified as a Minor Arterial, and has 4 or more through lanes, posted speed limits of 30 mph or more, shopping, restaurant, or entertainment destinations, and transit stops nearby. This results in a total of 6 out of 9 risk factors for pedestrian safety as detailed in the 2021 MnDOT Statewide Pedestrian Safety Analysis Final Report. It is also notable that 40% of fatal and injury pedestrian crashes statewide have occurred within 500 feet of a transit stop.
- If the traffic signal is timed to allow greater than 30 seconds of delay for pedestrians, it can result in increased risk-taking behavior¹¹.
- Impact speeds from an active transportation crashes can disproportionately affect vulnerable populations (young, older, and mobility-impaired people)¹². A vehicle operating speed of 40 mph, which is the current posted speed limit, can result in a 73 percent likelihood that the crash will be fatal for or serious injury the active transportation user¹³.
- The Suitability of Pedestrian and Cycling Environment (SPACE) score for this segment ranges from 58 to 63. From the 2021 MnDOT Statewide Pedestrian Safety Analysis Final Report, 54% of fatal and injury pedestrian crashes occur in areas with mid-range SPACE scores (50 to 69).
- Other notable vulnerable population metrics from the SPACE score heat map:
 - Percent of population age 65+: State average is 14.3%. CR 81 through Robbinsdale is 15.8%.
 - Percent of population with a disability: State average is 10.6%. CR 81 through Robbinsdale is 14.2%.
 - Percent of population Native American: State average is 1.0%. CR 81 through Robbinsdale is 1.6%.
- MnDOT Priority Areas for Walking Score (PAWS)¹⁴ is Tier 1 and 2 along CR 81 through Robbinsdale, as shown in **Exhibit 15**.
- A portion of Robbinsdale is within a Tier 1 prioritization from the MnDOT Metro District Bike Plan and CR 81 is a Tier 1 Alignment for a Regional Bike Trail Network (RBTN).

¹⁰ MnDOT. Minnesota Statewide Pedestrian Safety Analysis Final Report. December 2021.

<http://www.dot.state.mn.us/trafficeng/safety/docs/mndot-statewide-pedestrian-safety-analysis-final-report.pdf>.

¹¹ NCHRP. Research Report 948: Guide for Pedestrian and Bicyclist Safety at Alternative and Other Intersections and Interchanges.

¹² AAA Foundation. Impact Speed and a Pedestrian's Risk of Severe Injury or Death. September 2021.

<https://aaaafoundation.org/wp-content/uploads/2018/02/2011PedestrianRiskVsSpeedReport.pdf>.

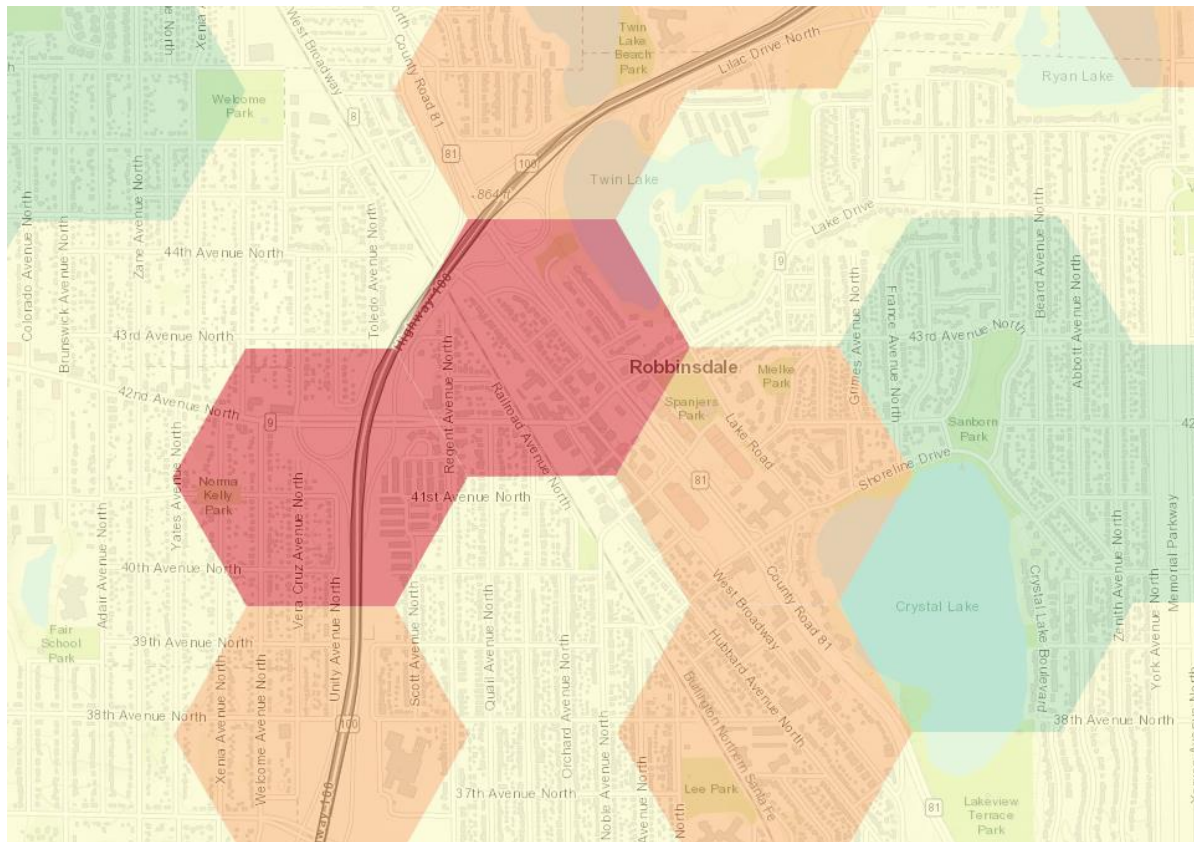
¹³ MnDOT. Bicycling. Other MnDOT guidance and resources. Vehicle Speed (PDF).

<https://www.dot.state.mn.us/bike/design-engineering.html>.

¹⁴ MnDOT Priority Areas for Walking Score (PAWS):

<https://mndot.maps.arcgis.com/apps/View/index.html?appid=1cc55aa66d3844a98402c84673f73d14>

Exhibit 15: PAWS scoring in Robbinsdale: Tiers 1 and 2 along CR 81



This data shows the high need for safe and accessible bicycle and pedestrian infrastructure in this area and indicates that a continued focus should be placed on ensuring planning documents, such as the 2040 Comprehensive Plan, are implemented and design standards are followed to ensure the safety of vulnerable road users.

Evaluation of Potential Robbinsdale Segment Park-and-Ride Options

Of significant concern to the City is the placement of a park-and-ride facility and the subsequent impacts of such. This section provides information on park-and-ride locations to support the City in making a decision on preferred placement. In addition to evaluating alternatives, it includes a section, **Using City Priorities to Site Park-and-Ride**, that uses the City's criteria to identify the most beneficial location for the park-and-ride.

Informed by the discussion with City staff on November 21, 2022, four potential park-and-ride garage location options were identified for a general evaluation, as shown in **Exhibit 16** in relationship to the currently proposed station platform options.

- Option 1: Northeast corner of CR 81 and 41st Avenue (existing proposed location). This option aligns with Station Options A-C.
- Option 2: Northwest corner of CR 81 and 41st Avenue. This option aligns with Station Options A-C.

- Option 3: Northwest corner of CR 81 and 42nd Avenue. This option assumes a new station option located north of 42nd Avenue.
- Option 4: Southwest corner of CR 81 and 39th Avenue. This option assumes Station Option D, however, it would ideally include moving the station slightly closer to 39th Avenue

Exhibit 16: Park-and-Ride Garage Location Options



Evaluation Methodology and Findings

The sections that follow provide an evaluation of the park-and-ride options as they relate to City concerns. It also provides a summary evaluation matrix that provides a relative comparison of the four garage location alternatives for further consideration. They provide responses to the questions and concerns raised by the City, describing as appropriate the methodology undertaken to evaluate the potential options.

Traffic Impact Evaluation

HNTB evaluated the operational impacts of each of the park-and-ride locations using a sub-area associated with Robbinsdale extracted from the design year (2040) PM peak hour VISSIM microsimulation model developed by others for the Project corridor.

Data and Assumptions

The analysis utilized information from the following sources:

- *Traffic Operations Technical Memorandum – Metro Blue Line LRT Extension (BLRT)* (dated September 15, 2022)
- *Metro Blue Line LRT Extension (BLRT) Travel Forecast Results Report* (dated August 31, 2017)
- *Metro Blue Line Extension Final Environmental Impact Statement* (dated July 16, 2016)
- Metro Transit Bus Route Maps 14, 32, 716, and 717¹⁵

Per page 9 of the *Traffic Operations Technical Memorandum*, the downtown Robbinsdale park-and-ride is anticipated to have 250 to 500 parking spaces which would generate approximately 125 to 250 trips during the AM and PM peak hours. For the purposes of this analysis, 250 additional trips (assumed to be single occupant vehicles) were added to the model associated with the park-and-ride facility **to provide a conservative estimate of design year PM peak operational impacts**. It is important to note that review of potential park-and-ride locations shows that this size of park-and-ride cannot be provided within the potential parcels without building a structure that is significantly taller than any existing downtown buildings, and taller than current local planning anticipates. The park-and-ride will likely need to be closer to the smaller estimated capacity of 250 spaces at most. For this reason, the modeled impacts can be considered “worst case” assumptions by a considerable margin.

The *Traffic Operations Technical Memorandum* does not indicate the directionality of the park-and-ride trips. As such, HNTB assumed directional distributions based on existing daily traffic volumes on the major corridors most likely to be utilized by park-and-ride vehicles, as well as the information provided in the BLRT Travel Forecast Report Figure 3-1 (refer to **Exhibit 17**). The distribution of PM trips to the north was assumed to be minimal due to the presence of the proposed park-and-ride facility further north at Bass Lake Road. These values are largely supported by StreetLight data associated with Robbinsdale Traffic Analysis Zones (TAZ) and “Top Routes” based on average March-April 2022 weekday PM period conditions.

Exhibit 17: Park-and-Ride Vehicle Destination Percentages

Destination	%	P&R SOV (veh)
North (CR 81)	10%	25
West (42nd Ave)	50%	125
East (Lake Dr)	30%	75
South (Noble Ave)	10%	25

The model assumes that the park-and-ride has one outbound access point and vehicles utilize the shortest logical path to the corresponding destination. Specific to Option 2, vehicles from the park-and-

¹⁵ Metro Transit. <https://www.metrotransit.org/schedules-maps>

ride to the west (42nd Avenue) are assumed to utilize Broadway Avenue rather than CR 81 as that is the most direct route. Specific to Option 3, vehicles from the park-and-ride to the south (Noble Avenue) are assumed to utilize Broadway Avenue rather than CR 81 as that is the most direct route. Specific to Option 4, vehicles from the park-and-ride to the west and south are assumed to utilize Broadway Avenue. In addition, all Park-and-ride vehicles and buses using CR 81 are assumed to access the proposed location via 40th Avenue to Broadway Avenue in Option 4.

Table 3.1-4 in Chapter 3 of the the Final Environmental Impact Statement shown as **Exhibit 18** on the following page) indicates that the Robbinsdale BLRT station is expected to see significant daily ridership and associated pedestrian activity due to the park-and-ride, bus transfers, and walking. No data was available with respect to the hourly distribution of each mode and as such the following PM peak hour pedestrian volumes were assumed:

- Walking = 250 (638 daily x 40% assumed during PM peak hour)
- Bus Transfers = 900 (2,269 daily x 40% assumed during PM peak hour)
- Driving = 250 (linked to the single occupancy vehicle parking assumption previously noted)

As noted above, this traffic analysis was done based on the higher range of the assumed park-and-ride capacity and associated peak hour trips as a planning level exercise. As a comparison, HNTB referenced StreetLight data at the BLRT Fort Snelling platform south lot to determine whether the traffic assumption was appropriate. A sample at the Fort Snelling platform from March to April of 2022 shows 30% of total trips between 6-9 AM and 44% of total trips between 2-6 PM. Using this data as a comparison the assumed peak hour volume of 250 trips is a conservative estimate, and actual volumes could be lower.

Bus transfer and driving linked pedestrians were distributed from the median BLRT station to the adjacent signalized intersection where they cross CR 81 towards the park-and-ride location for each option. Walking linked pedestrians were evenly distributed in the opposite direction which assumes that they live adjacent to the CR 81 corridor.

Exhibit 18: FEIS Table 3.1-4

LRT Station	Mode of Access			
	Walk	Transfers	Drive ¹	Total
Van White Boulevard	410	230	3	643
Penn Avenue	439	559	9	1,007
Plymouth Avenue	224	0	5	229
Golden Valley Road	368	422	115	905
Robbinsdale	638	2,269	610	3,517
Bass Lake Road	570	827	199	1,596
63rd Avenue	427	267	610	1,304
Brooklyn Boulevard	394	1,995	8	2,397
85th Avenue	997	1,176	8	2,181
93rd Avenue	249	105	3	357
Oak Grove Parkway	717	664	950	2,331
On-board Entering/Exiting Extension Area (Downtown and Hiawatha boardings/transfers)				10,392
Total project boardings				26,859

Source: Blue Line Extension Travel Demand Model Estimates (Council, 2015c)

¹ Drive access includes both park-and-ride and passenger drop-off

Today, Metro bus routes 14, 32, 716, and 717 have a stop/layover at the Robbinsdale Transit Center, which is located west of Hubbard Avenue between 41st and 42nd Avenues (see **Exhibit 19**). It is assumed that these routes would remain in the design year and shift the current Transit Center stop to the park-and-ride location for each option to establish a direct link with the BLRT. HNTB estimated the average dwell time during the PM peak and incorporated it into the PM model based on the published schedule for each route as indicated below:

- Route 14 = 14 minutes
- Route 32 = 7 minutes
- Route 716 = 7 minutes
- Route 717 = 1 minute (assumed dwell time at non-Transit Center stops)

Exhibit 19: Existing Metro Bus Routes to/from Robbinsdale Transit Center



Model Edits

A sub-area of the Robbinsdale section of the BLRT corridor VISSIM model (version 11) developed by others was provided to HNTB for this analysis. HNTB did not make any changes to calibrated PM peak model driving behaviors, geometry, vehicle characteristics, signal timings, or other model attributes. The following edits were made for the purposes of this analysis:

- Added missing southbound BLRT public transport route at north end of model.
- Added links associated with Park-and-ride location and corresponding transit stops.
- Added public transport routes corresponding Metro Routes 14, 32, 716, and 717.
- Added walking, bus transfer, and Park-and-ride linked pedestrians.
- Added Park-and-ride single occupant vehicles and corresponding static routes.

Operations Comparison

Intersection operations were summarized by approach and overall level of service (LOS) for the four signalized intersections along CR 81 between 36th Avenue and 42nd Avenue based on extracted delay data from the PM VISSIM models and an average of five seed runs. Following the separate description for each option, **Exhibit 28** shows a summary of approach and overall intersection LOS.

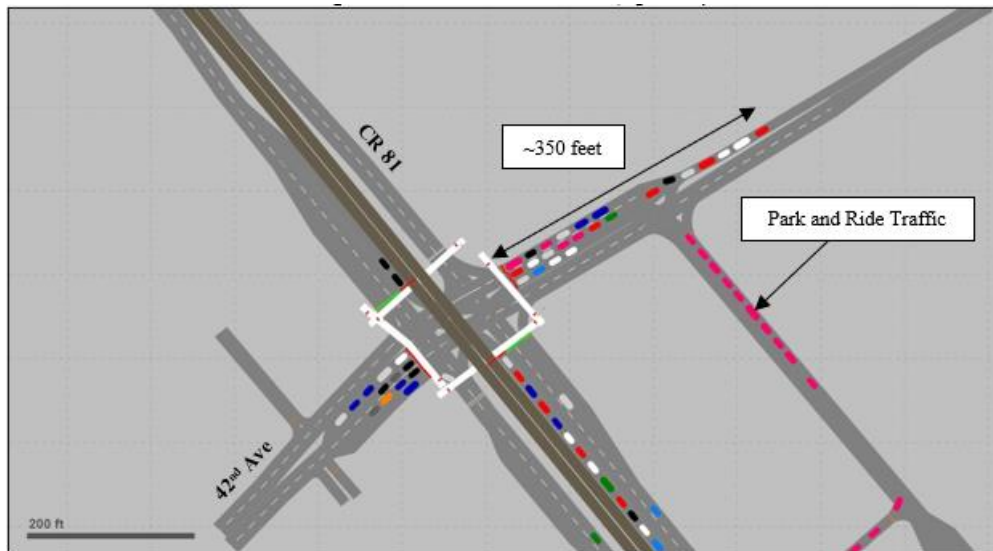
Option 1 (Park-and-ride northeast of CR 81/41st Avenue)

For Option 1, all intersections operate at LOS D or better overall during the design year PM peak hour. Only a handful of movements and approaches operate at or worse than LOS E, which includes the westbound approaches at 42nd Avenue and 36th Avenue. At 42nd Avenue, the westbound approach operates at LOS F due to increased westbound thru demand associated with transit and park-and-ride traffic to the west. The maximum observed queue is 350 feet which would block the Lakeland/Lakeview

Avenue intersection and limit opportunities for Park-and-ride vehicles to turn onto 42nd Avenue as indicated in **Exhibit 20**.

The westbound approach at 36th Avenue operates similarly (LOS F) across all four options and reported delay is related to the proposed signal phasing as eastbound and westbound are modelled as essentially split phased. No Park-and-ride traffic is assumed to head south on CR 81 and therefore operations at this intersection are unrelated to any park-and-ride options.

Exhibit 20: CR 81/42nd Avenue (Option 1)



Based on the assumed directional distribution of vehicles to and from the park-and-ride described in this section, Option 1 would likely result in the vehicle travel paths shown in **Exhibit 21**.

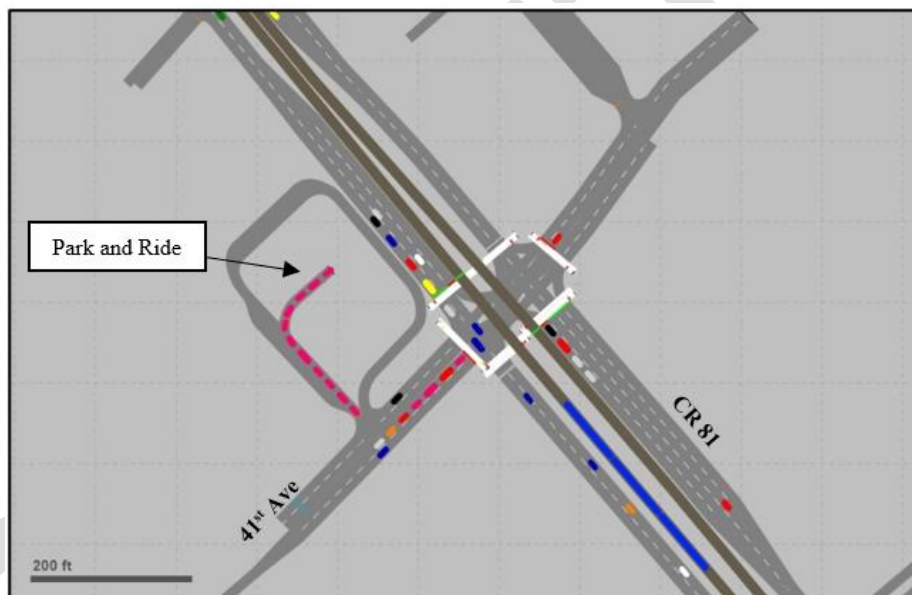
Exhibit 21: Option 1 Potential Vehicle Distribution



Option 2 (Park-and-ride northwest of CR 81/41st Avenue)

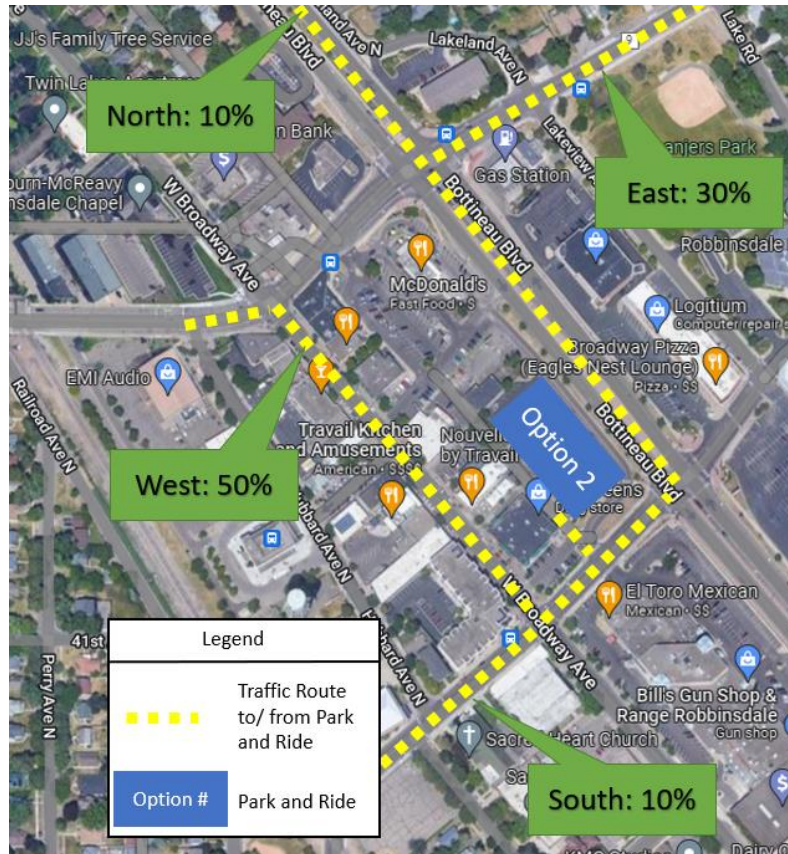
For Option 2, all intersections operate at LOS D or better overall during the design year PM peak hour. Only a couple of movements and approaches operate at or worse than LOS E, including the westbound approach at 36th Avenue. As noted previously, due to the location of the park-and-ride for Option 2, it is assumed that Park-and-ride traffic to the west (42nd Avenue) and south (Noble Avenue) would utilize Broadway Avenue which reduces the impact on CR 81. The eastbound left turn at 41st Avenue would operate at LOS E due to increased demand heading north or east from the park-and-ride. The associated queue would extend through the assumed park-and-ride access point on 41st Avenue which could restrict the ability for traffic to exit the Park-and-ride as indicated in **Exhibit 22**. This may be at least partially mitigated by providing dual eastbound left turn lanes and/or modifying the signal timings to extend the eastbound phase.

Exhibit 22: CR 81/41st Avenue (Option 2)



Based on the assumed directional distribution of vehicles to and from the park-and-ride described in this section, Option 2 would likely result in the vehicle travel paths shown in **Exhibit 23**

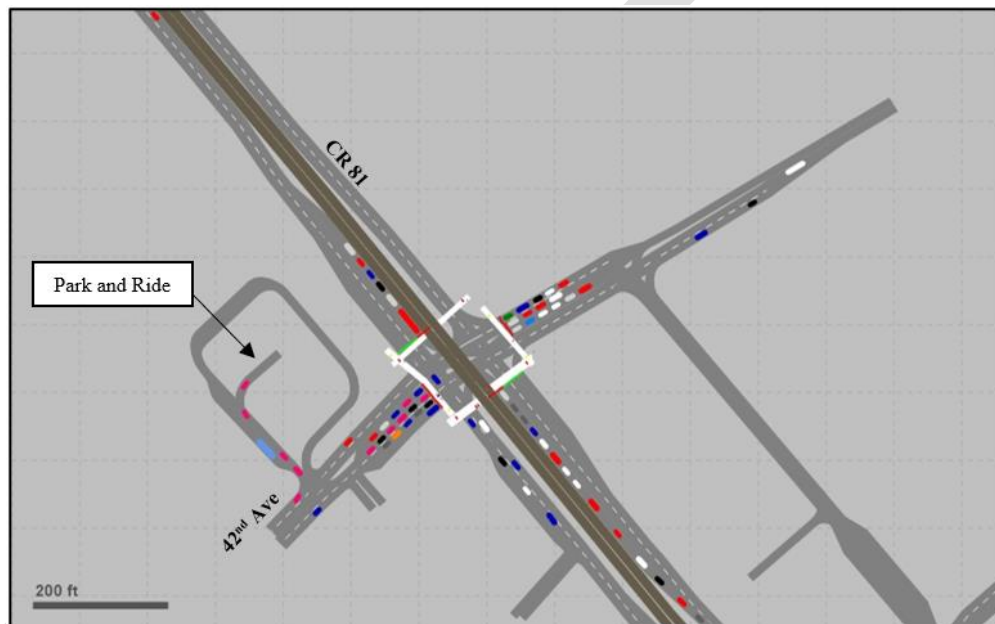
Exhibit 23: Option 2 Potential Vehicle Distribution



Option 3 (Park-and-ride northwest of CR 81/42nd Avenue)

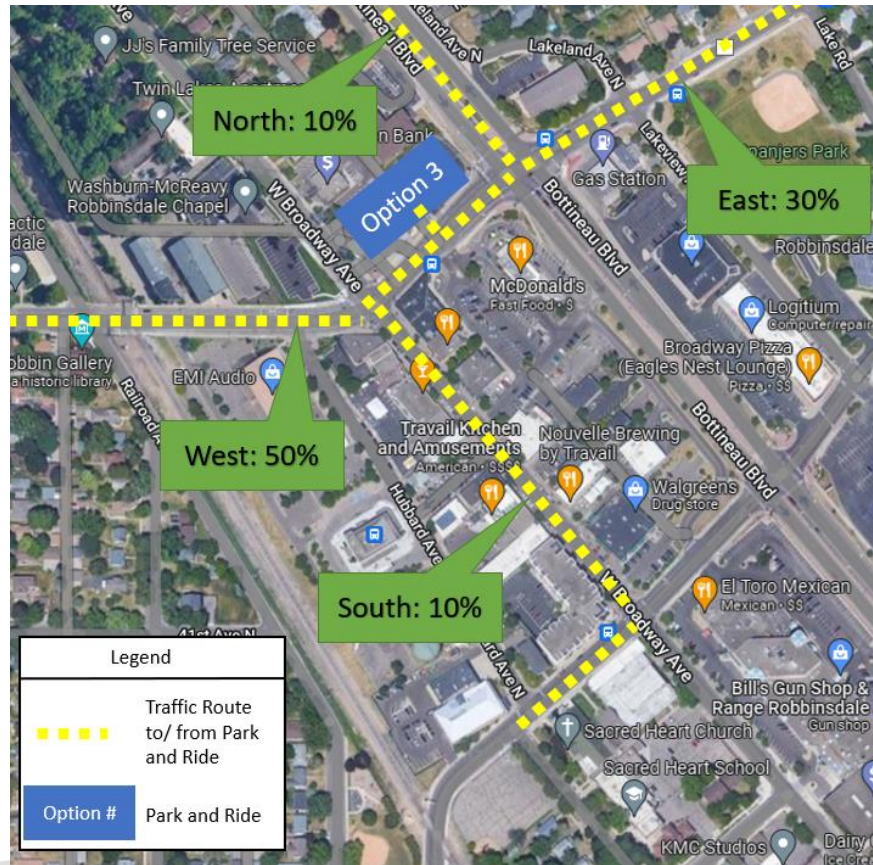
For Option 3, all intersections operate at LOS D or better overall during the design year PM peak hour. One approach operates at LOS F (westbound at CR 81/36th Avenue) and both the eastbound and westbound approaches at 42nd Avenue operate at LOS E. The eastbound left (LOS F) and eastbound through (LOS E) turn movements degrade in comparison to previous options due to the location of the park-and-ride and associated traffic to the north and east. However, the associated queues for these movements do not extend through the assumed park-and-ride access point on 42nd Avenue as indicated in **Exhibit 24**. As half of the park-and-ride traffic is assumed to head west on 42nd Avenue, it removes this traffic from CR 81 entirely.

Exhibit 24: CR 81/42nd Avenue (Option 3)



Based on the assumed directional distribution of vehicles to and from the park-and-ride described in this section, Option 3 would likely result in the vehicle travel paths shown in **Exhibit 25**.

Exhibit 25: Option 3 Potential Vehicle Distribution



Option 4 (Park-and-ride southeast of 39th Avenue)

For Option 4, all intersections operate at LOS D or better overall during the design year PM peak hour. The eastbound approach at 40th Avenue degrades to LOS E in comparison to previous options due to the presence of the park-and-ride further south at 39th Avenue. As noted previously, this option assumes that 40th Avenue and Broadway Avenue are used to access the Park-and-ride from CR 81. The eastbound left turn movement would be expected to operate at LOS F due to increased park-and-ride traffic to the north and east. However, the associated queue does not impact Broadway Avenue as indicated in **Exhibit 26**.

Exhibit 26: CR 81/40th Avenue (Option 4)



Based on the assumed directional distribution of vehicles to and from the park-and-ride described in this section, Option 4 would likely result in the vehicle travel paths shown in **Exhibit 27**

Exhibit 27: Option 4 Potential Vehicle Distribution



Operations Comparison Summary

Exhibit 28 shows the LOS at each approach and the overall for each intersection in the model for the no-build condition and each park-and-ride option. The intersection at 36th Avenue is included in the model; however, LOS is not impacted at the intersection based on the various options. 36th Avenue shows a westbound approach LOS F likely because of existing split phase signal operations.

Exhibit 28: Approach and Overall Intersection Level of Service Comparison

Intersection		Level of Service (LOS)									
		No Build		Option 1		Option 2		Option 3		Option 4	
		Approach	Int	Approach	Int	Approach	Int	Approach	Int	Approach	Int
CR 81 & 42nd Ave	EB	C	C	D	D	D	D	E	D	D	D
	WB	D		F		D		E		D	
	NB	C		D		D		D		C	
	SB	C		D		D		D		D	
CR 81 & 41st Ave	EB	D	A	C	C	D	C	D	B	D	B
	WB	C		D		C		C		C	
	NB	A		C		C		B		B	
	SB	A		C		B		B		B	
CR 81 & 40th Ave	EB	C	B	D	B	D	B	D	B	E	C
	WB	C		D		C		C		D	
	NB	A		B		B		B		B	
	SB	A		B		B		B		B	
CR 81 & 36th Ave	EB	C	C	C	D	C	D	C	D	C	D
	WB	D		F		F		F		F	
	NB	C		C		C		C		C	
	SB	B		D		C		C		C	

Transit Operations

Transit routes were modified in the model as described under “Data and Assumptions” in this section. Based on these modifications **Exhibit 29** shows the resulting travel times for each option. Travel times in the table are provided based on the route the bus takes rather than by the specific numbered bus route, therefore some options show the same travel time for more than one route. These bus routes would likely have a slightly different travel time based on dwell times at the park-and-ride.

Exhibit 29: Bus Travel Time by Park-and-Ride Location

Bus Travel Times (minutes)				
	Opt 1	Opt 2	Opt 3	Opt 4
Bus Route 14	17.7	17.4	15.9	15.4
Bus Route 32				16.8
Bus Route 716	11.5	11.3		
Bus Route 717 EB	7.3	6.8	6.1	5.0
Bus Route 717 WB	4.1	6.6	5.4	6.3

Parking and Pedestrian Access Impacts

Potential Configuration and Size of Garage Options

A cursory evaluation of the four potential garage sites resulted in the following rough evaluation of potential garage capacity, based on an assumption that at least 250 park-and-ride parking spaces would be required. There is presently no location in the downtown Robbinsdale area where that quantity of commuter parking capacity could be accommodated in a single surface lot without significant impacts on existing active commercial uses. As a result, the surface lot option was not considered. Options on all sites were evaluated using the proposed garage design parameters reflected at the existing proposed location with regard to ramp length and aisle widths. A description of each is provided below.

1. **Northeast corner of CR 81 and 41st Avenue (existing proposed location):** The proposed site is conservatively estimated to be 1.0 to 1.25 acres in size and accommodate at least 300 parking spaces in a three-level structure with two double-loaded aisles served by a center two-way ramp. The structure would be approximately 280 feet by 180 feet in overall footprint. Timed bus transfer activity would be accommodated curbside adjacent to the garage, between the structure and the existing City Hall.
2. **Northwest corner of CR 81 and 41st Avenue:** This alternative was carried forward for a more detailed sizing evaluation. Results of this evaluation are included in **Appendix C: Park-and-Ride Sizing Evaluation**.
3. **Northwest corner of CR 81 and 42nd Avenue:** The proposed site is conservatively estimated to be just under 1.0 acre in size if the existing alley can be vacated. However, the site is irregular in shape and very constrained in available width. It appears that in order to accommodate at least 250 parking spaces, the structure would need to include at least four levels, with one double-loaded aisle and one sloped single-loaded aisle to serve as the ramp. The structure could potentially be approximately 280 feet by 100 feet in overall footprint, but the layout would be inefficient. There would not be available space on the site to accommodate timed bus transfer activity and on-street options in the vicinity would need to be further evaluated. The City has also indicated this site may be impacted by the need to acquire ROW to realign 42nd Avenue for improved operations at the 42nd Avenue/ West Broadway Avenue intersection.
4. **Southwest corner of CR 81 and 39th Avenue:** This alternative was carried forward for a more detailed sizing evaluation. Results of this evaluation are included in **Appendix C: Park-and-Ride Sizing Evaluation**.

Private Parking Impacts of Platform Options

The impacts to private parking on commercial properties along the alignment related to accommodating adequate ROW for BLRT tracks and boarding platforms are documented on drawings provided at the kickoff meeting on October 6, 2022, and are documented in **Exhibit 30**. As previously discussed, the NEPA process that is currently underway will evaluate these impacts in detail and provide mitigation strategies. While determining the number of spaces lost is a straightforward exercise, evaluating the functional impact of losing these spaces requires a more complete understanding of parking demand than is currently available. The level of parking utilization is a critical factor in determining the impact of removing or relocating parking capacity in various locations along the Project corridor.

Exhibit 30: Parking Impact and Availability Summary

Option		Capacity	Percentage
1	41st Ave Northeast corner		
	Number of spaces removed	69	
	Avg demand for spaces removed	16	23.2%
	Peak demand for spaces removed	37	53.6%
2	41st Ave Northwest corner		
	Number of spaces removed	60	
	Avg demand for spaces removed	15	25.0%
	Peak demand for spaces removed	26	43.3%
3	39th Ave Southwest corner		
	Number of spaces removed	46	
	Avg demand for spaces removed	12	26.1%
	Peak demand for spaces removed	26	56.5%
4	42nd Ave Northwest corner		
	Number of spaces removed	38	
	Avg demand for spaces removed	14	36.8%
	Peak demand for spaces removed	21	55.3%

Source: HNTB

Private Parking Impacts of Garage Options

The impacts to private parking on the four proposed garage sites were evaluated, with the results documented in full directly below and summarized in **Exhibit 30**. **Error! Reference source not found.** For each of the four sites, the total number of spaces to be removed was determined via aerial photography. Additionally, cars parked at each proposed site were counted on seven different dates between 2019 and 2022 (not including 2020), and a resulting average demand and peak demand for the existing spaces were calculated. Average demand for spaces was lowest at upper Robin Center (23 percent) followed closely by the site across the street at the northwest corner of 41st Avenue (25 percent), with the highest average demand at the northernmost site option (37 percent). Peak demand across all sites ranges from a low of 43 percent at the northwest corner of 41st Avenue and CR 81 to a high of 57 percent at the Gearty Delmore Funeral Chapel site at 39th Avenue.

Mitigation strategies could potentially include finding alternative nearby available capacity to absorb unmet demand, including on-street public parking. In the more traditional downtown area west of CR 81, where shared on-street public parking and a walkable development character are present and supported by City policies, more flexible options for addressing evolving parking demands are likely to be available. These options could include accommodating some commercial parking demand in the future park-and-ride structure, depending upon further detailed analysis of typical peak periods for different types of parking demand.

The 2019 zoning code update supports flexible parking solutions that would include underground parking (potentially a challenge in areas of reported poor soil conditions east of CR 81), on-street parking with a conditional use, and shared use or lease agreements within the downtown area to accommodate overall parking demand effectively. Notably, the code indicates that pedestrian access is

to be prioritized, and that parking structures should include 30 feet of habitable space facing the street on the ground floor.

Pedestrian Connectivity Considerations

The City has indicated that the recommendation for a mid-block pedway extending east-west through the downtown that is reflected in the station area plan addendum of the 2040 Comprehensive Plan is no longer feasible due to an approved expansion of Ace Hardware, but that improvements to support pedestrian access along 41st Avenue would be just as effective overall. These improvements would align with the proposed platform options at the 41st Avenue intersection, and improved pedestrian and bicycle crossing facilities at that corner would provide both transit users and those utilizing non-motorized forms of transportation with access directly into the downtown. The City has indicated that they wish to concentrate vehicle traffic on CR 81, pedestrian traffic on West Broadway, and bicycle traffic on Hubbard; a strong east-west spine of multimodal connectivity along 41st Avenue would support this goal.

A pedestrian bridge connection directly from the park-and-ride garage to the LRT platforms could be beneficial, but would likely be limited to transit users and not serve the connectivity needs of the broader community. An exception might be in Option 4 at the southernmost proposed garage, where an appropriately configured pedestrian bridge to connect BLRT platforms to the park-and-ride garage could also improve recreational trail connectivity. At 41st Avenue, the platform options with passenger loading activity only north or south of the intersection have the benefit of concentrating pedestrian activity at three legs of the intersection rather than all four, which could be reinforced through multi-use path and sidewalk approach improvements east and west to serve the downtown area as well as destinations to the east

Land Use and Redevelopment Impacts

Land Use Policy Framework

Planning in recent years – including the Robbinsdale Station Area Plan¹⁶, a downtown zoning study and resulting adoption of a TOD overlay district,¹⁷ and the more recent Robbinsdale 2040 Comprehensive Plan¹⁸ – was focused on the prior proposed LRT alignment on the BNSF ROW. Significant work was done to align land use and development regulations to both support redevelopment on key parcels throughout the area while maintaining the walkable, historically low-rise “main street” character of West Broadway Avenue at the heart of the downtown as the LRT began to boost redevelopment potential.

With the route realignment now being evaluated, the City seeks to consider appropriate policy adjustments to ensure that the benefits of LRT are still achieved while avoiding detrimental long-term impacts to the City tax base. Extensive re-zoning was completed to support future mixed-use development, which presumed the prior proposed station location. The zoning district categories to support TOD are in place and could be strategically “re-mapped” to better reflect the core of station-

¹⁶ City of Robbinsdale, Robbinsdale Station Area Plan, 2016. [Robbinsdale Station Area Plan \(robbinsdalemn.com\)](https://robbinsdalemn.com/robbinsdale-station-area-plan)

¹⁷ City of Robbinsdale, Ordinance 19-06, April 2019. [04-02-19 APK.pdf \(robbinsdalemn.com\)](https://robbinsdalemn.com/04-02-19-APK.pdf)

¹⁸ City of Robbinsdale, Robbinsdale 2040 Comprehensive Plan, 2021. [Robbinsdale 2040 Comprehensive Plan | Robbinsdale, MN \(robbinsdalemn.com\)](https://robbinsdalemn.com/robbinsdale-2040-comprehensive-plan)

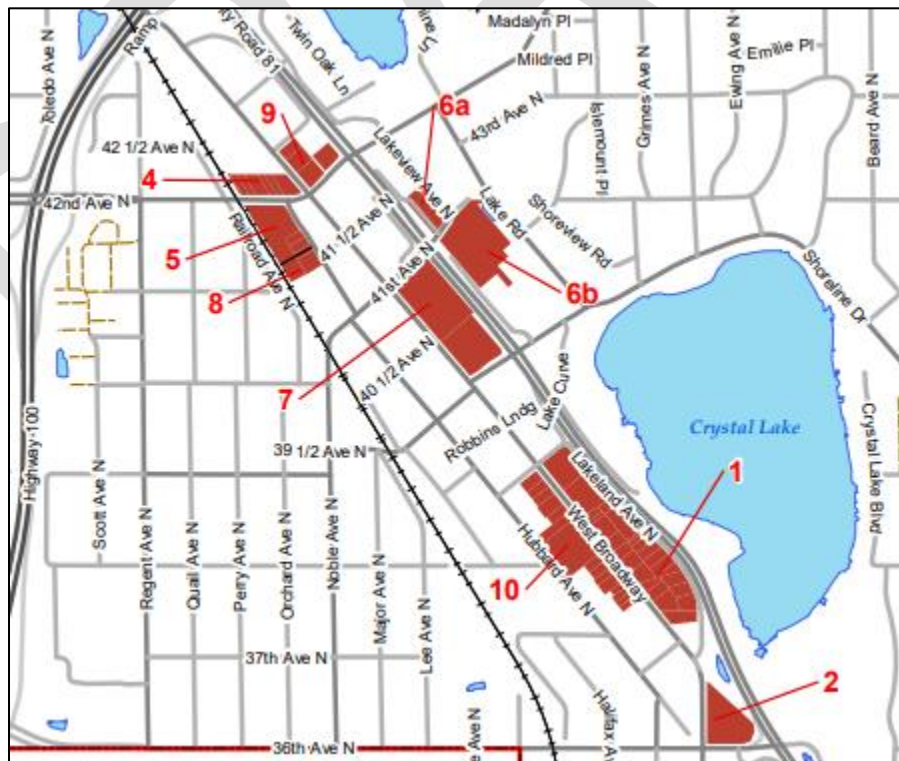
related activity shifting east to CR 81, simultaneously protecting the integrity of the West Broadway Avenue corridor, encouraging higher-density mixed-use, and ensuring that a variety of commercial formats continue to be supported within the broader downtown.

The TOD reflects a willingness to consider the development of up to four stories in height between the BNSF tracks and Hubbard Avenue (a vestige of the prior proposed station location) and also at both of the garage site options at 41st Avenue and CR 81 in addition to the larger Lower Robin Center site. The overlay further anticipates the potential for redevelopment of up to six stories at the Robbinsdale Town Center on the southwest corner of 41st Avenue and CR 81. The scale of development would be limited to two stories along West Broadway Avenue north of 41st but can rise to three stories south of 41st Avenue. South of 40th Avenue, the overlay limits redevelopment to three stories in height west of CR 81 while allowing up to six stories east of CR 81. These height limits would allow for the potential parking garage option configurations to be accommodated with the exception of the southernmost proposed site at 39th Avenue. Notably, both of the garage options at 41st Avenue could potentially increase from three to four levels to accommodate 30 feet of habitable space facing the street at the ground level with parking provided above, as the 2019 zoning code update requires.

Redevelopment Potential and Priorities

The 2040 Comprehensive Plan identified general areas in and near the downtown area with infill redevelopment potential, as depicted in **Exhibit 31**. The Plan also notes that the focus for pedestrian accessibility and density will be the area where the LRT would operate and that a variety of housing should be accommodated, including affordable housing options.

Exhibit 31: Areas with Infill Redevelopment Potential (not to scale)



Source: Robbinsdale 2040 Comprehensive Plan, page 23 (excerpt)

For the period of 2021 to 2030, the Plan anticipated small-scale, individual site redevelopment in the West Broadway Avenue corridor area, likely with financial assistance. It is anticipated that 20 to 50 new housing units could be accommodated in mixed-use developments on sites of less than one acre in the “Main Street” core of the downtown. During this period the Plan also predicted redevelopment based on the originally proposed LRT alignment for 90 to 120 multi-family units at Site 4, and additional multi-family or live-work units at Site 5. Site 5 has since been renovated for a successful commercial use, and while multi-family residential would still align well with the current proposed LRT, Site 4 may now see less short-term market interest.

The Plan anticipated redevelopment interest from 2031 to 2040 on Sites 6a, 6b, and 7 that would potentially replace existing auto-oriented shopping center uses with mixed-use redevelopment. Interest in these parcels would likely increase in the shorter term with the current proposed LRT. The following summarizes the units that could be accommodated at Site 6a, 6b, and 7:

- Site 6a could accommodate 50 to 70 residential units above commercial (and is the site of the currently proposed park-and-ride garage).
- Site 6b could accommodate 200 to 450 residential units above commercial, depending on the extent of the block consolidated for redevelopment.
- Site 7 could accommodate 235 to 330 residential units above commercial at the Town Center property. The southern end of Site 7 has already been approved for redevelopment to replace the US Bank facility and its associated parking.

Site 8 comprises an art deco character building that formerly housed civic functions and currently accommodates the Metro Transit timed bus transfer facility. If bus transfer activity is relocated in conjunction with the LRT project, this building could be renovated for commercial or live-work use, likely with financial assistance.

Sites 9 and 10 were also identified for potential future multi-family or mixed-use redevelopment in the longer-term time frame, without specific density or use recommendations, which would be partially impacted by the proposed garage location options to the north and south. In these locations outside the core of the downtown, redevelopment for residential is more likely.

The City has reported robust interest and ongoing redevelopment of multi-family residential that is proceeding faster than the rate of the MPO’s regional growth projection, which anticipate an addition of approximately 900 households and 1,000 jobs between 2020 and 2040.¹⁹ Approximately 500 new residential units are already complete or underway; this redevelopment activity to date is occurring south of 40th Avenue and has not yet directly impacted the core of the downtown, beyond the approved redevelopment of the US Bank parcel that falls within Site 7.

Impact of Garage Options

As noted earlier, it is not anticipated that the proposed LRT project would restrict access to any parcels fronting CR 81 and the potential slight narrowing of these parcels could result in isolated private parking impacts that would be addressed on an individual parcel basis to ensure that impacts to existing

¹⁹ [https://metro council.org/Data-and-Maps/Publications-And-Resources/Files-and-reports/Thrive-MSP-2040-Local-Forecasts-\(January-2023\).aspx](https://metro council.org/Data-and-Maps/Publications-And-Resources/Files-and-reports/Thrive-MSP-2040-Local-Forecasts-(January-2023).aspx)

businesses are mitigated. Additionally, the cost of relocating displaced commercial uses is addressed as a project mitigation requirement under the Uniform Act.

The potential commercial displacement impact of the four garage options has been estimated, as summarized in **Figure X: Summary of Options**. Estimates range from a low-end impact at the northwest corner of 41st Avenue and CR 81 of approximately 9,000 ground square feet (GSF) to a high-end impact of approximately 22,800 GSF at the northeast corner of 41st Avenue and CR 81 (although this building appears to be at most 75 percent occupied). When considering the impacts to commercial properties, displacement of the businesses at the northwest corner of 41st Avenue and CR 81 could be accommodated with infill redevelopment at available sites along West Broadway Avenue. The uses potentially displaced at the northeast corner could likely be absorbed in nearby shopping center properties and/or in infill projects. The Gearty Delmore Funeral Chapel, Pilgrim Dry Cleaner and Sipe's Car Care Center that could be impacted if Option 3 or 4 were pursued are more unique uses that would need to further evaluate their facility needs, but with the exception of the dry cleaner would most likely not be readily accommodated elsewhere in the immediate downtown area. With the two garage options nearest the 41st Avenue intersection, there appear to be readily identifiable alternatives to achieve no net loss of occupied commercial space in the downtown area. Either of these garage locations would also support a longer-term, and likely phased, strategy to convert either or both of the larger shopping centers immediately to the south to a mixed-use format that could ultimately achieve no net loss of commercial space, striking a balance between serving transit riders and accommodating driving customers and residents.

Summary of Evaluation Findings

The matrix below provides a "rating" of each garage location for the evaluation factors discussed above. For some measures, the evaluation offers a clear distinction between the four garage locations, whereas for other measures the location of off-street impacts related to the proposed BLRT do not offer a clear distinction to aid in defining local preferences related to the BLRT design.

Exhibit 32: Summary of Evaluation Findings

Rating	
5	Very Positive
4	Positive
3	Neutral
2	Negative
1	Very Negative

OPTION	1			2			3	4
Park-&-Ride Garage Location	NE corner of CR 81 & 41st Avenue			NW corner of CR 81 & 41st Avenue			NW corner of CR 81 & 42nd Avenue	SW corner of CR 81 & 39th Avenue
Station Location	41st Avenue - platforms north	41st Avenue - platforms south	41st Avenue - platforms split	41st Avenue - platforms north	41st Avenue - platforms south	41st Avenue - platforms split	North of 42nd Avenue	South of 40th Avenue
Proximity to High Density Housing	4	4	4	4	4	4	3	5
Supports Resident Access	4	4	4	4	4	4	3	5
P-&-R Access (to Platforms)	4	4	4	4	4	4	2	3
Ped/Bike Access (to Platforms)	4	4	3	4	4	3	4	3
Bus Transfer/Routing	3	3	3	3	3	3	4	4
Subtotal	19	19	18	19	19	18	16	20
Commercial Parking Impacts	2	2	3	2	2	3	3	3
Supports Downtown Parking Needs	4	4	4	5	5	5	2	1
Encourages Downtown Use by Transit Riders	3	3	3	4	4	4	2	1
Supports Recreational Linkages	4	4	4	4	4	4	3	5
Subtotal	13	13	14	15	15	16	10	10
Traffic Impacts	2	2	2	2	2	2	3	2
Commercial Parcel Impacts	2	2	2	4	4	4	2	3
Redevelopment Parcel Impacts	2	2	2	4	4	4	3	3
Subtotal	6	6	6	10	10	10	8	8
Total Score	38	38	38	44	44	44	34	38

Using City Priorities to Site Park-and-Ride

In addition to evaluating Park-and-ride sites considered feasible by the City, the City asked HNTB to identify an “ideal” location based on evaluation criteria that reflect the City’s priorities and is not constrained by the likely availability of a parcel. This evaluation served to identify whether a better site potentially exists and the trade-offs between a potentially available site and an ideal site, and to support the City’s decision-making process in choosing a site. The park-and-ride siting criteria provided by the City are shown in **Exhibit 33**.

Exhibit 33: Park-and-Ride Site Criteria from City

Criteria		
Positive	Neutral	Negative
- Proximity to high density housing - Proximity to Naturally Occurring Affordable Housing - Resident Access (ease of accessibility) - Transit Linkages - Bus access in general - Limit Bus/passenger vehicle traffic	- Commercial Parking (net gain) - Downtown Parking - Recreational access	- Any traffic on roads other than CR 81 and CR 9 - Removal of existing commercial space or potential for redevelopment - Measured by market value; or - Complexity (how does one neighbor support another)

HNTB used these criteria to guide a high-level, objective review of the area and identify a recommended “ideal” location for the park-and-ride.

Positive (Desirable) Criteria

1: Proximity to high density and naturally occurring affordable housing

The information shown in **Exhibit 31: Areas with Infill Redevelopment Potential (not to scale)** and information from the Robbinsdale 2040 Comprehensive Plan was used to estimate the areas of medium and high-density housing and mixed-use residential. Based on these locations and the density of the developments provided, an ideal location would be between 40th Avenue N and 39 ½ Avenue N.

2: Resident access (ease of accessibility)

This review considered the roadway network within the travel shed including TH 100 on the west, Victory Memorial Drive on the east, 42nd Avenue N on the north, and 36th Avenue N on the south. The most logical path for residents walking and biking to the station is Noble Avenue/ 41st Avenue N from the west and 40th Avenue N from the east. This could also apply to residents driving to the park-and-ride. This suggests an ideal location for resident access would be between Noble Avenue/ 41st Avenue N and 40th Avenue N.

3: Transit linkages

This review considered all bus routes that currently operate in Robbinsdale and use the timed transfer station located on Hubbard Avenue N. The review considered passenger car and bus routes to the future park-and-ride options (considered the relocated timed transfer station) as well as circulation within the

site. The existing bus traffic pattern currently operates only west of CR 81. Crossing CR 81 to drive to and from a transit station could add unnecessary delay for the bus and riders. Bus routing across CR 81 to reach the transit station and turning left to leave the transit station are both less preferred but could potentially be mitigated with transit priority for the busses. If coordination with the park-and-ride located on N 42nd Avenue and Welcome Avenue N continues, or accessibility to TH 100 traffic is preferred, keeping the new transit station west of CR 81 is also preferable. Access points on the east side of CR 81 are also more limited. However, a transit station east of CR 81 could provide a benefit to those residents east of CR 81. For the purposes of this review, it is considered preferable for the transit station to remain west of CR 81, though more transit ridership analysis could be done to evaluate this assumption if needed.

Once the busses reach the transit station, efficient circulation around the station is needed, as well as adequate space for busses to stage while waiting. The west side of CR 81 is slightly better suited to accommodate this as there are more potential access points. The parcel to the south of 41st Avenue N may allow for better circulation within the site given potential access to 41st Avenue N and W Broadway Avenue (south of the core of downtown). It also does not have the operational constraint of the alleyway that exists to the north of 41st Avenue N. Given the assumption of significant transfer ridership between bus routes and the BLRT, a location that offers close and convenient access for transfers to occur is also a critical consideration.

Neutral Criteria

4: Net gain in commercial parking

The park-and-ride may allow for commercial parking opportunities during off-peak times. Based on the review results shown in **Exhibit 30**, most commercial areas have existing parking capacity. This review did not identify locations where a net gain in commercial parking could provide added benefit, other than the potential for shared parking if the park-and-ride is located near commercial businesses that could utilize the parking during evenings and weekends. Having the park-and-ride closer to the downtown is preferable for this reason.

5: Provide downtown parking

The downtown area parking needs could differ from other commercial areas, especially as the businesses and restaurants continue to flourish. Peak parking demand could be during off-peak times and the park-and-ride could be used by customers in the downtown area. Having the park-and-ride closer to the downtown is preferable for this reason. The preferred location is west of CR 81 between N 42nd Avenue and 41st Avenue N, with the benefit reduced as the distance from this area increases.

6: Recreational access

Connecting the downtown area with the trail network on the east side of CR 81 with a safe and comfortable crossing of CR 81 could provide a significant benefit to City of Robbinsdale business owners, residents, and visitors. Similar to commercial parking needs, recreational parking needs have the potential to be off-peak of park-and-ride needs. The park-and-ride could potentially be used like a trail head during these off-peak time periods. Additionally, a pedestrian bridge over CR 81 could provide a safe and comfortable crossing for people using the light rail and for recreational users. To optimize the connection between the trails and recreational areas around the lake and the downtown area a crossing location closest to 40th Avenue N is preferred. 40th Avenue N is also identified as a primary route in the Bicycle and Pedestrian Plan.

Negative (Undesirable) Criteria

7: Traffic on roads other than CR 81 and CR 9

It is preferred to not increase traffic on local roads, with particular interest in not increasing traffic on W Broadway in the downtown core. As described in the traffic analysis, park-and-ride locations west of CR 81 could result in people using W Broadway Avenue to access the park-and-ride if seen as a shorter and faster route to the west. To mitigate this concern, a park-and-ride location east of CR 81 is preferred. Considering other evaluation criteria, the parcel south of 41st Avenue N may be slightly preferred over a parcel north of 41st Avenue N as the south parcel is closer to high-density housing and provides better resident and transit access. Because other criteria suggest a location west of CR 81, considerations to mitigate traffic on W Broadway Avenue in this scenario include:

- Turning movement restrictions to route vehicle traffic leaving the park and ride to CR 81;
- Improvements to the Hubbard Avenue N and N 42nd Avenue intersection, including potentially a roundabout at W Broadway Avenue and right-in-right-out access at Hubbard Avenue N;
- Implementing additional traffic calming on W Broadway Avenue, which could include raised intersections or raised crosswalks; or
- Converting W Broadway to a pedestrian and bicycle, and potentially transit, roadway.

8: Removal of existing commercial space or potential for redevelopment

Based on the existing land use and what is outlined in the Robbinsdale 2040 Comprehensive Plan for redevelopment potential, there is likely not a location for a park-and-ride that doesn't remove commercial space. To achieve this a public-private partnership would likely be necessary to either include:

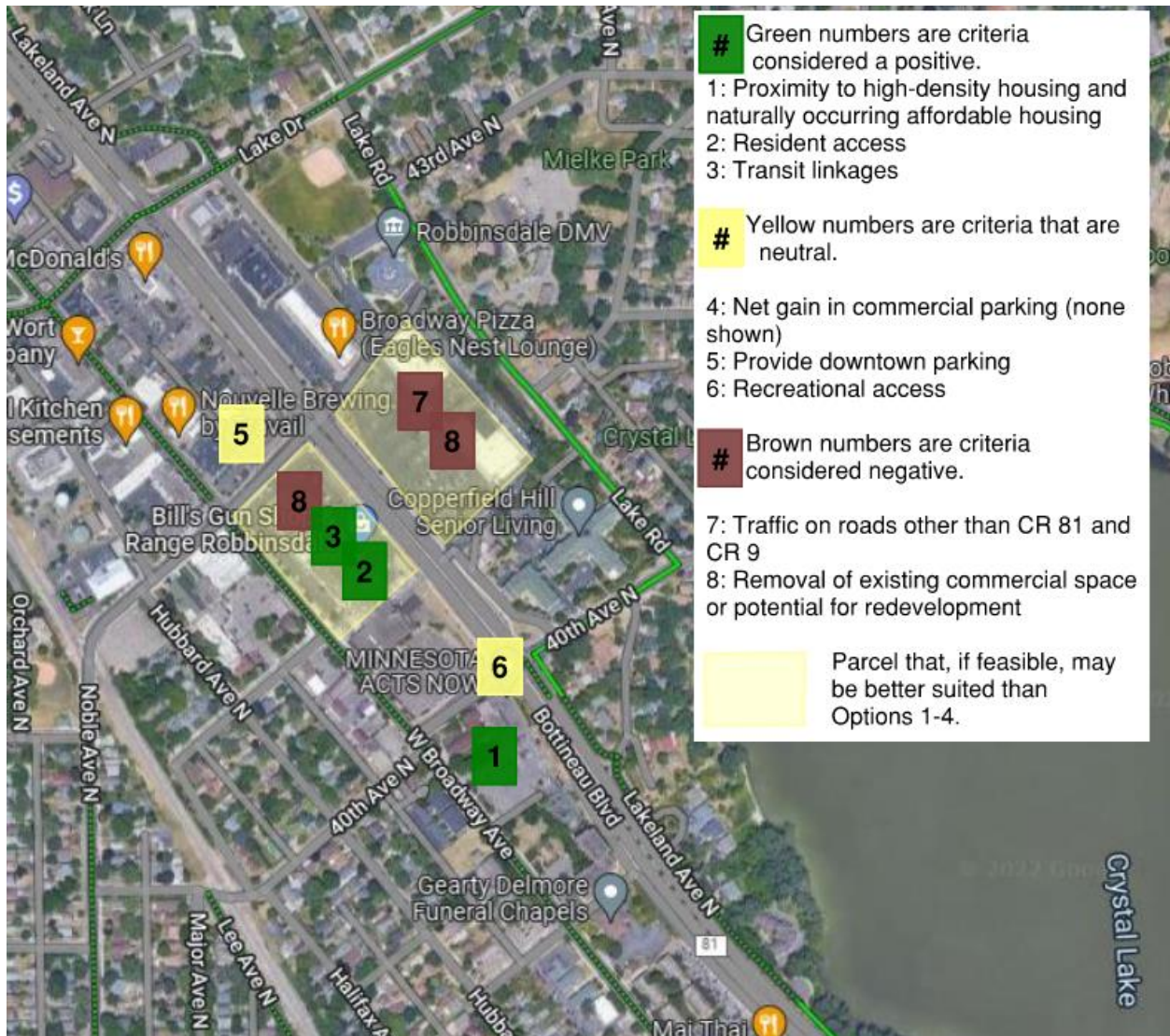
- Commercial space within a portion of the ramp; or
- Parking for commercial space within the ramp.

If it is possible to include commercial space within a portion of the ramp, all locations identified could provide this benefit. However, Lower Robin Center appears to be best suited given the size of the parcel.

Summary of Results

Exhibit 34 shows the results of the high-level evaluation described above. The results suggest that there is not an ideal location for the park-and-ride. Possible vehicle traffic generation is most at odds with the other criteria and places the park-and-ride east of CR 81. This suggests that mitigation measures should be considered to manage the effects of traffic for alternatives west of CR 81. Of the Options 1 through 4 previously evaluated, this evaluation suggests that Options 1, 2, and potentially 4 are feasible alternatives, though all are slightly less than ideal. Yellow highlighted parcels at the southeast and southwest corners of 41st Avenue N and CR 81 offer potential alternatives to Options 1, 2, and 4 if additional evaluation determines that a park-and-ride and bus transfer facility could be accommodated on-site. However, additional evaluation would be necessary to determine feasibility and overall impacts.

Exhibit 34: Results of recommendations based on City criteria



Appendix A: SEIS Evaluation Methodology (selected)

The sections below describe in detail the processes for evaluating the effects of the BLRT Project on the transportation system and access, acquisitions (property impacts), economic development, recreational amenities, and visual and aesthetics, the considerations that the City has indicated are of greatest interest / concern in the upcoming SEIS process.

Transportation

For the transportation evaluation, the project team will evaluate the following in the SEIS.

Transit

To evaluate the effects of the project on existing transit services in the study area, the project team estimates the number of riders on the project as well as the existing bus services. The analysis forecasts average weekday ridership for existing and future bus and rail services operating in the study area, travel times-savings, and cost-effectiveness measures. Based on the ridership at each proposed station, the number of parking spaces that would be needed at each proposed park-and-ride lot is also estimated. In addition, the analysis quantifies the projected change in daily automobile person miles traveled (PMT) and vehicle miles traveled (VMT) resulting from the implementation of the project. The analysis considers any modifications to the local bus network that would be implemented as part of the project including routing and transfers that would occur during construction as well as project operations.

Freight Rail

For freight rail, the project team assesses how any potential interaction between the project and existing freight rail service could affect timing, schedule, and capacity of existing and planned freight rail service within the study area. As part of the evaluation, the project team would coordinate closely with the existing railroad company to identify measures to avoid or alleviate impacts during construction and operations. Agreements between the railroad company and transit agency may be documented in a Memorandum of Agreement as an appendix to the SEIS.

Pedestrian and Bicycle

The pedestrian and bicycle facilities analysis assesses the benefits and impacts of the project during operations and construction. It includes an analysis of pedestrian and bicycle access to each proposed station and potential changes to existing pedestrian and bicycle facilities. Further, the evaluation considers whether the project construction and operations could create hazardous conditions or interfere with pedestrian and bicycle access. Mitigation measures to reduce or eliminate impacts will be recommended for any potential impacts to these facilities.

Traffic

As part of the traffic analysis, the project team evaluates the existing and projected peak hour level of service (LOS) at key signalized intersections along the corridor based on traffic counts, existing models, and prior studies. The localized traffic impacts assessment considers the proposed station locations, layouts, and mode of access. The analysis also evaluates potential impacts on roadways providing primary access to the study area and identifies where changes in access to properties would change. In addition, the potential traffic effects of gate downtimes at existing or new at-grade railroad crossings are assessed. The analysis considers the effects of construction activities and operations. Strategies to minimize and/or mitigate potential impacts are identified as part of the analysis.

Parking

The analysis of the potential parking impacts of the project is based on the projected parking demand associated with the project, the adequacy of parking at each proposed station, along with the potential for spillover parking into adjacent neighborhoods. In addition, an analysis of the loss of on-street and off-street parking is conducted. As part of the analysis, the project team identifies potential replacement parking locations, as well as mitigation measures for potential parking impacts, if needed. The need for replacement parking and mitigation measures is evaluated based on documented utilization of existing parking spaces.

Acquisitions and Displacements

The analysis of the impact of land acquisitions and displacements on the community typically consists of documenting all residential and non-residential units within the acquisition and displacement study area. The documentation includes a description of the existing characteristics of potentially displaced buildings, types of occupants (to the extent possible), displacement area population characteristics, and displacement area community service characteristics. The analysis of potential residential and business displacements also includes an assessment of available properties in the study area that are comparable in size, location, and quality to the displaced unit. The availability of community facilities and resources comparable to those units being displaced are also be assessed. The analysis and mitigation recommendations are conducted in accordance with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act) and other state and local laws that establish the process through which Metro may acquire real property through a negotiated purchase or through condemnation.

The Uniform Act is a federally mandated program that applies to all acquisitions of real property or displacements of persons resulting from Federal or federally-assisted programs or projects. It was created to provide for and ensure the fair and equitable treatment of all such persons. To further ensure that the provisions contained within this act are applied "uniformly". Additionally, the Fifth Amendment of the United States Constitution provides that private property may not be taken for a public use without payment of "just compensation." The project team would provide notification to all affected owners of Metro's intent to acquire an interest in their property, including a written offer letter of just compensation specifically describing those property interests. A ROW Specialist is typically assigned to each property owner to assist them with this process.

Economic Development

The economic development assessment examines the existing economic characteristics in the study area, including the type and number of available jobs; economic development potential; the potential for community disruption and demographic shifts; potential tax base loss due to property acquisitions and displacements; impacts on economic commerce, including existing business districts, metropolitan areas, and the immediate area of the project; and impacts on local government services and revenues.

The economic development impact analysis relies on cost estimates of the project and their anticipated effects on employment opportunities, transportation efficiencies and costs, and economic development trends and opportunities. The objective of the impact analysis is to evaluate the potential economic impact of the project to the region and to predict how the project may directly cause regional growth and predict the indirect effects of induced regional growth. The analysis typically includes both

quantitative analyses and, where applicable, qualitative analysis for both construction and operation of the project.

Specific short-term impacts that could be considered during the analysis may include:

- Increases in new near-term construction employment
- Effects of potential temporary disruption of nearby land uses
- Impact on tax revenues in the primary resource area
- Impact on businesses affected by construction which could include reduced customer access, damage to property from vibration/construction noise, etc.
- Potential for relocation of new construction-related workers to the region as a result of construction employment opportunities
- Short-term impacts on property values
- Impact on regional economy due to construction spending
- Induced economic growth resulting from the above activities

Specific long-term impacts that could be considered during the analysis may include:

- Long-term impact on the economy and jobs attributable to the administration, operation, and maintenance of the project
- Long-term impact on businesses in the study area
- Changes in tax revenues
- Impact of increased transportation efficiencies on local businesses and commerce within the study area
- Long-term impact on property values in the study area

Parks and Recreational Amenities

For parklands and recreational community facilities, the project is analyzed for potential impacts on the following aspects of parklands and recreational facility resources. The analysis is conducted in coordination with the officials with jurisdiction over the recreation area to discuss impacts and identify mitigation measures.

- Land acquisition or permanent easement
- Access impacts
- Impairment of use or enjoyment (including noise, vibration, air quality, and visual and aesthetic impacts)
- Temporary construction impacts

Metro would restore disturbed parks and open space to pre-project conditions after construction in cooperation with the resource owner. This could include landscaping, paths, and any built features of the park and trail resources. Other measures to mitigate affected parks and open space include providing replacement lands, financial compensation, or park enhancement, where appropriate.

Visual and Aesthetics

Visual and aesthetic resources are the natural and cultural features of the landscape that can be seen and contribute to the public's enjoyment of the environment. Visual resource or aesthetic impacts are generally defined in terms of a project's physical characteristics and visibility, and the extent to which

the project's presence would change the perceived visual character and quality of the environment in which it would be located.

Visual and aesthetic resources are evaluated in consideration of design quality, art, and architecture in project planning and development. Visual impacts would be caused by alterations of streets, overhead wires, stations, elevated guideways, and traction power substations. Elevated guideways are often the most visible project components. The bottom parts of elevated guideways range between approximately 18 and 50 feet above grade. In some locations, elevated guideways (and their associated overhead wire components) can intrude on views, although they might not block them altogether. Elevated stations (and guideways, to a lesser extent) can create shadows that could have negative impacts in some areas under some conditions. The key elements of the impact assessment for visual and aesthetic resources are summarized below.

- The impact assessment focuses on key and representative viewpoints in the study area (neighborhoods, parklands, community resources, etc.).
- Potential impacts are identified and analyzed to determine the degree of impact based on existing visual quality and potential viewer response for a given viewpoint.
- During the assessment, viewer response to the visual impact is predicted and categorized. Viewer response is the result of the combination of viewer sensitivity, frequency of view, and duration of view.
- The overall degree or severity of an adverse impact considers the scale of physical changes to Visual and Aesthetic resources, the existing visual quality of the landscape unit, and the viewer response (sensitivity) for each viewer group.
- Reasonable mitigation options are proposed for adverse impacts. Proposed mitigation measures could consist of landscape buffering or other visual screening, minimizing bulk of elevated structures, as well as recommended design guidelines for stations and parking. Elevated guideways, stations, and associated structures, such as elevators, escalators, and walkways, could be designed to be attractive architectural elements or features in the areas where they would be built and would add visual interest to the streetscapes near them. Additional mitigation measures may be proposed at the discretion of Metro and FTA.

Appendix B: Technical Memorandum - Geometric Considerations

Purpose

The City of Robbinsdale, MN, has contracted with HNTB Corp. to provide technical analyses related to various alternatives associated with the Metro Transit Blue Line Light Rail Extension project. The purpose of this technical memorandum is to analyze the advantages and disadvantages associated with an alternative that includes guideway on aerial structure on CR 81 from a location south of 41st Ave N to a location north of Lake Dr. Additionally, this memo provides benefits and disadvantages associated with a center (median) guideway versus having the guideway on either the east or west sides of the ROW.

Design Basis/Assumptions

The following assumptions and criteria were used as a basis for this analysis:

Horizontal Design

- Horizontal design is not included in this analysis.

Vertical Clearance

- Assumed vertical clearance over 41st Ave N. and Lake Dr is 16' minimum
- Assumed bridge structure depth of 7' from T/R to bottom of soffit

Vertical Design

- Applied Central Corridor LRT Design Criteria (Revision 0) dated July 2008 to the vertical profile design

3.3.2 Grades

The following profile grade limitations shall apply:

Mainline tracks

- | | |
|---|-------|
| • Maximum (sustained grade unlimited length) | 4.0% |
| • Maximum (sustained grade with up to 2500 feet between PVI's of vertical curves) | 6.0% |
| • Minimum (for drainage on direct fixation and embedded track) | 0.20% |
| • Minimum (for drainage on tie & ballast track) | 0.00% |

For mainline tracks, the desired minimum length (L_g) of constant profile grade between vertical curves shall be determined as follows:

$$L_g = 3V$$

$$L_g = 100' \text{ (desirable minimum)}$$

$$L_g = 50' \text{ (absolute minimum)}$$

Where: L_g = Length of constant profile grade (ft)
 V = Design velocity (miles per hour)

Station Area

- | | |
|---------------------|------|
| • Desirable | 0.0% |
| • Preferred Maximum | 1.0% |
| • Absolute Maximum | 2.0% |

No minimum grade is specified at passenger stations provided adequate track drainage can be maintained. Due to physical constraints, the existing street

profile may strongly influence the profile grade within the station. The longitudinal profile grade shall be restricted to a maximum of 2.0%.

The vertical distance between top of rail and top of platform shall remain uniform at 14 inches throughout the platform length as well as an additional 45 feet beyond both ends of the platform.

3.3.3.1 Length of Vertical Curves

The minimum length of vertical curves shall be determined as follows:

Desirable length	$LVC = 100A$
------------------	--------------

Absolute minimum length of vertical curves shall be determined by the formulas below and shall not be less than 100 feet in length:

Crest curves	$LVC = \frac{AV^2}{25}$
--------------	-------------------------

Sag curves	$LVC = \frac{AV^2}{45}$
------------	-------------------------

Where: LVC = length of vertical curve, in feet
 A = $(G_2 - G_1)$ algebraic difference in gradients connected by the vertical curve, in percent
 G_1 = percent grade of approaching tangent
 G_2 = percent grade of departing tangent
 V = design speed, in mph.

The length of vertical curve shall be rounded up to the next even 10 foot length. Both sag and crest vertical curves shall have the maximum possible length, especially if approach and departure tangents are long. Vertical broken back curves shall be avoided.

Minimum vertical curve length and/or design speed may be governed by the overhead contact system due to the maximum permissible rate of separation or convergence between the track grade and the contact wire grade. Coordination with the OCS designer is required to assure compliance with this limitation.

Equivalent radius of vertical curves shall not be less than 1200 feet for sag vertical curves (related to LRV spec's.) or 900 feet for crest vertical curves.

- Speeds were assumed to be 35 mph or less through this section of the corridor

Track Geometry/Sections

Refer to the accompanying **Attachment 1**. Based on the geometric criteria specified herein, the median-running guideway could remain at grade through a point north of the intersection with 40th Ave N. From there to a point south of 41st Ave N, the guideway would climb at a grade of less than 6%. The track section in this area would likely consist of track on retained fill.

Between south of 41st Ave N and north of Lake Dr, the guideway would have sufficient clearance over cross streets to be on aerial structure. In the accompanying **Attachment 1**, example typical sections of aerial guideway are provided. Example typical sections depict a box girder structure supported by piers and piles; a structural analysis not included in the scope of this memo would be necessary to determine structure type for this particular application. In the example typical section, a total structure width of 29' min is shown, with an 8' min width at street level to allow space for piers. Notably, where the track section is on aerial structure, the footprint of the median of CR 81 occupied by the guideway could be

reduced versus median-running at grade guideway The median would only need to be sufficiently wide to allow placement of the piers and the required lateral clearance

North of Lake Dr, the guideway could transition back down to guideway at-grade on retained fill at a grade less than 6%.

Operational Considerations

Operationally, guideway on aerial structure over the intersections of CR 81 with 41st Ave N and Lake Dr. presents several advantages. Among those include:

- Potential for improved headways (reduced travel time) versus median-running guideway at grade. Without operational frictions associated with traffic signals at 41st Ave N and Lake Dr, the LRT system would likely see a slight benefit in terms of reduced headways and travel times.
- Potential for improved safety versus median-running guideway at grade. Guideway on aerial structure over the intersections of CR 81 with 41st Ave N and Lake Dr. removes several conflict points with motor vehicles, including cross traffic as well as left-turning vehicles off CR 81 onto 41st Ave N and Lake Dr. Removal of these conflict points reduces the potential for collisions between LRT vehicles and motor vehicles, which in addition to potential for increased safety for LRT customers, may also reduce expenses associated with LRT vehicle repair.

Transit Station Circulation Considerations

Locating the LRT station stop platform on aerial structure is not considered in this analysis and it is assumed the platform would be located south of 40th Ave N. The track alignment and vertical profile would also need to be further analyzed as part of determining the station platform location. Additional median width would be required south of 40th Ave N. to accommodate the required width needed for a LRT station platform and adequate track spacing required to accommodate the LRT station. A preferred maximum grade of 1% is desired through the length of the station platform with an absolute maximum allowed up to 2% as defined by the Central Corridor LRT Design Criteria and the station shall not be placed within a vertical curve.

Guideway Location within ROW

Assuming the guideway is at-grade and not on aerial structure, locating the guideway in the median presents several advantages versus locating it on either the west or east sides of the ROW. First, locating the guideway on the outside of the ROW would introduce conflicts with right-turning motor vehicles in addition to the potential conflicts that exist with left-turning motor vehicles in both the outside and median-running options. Secondly, motor vehicles on cross streets would need to stop in advance of the guideway in the outside-running option, which would preclude vehicles on cross streets from making a right-turn-on-red movement. To prevent conflicts with right-turning vehicles from both CR 81 and cross streets, guideway protection treatments consisting of gates, bells, and flashers would likely be required versus traffic signal protection with a median-running alternative. Implementation of gated crossing systems are likely to have similar or greater impacts to traffic operations at the intersection locations studied as part of this analysis. Gated crossing systems in close proximity to roadway intersections require a traffic signal pre-emption sequence in advance of the LRT passing through the crossing. These systems also require further Train to Wayside Communication (TWC) equipment to provide the necessary detection to provide for safe operations at the proposed gated crossing.

Attachments:

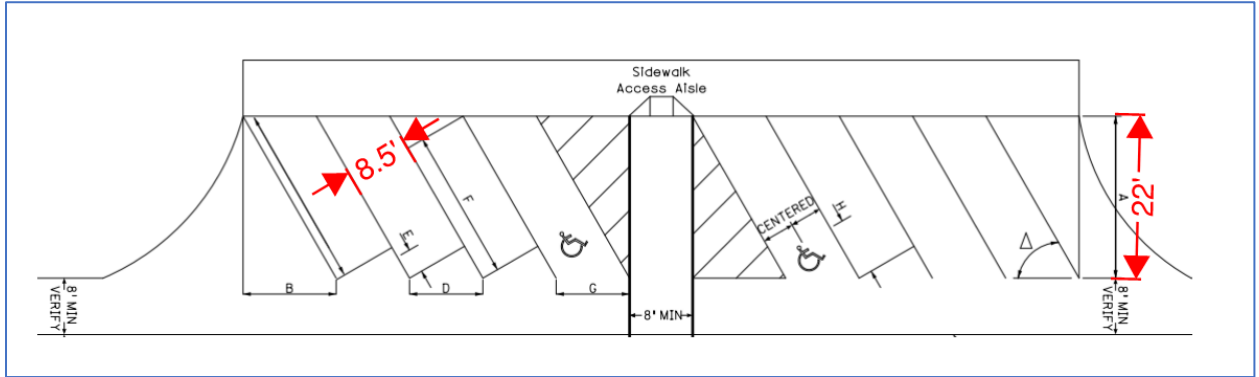
Attachment 1 – City of Robbinsdale Blue Line LRT Plan/Profile

DRAFT

Appendix C: Park-and-Ride Sizing Evaluation

Assumptions/Design Criteria:

- Standard vehicle size 8.5ft wide and 18ft in length per [Section 510 - Zoning: districts, general provisions \(amlegal.com\)](#)
- 45-degree angled parking as shown below.



- Drive aisle width for one lane is 14ft.

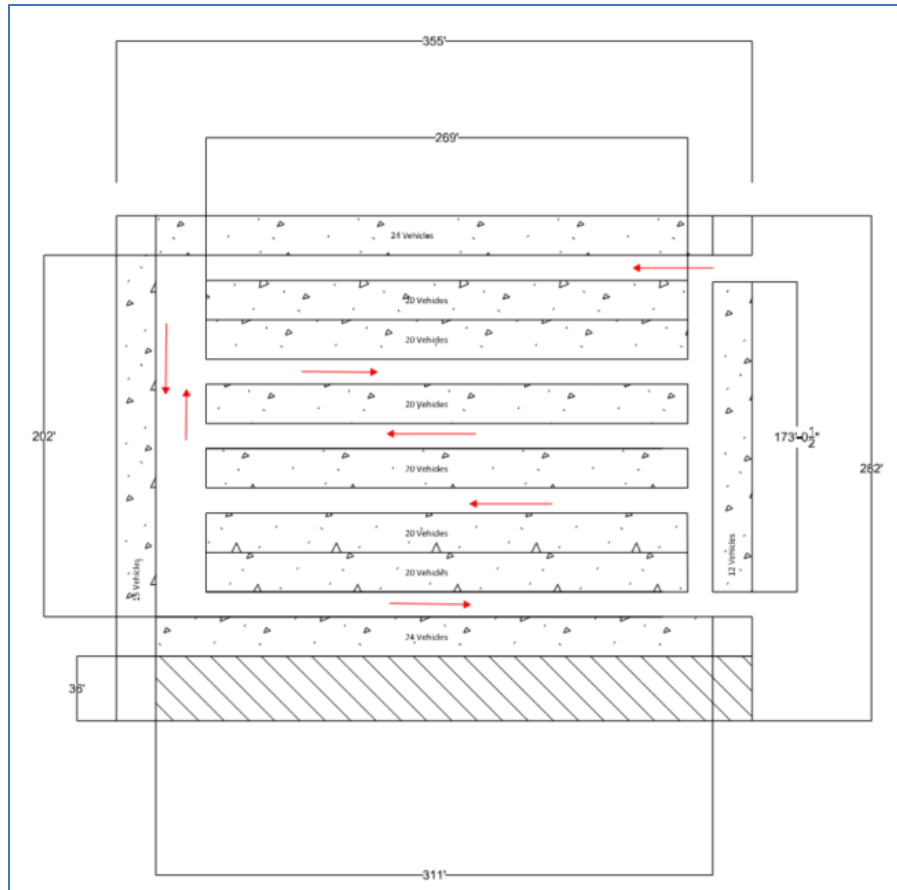
Results:

HNTB evaluated surface parking and park-and-ride structure layout for each of the four locations at a high level. Detailed evaluation and design will be needed for final design.

US Bank Lot

Surface parking

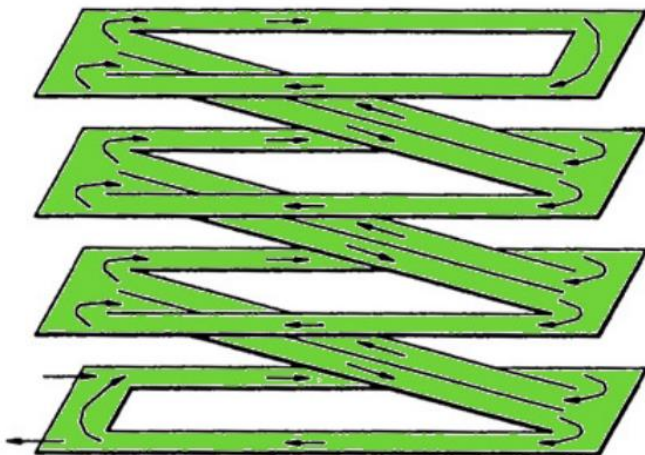
Parking Structure Location	Size of the Lot		Park-and-Ride Footprint		Surface Parking
	[SF]	[Acre]	[L x W]	Ratio L/W	[# of Vehicles]
US Bank Lot	100350	2.3	355' X 282'	1.26	204



Parking capacity can increase to 244 stalls if the bus area were to be placed on West Broadway Avenue and acquire 10ft of ROW.

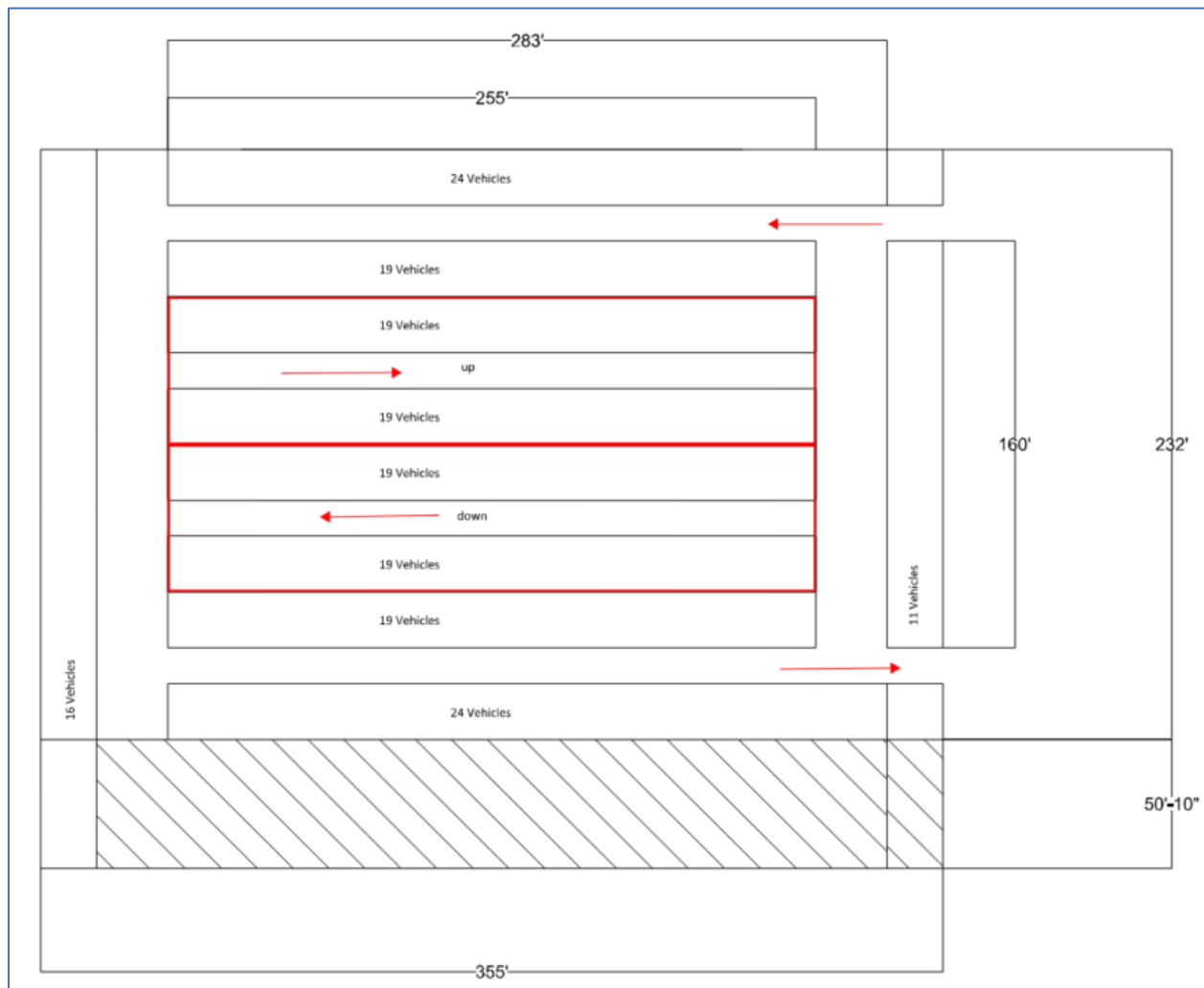
Park and Ride Structure

Four bay side by side structure type is used for this location.



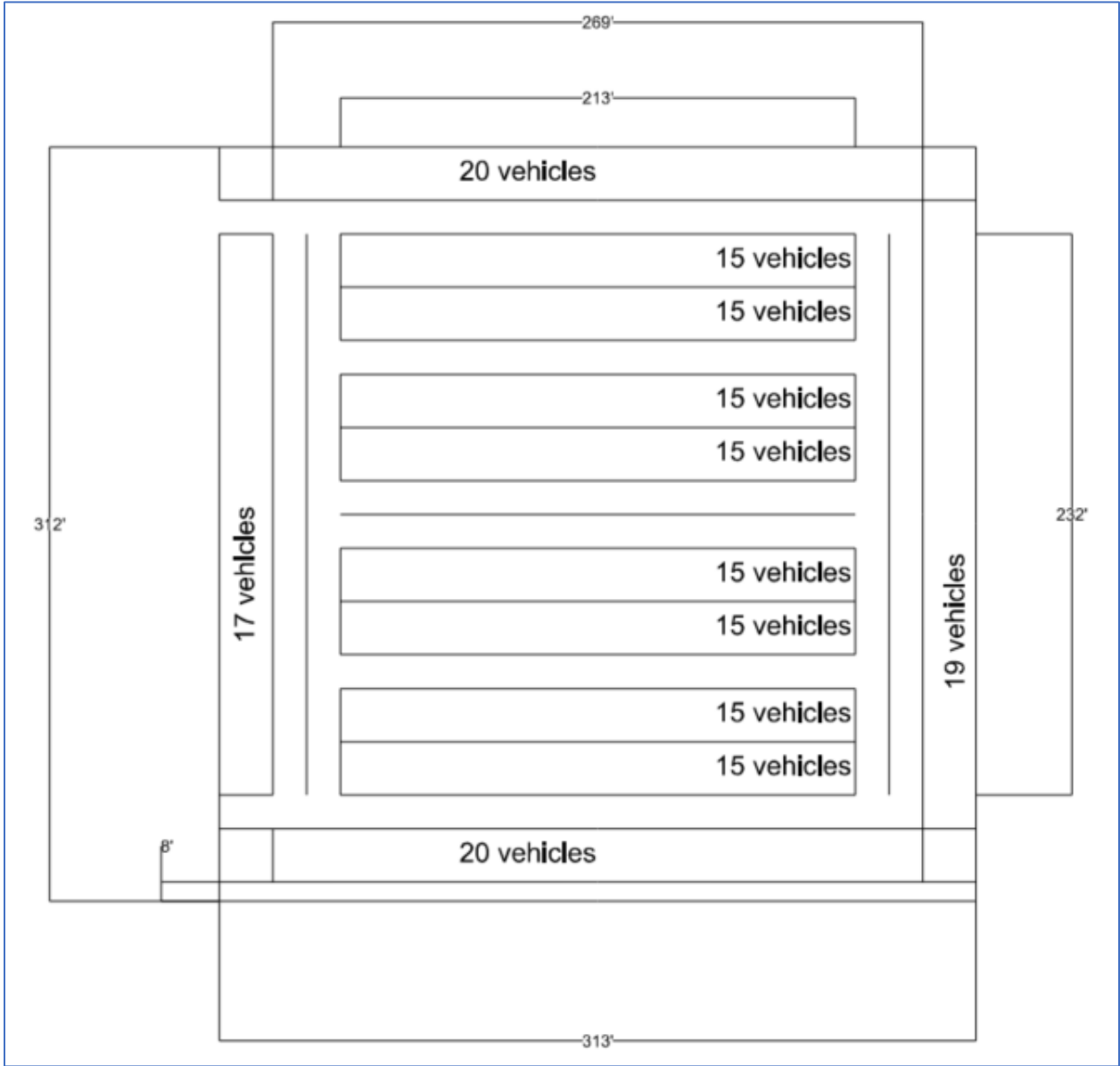
Four - Bay Side - By - Side

Park-and-Ride Structure									
Structure Height	Total Vehicle	# of vehicles by each level							
		Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
3 level + roof	665	185	185	185	110				



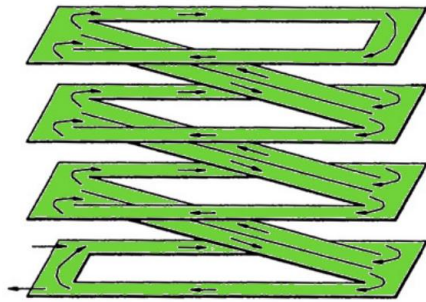
Elim Church
Surface parking

Parking Structure Location	Size of the lot		Park-and-Ride Footprint		Surface Parking
	[SF]	[Acre]	[L x W]	Ratio L/W	[# of Vehicles]
Elim Church Lot	97744	2.24	313' X 312'	1.00	204



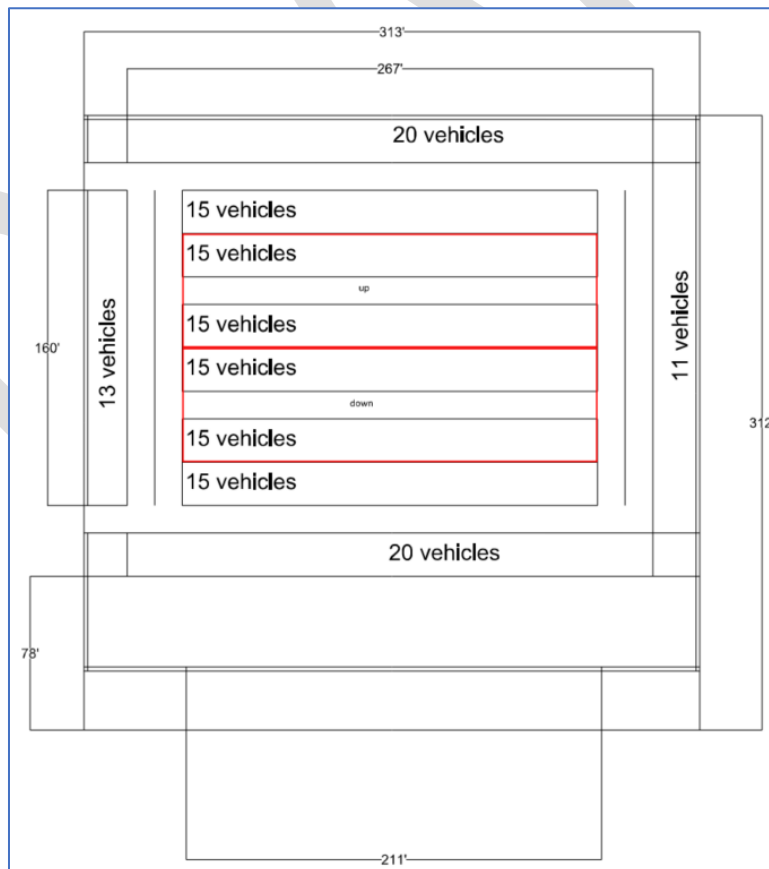
Park and Ride Structure

Four bay side by side structure type is used for this location.



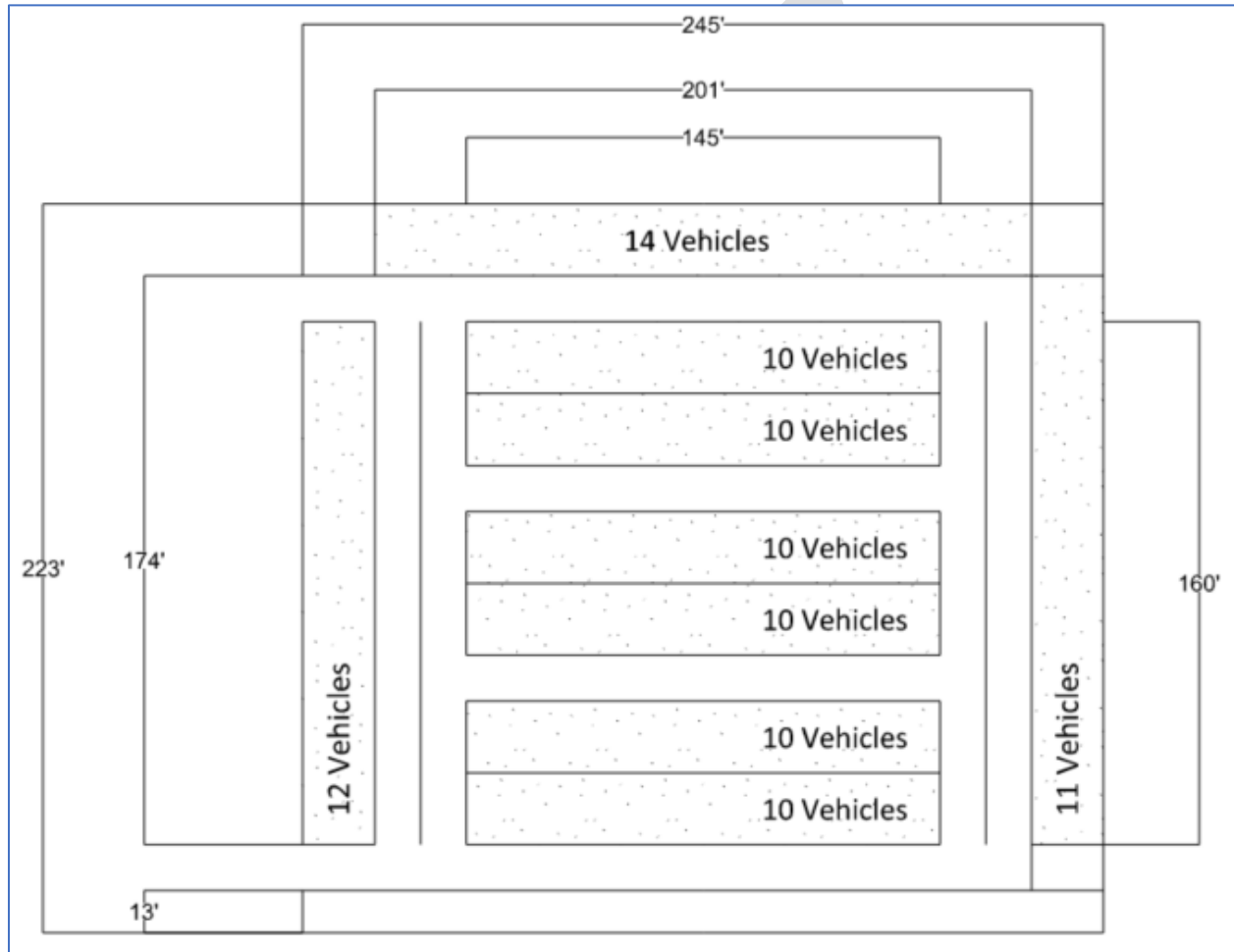
Four - Bay Side - By - Side

Park-and-Ride Structure									
Structure Height	Total Vehicle	# of vehicles by each level							
		Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
3 level + roof	561	155	155	155	96				



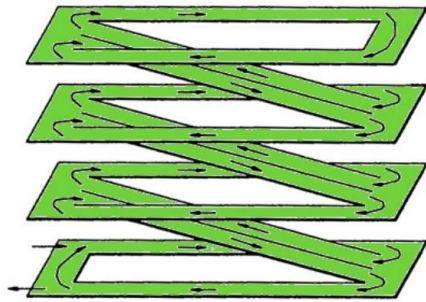
Gearty Delmore Funeral Lot
Surface Parking

Parking Structure Location	Size of the lot		Park-and-RideFootprint		Surface Parking
	[SF]	[Acre]	[L x W]	Ratio L/W	[# of Vehicles]
Gearty Delmore Funeral lot	54640	1.25	245' X 223'	1.10	99



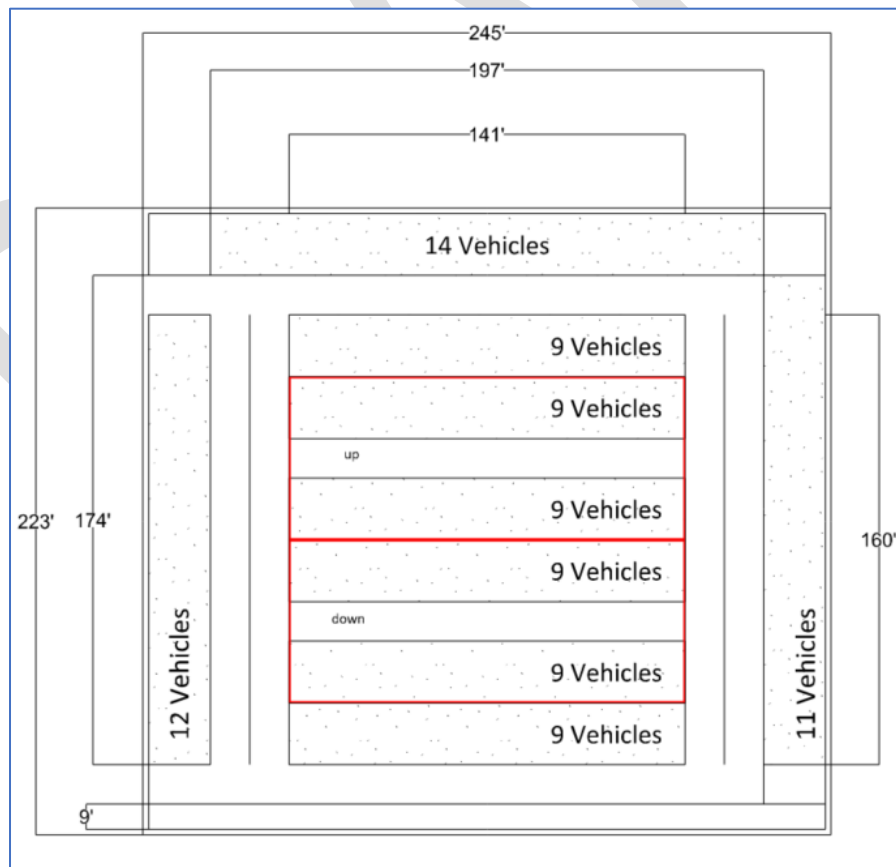
Park and Ride Structure

Four bay side by side structure type is used for this location.



Four - Bay Side - By - Side

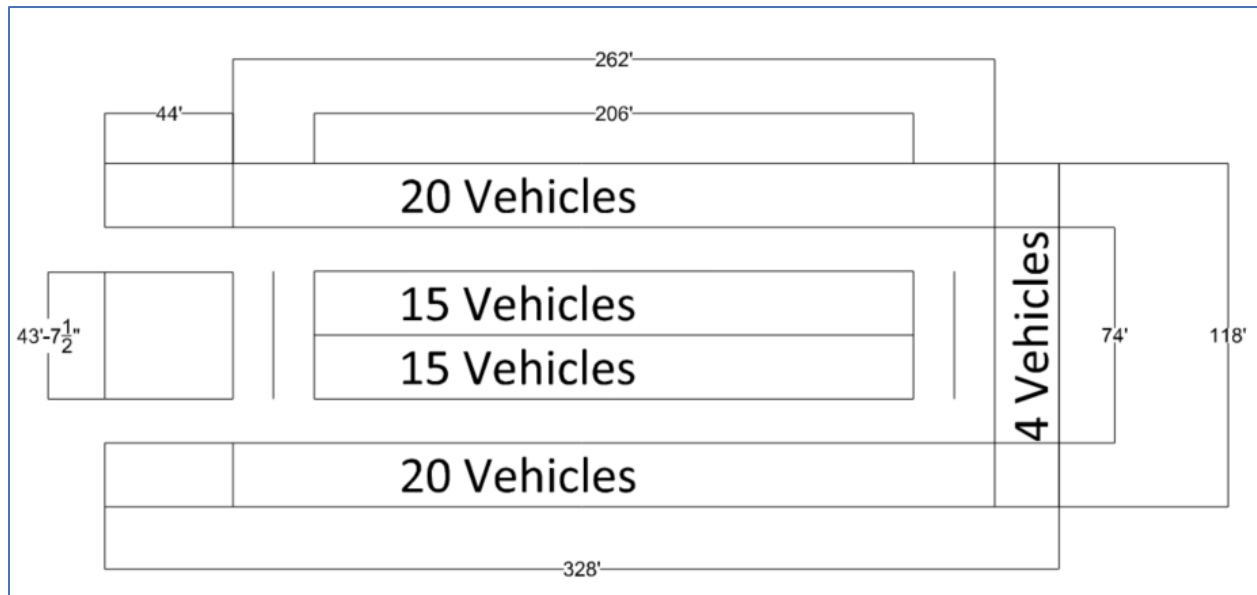
Park and Ride Structure									
Structure Height	Total Vehicle	# of vehicles by each level							
		Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
5 level + roof	517	92	92	92	92	92	57		



Walgreens Lot

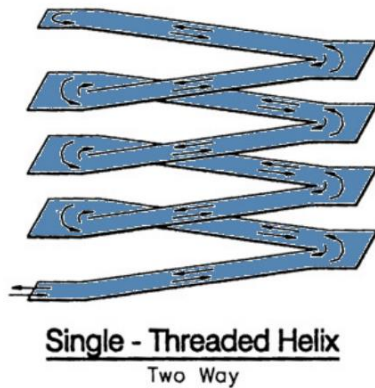
Surface Parking

Parking Structure Location	Size of the lot		Park-and-Ride Footprint		Surface Parking
	[SF]	[Acre]	[L x W]	Ratio L/W	[# of Vehicles]
Walgreens Lot	44700	1.03	328' X 150'	2.19	74



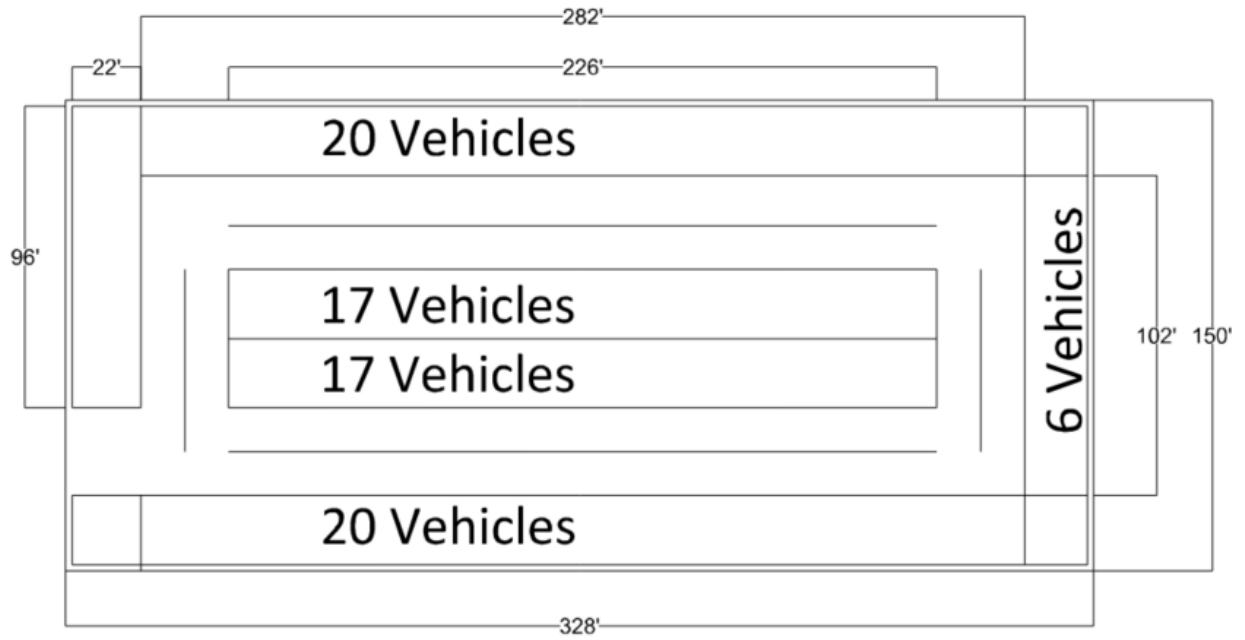
Park and Ride Structure

Single – Threaded Helix structure type was used.



Park and Ride Structure									
Structure Height	Total Vehicle	# of vehicles by each level							
		Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
6 Level + roof	530	81	81	81	81	81	81	44	

Note: Walgreen lot is 0.89 acre (328'x118'), to accommodate park-and-ride structure, the footprint has to be 328'x150'.



DRAFT