

A Line Corridor Extension Evaluation

Rosedale Center to Rice Creek Commons

September 2016



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1. Introduction

Background

In 2012, Metro Transit formally identified and analyzed 12 proposed arterial Bus Rapid Transit (ABRT) corridors for the Twin Cities region through the Arterial Transitway Corridors Study (ATCS). That study identified the Snelling Avenue corridor as the top priority for the region based on technical project merits and readiness for investment. Metro Transit plans to implement a new corridor every year, beginning with the A Line (the Snelling Avenue corridor) that opened June 11, 2016.

Ramsey County completed the 28-year remediation of the former Twin Cities Army Ammunition Plant (TCAAP) in Arden Hills in November of 2015. Beginning in 2016, the Minnesota Pollution Control Agency and the EPA will verify the residential remediation compliance standards of the site. Ramsey County plans to redevelop the site into a net-zero energy, mixed-use, high-density destination known as “Rice Creek Commons.” The County would like this to be a transit-oriented development, with the transit element being met by extending the A Line north from its planned terminus at the Rosedale Transit Center to the Rice Creek Commons site. This proposed extension was not one of the originally studied ATCS corridors and therefore has had no arterial BRT analysis completed to date. This report will evaluate the corridor as an extension of the A Line and provide implementation recommendations based on those findings.

2. Engagement Plan & Process

This process will be driven primarily by technical findings and thus its engagement plan will be focused on formulating and communicating those findings with a technical audience that can assess the data in the context of their community or agency. The findings of this report will help inform future project phases that will include robust and broad public participation process. Technical and stakeholder engagement for this evaluation took place in three primary settings: Meetings with Key Stakeholders, The Staff Working Group, and an Open Forum.

Meeting with Key Stakeholders

Individual meetings with key non-governmental stakeholders in the corridor are a critical engagement activity. These meetings are intended to spark a discussion of the stakeholder’s transportation needs and how an extension of the A Line could address those needs. Along with the Staff Working Group, the information gathered in these meetings will guide the purpose and need statement of the corridor. Information gathered at these meetings will also help formulate useful alternatives or phasing recommendations to full ABRT in the corridor.

For the purposes of this report, key stakeholders are limited to those institutions that will provide a large segment of the ridership on the proposed extension, such as large regional employers or college campuses located within the corridor. Metro Transit and the Saint Paul Area Chamber of Commerce identified and reached out to the following key stakeholders for individual engagement meetings:

- University of Northwestern – August 8th, 2014
- Bethel University – August 26th, 2014
- St. Paul Area Chamber of Commerce Transportation Committee – September 18th, 2014
- Wells Fargo Call Center Campus & Ramsey County – October 30th, 2014

- Boston Scientific – declined to participate
- Smith’s Medical – declined to participate
- Land O’Lakes – declined to participate

The following section will detail the specifics of each meeting, including attendees and main findings.

University of Northwestern: August 8th, 2014

Format: Metro Transit presentation followed by discussion

Approximate number of attendees: 10

Relevant figures provided by University of Northwestern:

- 1700 total students; 67% live on campus (1150 students)
- 30% of student body are freshmen and thus ineligible to have cars on campus
- 80% of eligible students have cars and buy a parking pass
- The campus circulator is a 12-passenger van that runs every 90 minutes. It branches 5 times a day to Roseville mall. This branch is quite popular.

University of Northwestern comments pertaining to Purpose and Need:

- There are many car-free students; freshmen are not allowed cars and upperclassmen may not be able to afford cars
- The demand for transit is not being met as indicated by the popularity of the campus circulator branch to Roseville
- Car ownership is a barrier students face to obtain an internship with a regional employer

University of Northwestern comments pertaining to alignment and evaluation results:

- Northwestern is supportive of a station at Lydia
- Northwestern University prefers the Lexington alignment as it connects their students with main retail destinations

St. Paul Area Chamber of Commerce Transportation Committee: August 18th, 2014

Format: Metro Transit presentation

Approximate number of attendees: 15

Transportation Committee comments pertaining to Purpose and Need:

- Additional place-making beyond the station footprint will further success in the corridor
- Present stakeholders expressed interest in station area planning

Transportation Committee comments pertaining to alignment and evaluation results:

- None provided

Bethel University: August 26th, 2014

Format: Metro Transit presentation followed by discussion

Approximate number of attendees: 10

Relevant figures provided by Bethel University:

- 2,600 total students; 70% live on campus (1820 students)
- Bethel University recently conducted their campus master plan. As a part of this process, they estimated that 6000 trips are generated from their main campus in Arden Hills every day

- A shuttle to Rosedale and Har Mar Mall exists; it runs on the hour and in the evenings.

Bethel University comments pertaining to Purpose and Need:

- An excess of parking reduces transit demand: In order to accommodate growth, Bethel University purchased Country Financial land off of Pine Tree. The new campus will be connected with the original campus by a vehicular bridge with sidewalks. Some administration offices are already moved; undergraduate classes may begin on the new campus as early as 2016. Bethel noted that this acquisition produces 250 extra parking spots above and beyond their projected parking needs for more than fifty years.
- Car-culture prevails: Bethel noted that the campus is currently auto-oriented with a "culture of not having transit" and that because of the recent acquisition of plentiful parking, they do not intend to economically push stakeholders away from cars by increasing parking rates or limiting car ownership further.
- Graduate students would benefit from all-day access to transit, as they are staying on campus later than undergraduate students

Bethel University comments pertaining to alignment and evaluation results:

- Bethel noted support for the Lexington Avenue alignment with a station at Pine Tree that abuts their secondary campus because:
 - Station placement at the original campus location would be difficult due to existing traffic and safety issues at the main entrance along Bethel Drive;
 - The Lexington alignment better connects their students to destinations in the corridor outside of campus;
 - The campus on Pine Tree is expected to grow significantly as the vehicular bridge with sidewalks between the two campuses will make connections easy.

Wells Fargo Call Center Campus & Ramsey County: October 30th, 2014

Format: Metro Transit presentation

Approximate number of attendees: 7

Wells Fargo Senior Management comments pertaining to Purpose and Need:

- Senior Management stressed that current and prospective employee transportation mobility has proven difficult due to the location of the Wells Fargo campus and existing transit service

Comments pertaining to alignment and evaluation results:

- Stakeholders expressed interest in how the A Line Extension could help alleviate their workforce transportation woes being nearly two miles removed from the proposed route alignment

Staff Working Group

The Staff Working Group has representation from cities, counties, and other governmental agencies in the corridor that have a vested interest in the results of the evaluation. The Staff Working Group will be asked to participate as both a partner and advisor to Metro Transit for the evaluation of the A Line Extension Study. Table 1 lists the specific members invited to participate in the Staff Working Group.

In its partnership role, the Staff Working Group will:

- determine purpose and need statement for the corridor
- confirm existing conditions
- provide forecasts for land use, population, and employment to guide the evaluation

In its advisory role, the Staff Working Group:

- assessed evaluation methodology
- assessed evaluation results and phasing alternatives
- provided concurrence with the recommended courses of action

Table 1: Staff Working Group Representation

Member	Organization
Joseph Lux	Ramsey County
Erin Labree	Ramsey County
Kevin Roggenbuck	Ramsey County
Tom Simonson	City of Shoreview
Tom Wesolowski	City of Shoreview
Paul Bilotta	City of Roseville
Marc Culver	City of Roseville
Jill Hultmacher	City of Arden Hills
John Anderson	City of Arden Hills
Heather Worthington	Ramsey County
Josh Olson	Ramsey County
Shawn Walding	Minnesota Department of Transportation
Sheila Kauppi	Minnesota Department of Transportation
Scott Beauchamp	St. Paul Area Chamber of Commerce
Jonathan Weinhagen	St. Paul Area Chamber of Commerce
Charles Carlson	Metro Transit
Cameran Bailey	Metro Transit

Open Forum

The last element to the engagement plan for this evaluation is the Open Forum. The Open Forum is different from the other engagement activities in that it is not invitation-only; this forum is a chance for the community at large to weigh in on project purpose and need and alternatives.

The Open Forum was held at Northeast Youth & Family Services on August 20th, 2014 as a part of the Shoreview/Arden Hills Business Council. Metro Transit was the featured speaker of the event. After a brief presentation on the A Line Extension Evaluation, the approximately 30 attendees were given the opportunity to ask questions and provide input regarding the corridor evaluation.

Elected officials at the city and state level, city and county staff (specifically, community development members), commercial organizations of the area, and management from industrial job centers were all present.

Open Forum comments pertaining to tailoring the Arterial BRT concept to this corridor:

- Questions of existing demand
- Auto-oriented development patterns limit the potential of transit
- Walkability concerns
- Desire to include Park and Ride(s)

Open Forum comments pertaining to the evaluation results:

- Alignment suggestions
- Suggested phasing opportunity: build the southern end of the corridor to Northwestern University with diverted funds from West 7th Street

The Open Forum comments pertaining to the purpose and need statement for Arterial BRT in this corridor:

- Manufacturing plant noted having a limited employee pool due to necessity to own a car
- No reverse or off-peak transit in the corridor today

Finance and Commerce attended the meeting and wrote a news article following the Forum.

Purpose and Need

The purpose of this report is to evaluate the feasibility of extending the A Line Arterial Bus Rapid Transit route to Rice Creek Commons (TCAAP). This evaluation will assess existing roadway conditions, existing transit service, demographic and employment figures, as well as forecasted growth in the corridor. Based on these findings, capital and operating cost estimates will be generated for the preferred route alignment. The need for this report stems from Ramsey County's desire to develop Rice Creek Commons as a transit-oriented development, in addition to connecting the northern communities of the Twin Cities Metro to the region's broader transit network.

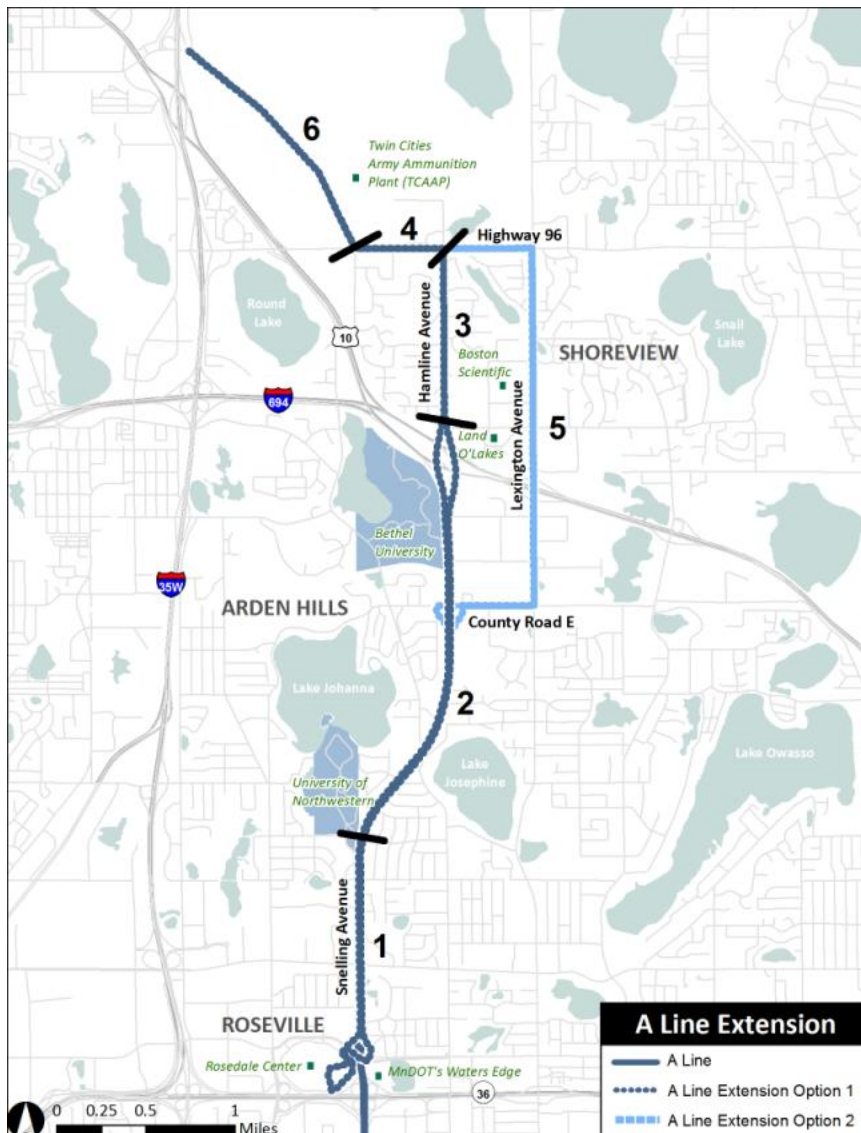
3. Existing Conditions

Existing Roadway Conditions

Existing conditions information is summarized by the following segments (Table 2). Figure 1 is a map of the A Line Extension corridor.

- Segment 1: Snelling Avenue (Rosedale Center to Lydia Avenue)
- Segment 2: Snelling Avenue (Lydia Avenue to Interstate 694)
- Segment 3: Hamline Avenue (Interstate 694 to Highway 96)
- Segment 4: Highway 96 (Hamline Avenue to future TCAAP Spine Road)
- Segment 5: Lexington Avenue (County Road E to Lexington Avenue to Highway 96)
- Segment 6: Future TCAAP Spine Road (Highway 96 to Interstate 35W)

Figure 1: A Line Extension Corridor Map



Existing Traffic and Transportation Conditions Relevant to this study:

- Corridor is auto-oriented with high traffic volumes and moderate-to-high speeds
- 2-lane roadway per direction
- No street parking
- Separated Bike/Ped Trail on Highway 96
- Sidewalk and/or Bike path coverage on County Rd E and Lexington Avenue
- “A Line Extension Option 2” is better equipped for the pedestrian access desired for Arterial BRT

Table 2: Existing Roadway Conditions by Segment for A Line Extension Corridor

Segment	1	2	3	4	5	6
Current Traffic Volumes (AADT)	27,000 – 36,000	30,000 – 33,000	10,300	20,900	14,200 – 24,300	N/A
Traffic Controls	Signalized intersections	Stop-controlled intersections	Stop-controlled intersections	Signalized intersections	Signalized intersections	N/A
Posted Speed Limit (mph)	50	55	40	50 (HWY 96)	35 (County Rd E) 40 (Lexington) 50 (HWY 96)	N/A
Number of Lanes	2 lanes / direction	2 lanes / direction	1 lanes / direction	2 lanes / direction	2 Lanes/ direction	N/A
Turn Lanes	Yes	Yes	Yes, Center	Yes	Yes	N/A
Street Parking	No	No	No	No	No	N/A
Bike Lanes	No	No	No	Yes, south side has separated bike lane	Yes	N/A
Sidewalks	No	No	Yes	Yes	Yes	N/A
State of Pedestrian Infrastructure	Currently, no pedestrian infrastructure on either side of the segment.	Currently, no pedestrian infrastructure on either side of the segment.	Sidewalks are only on the west side of Hamline. There are painted crosswalks at some intersections.	On the south side of Highway 96, there is a separated bike/ped trail.	<u>County E</u> : Full sidewalk coverage <u>Lexington</u> : South of County F, east and west until southern entrance to Arden Plaza; north of County F, separated bike/ped trail on both sides (no west side infrastructure between Red Fox Rd and County Rd F) <u>Highway 96</u> : Sidewalk on north side until Hamline; separated bike/ped trail on full length of south side	N/A

Existing Transit Service

Currently, no transit routes serve the entire length of either of the proposed alignments. However, Local Route 225 does travel on approximately half (4 miles) of the 8 mile extension route (Figure 2) and is used as the basis for existing transit conditions. Route 227 also operates near the corridor, but operates farther east and is not included in this analysis. Route 227 carries approximately 100 daily passengers.

Transit service to this area today is limited. However, Route 225 roughly follows the Lexington Avenue-Option 2 alignment (Fig. 2). Route 225 starts at the Rosedale Transit Center, but deviates from Snelling and our proposed alignments in order to serve the retail area in Roseville along Fairview Avenue. The route then follows Snelling Avenue north to Shoreview, where it runs along Lexington Avenue to serve the retail and commercial businesses surrounding I-694, including Cub Foods, Target, and Land O' Lakes. Route 225 runs approximately every hour and serves on average 170 people per weekday and 68 people per weekend (Table 3). In comparison, the basis for transit conditions prior to A Line launch, Route 84, runs approximately every 15 minutes and serves between 3,000 and 4,000 riders daily (Table 3).

Table 3: Transit Performance of the A Line and the proposed Extension

Route Characteristic	Route 225		Route 84	
	Weekday	Saturday	Weekday	Saturday
Hours of Operation	6:36a – 6:13p	8:58a – 5:20p	5:16a – 12:32a	5:10a – 12:07a
Peak Frequency	30 min	60 min	15 min	15 min
Off-Peak Frequency	60 min	60 min	15 min	30 min
Number of daily Round trips ¹	12	9	71	67
Maximum Buses ¹ Required	2	1	8	7
Approx. boardings ²	170	68	4,383	3,783
Passengers per in-service hour ²	20	3	46	41

Go-To Card Data on Transfers to A Line Extension Corridor

Currently, customers are able to ride Route 225 south to Rosedale and transfer to Route 84, which is the route that will be complemented by the A Line. In order to get an understanding of how many customers may choose to travel from Arden Hills to Saint Paul, or vice versa, a transfer analysis was done using Go-To Card data from September 16-20, 2013. First, the number of transfers was determined from Route 225 to Route 84 and then from Rt 84 to Rt 225. This number was then divided by five to estimate daily transfer activity between these routes. Due to the fact that this number only represents customers that paid with a Go-To Card, the daily transfer number was divided by the monthly Go-To Card use percentage to estimate activity for all customers. For September 2013 (Table 4), an average of 24 customers transferred from Rt 225 to Rt 84 daily (15% of Rt 225 customers), while an average of 22 transferred from Rt 84 to Rt 225 daily (<1% of Route 84 customers).

¹ August Pick 2013 System Statistics. 2016 usage has dropped since 2013 from 170 to 130 per weekday.

² August Pick 2013 Automated Passenger Counter report. 2016 productivity has decreased to 15 rides/hour

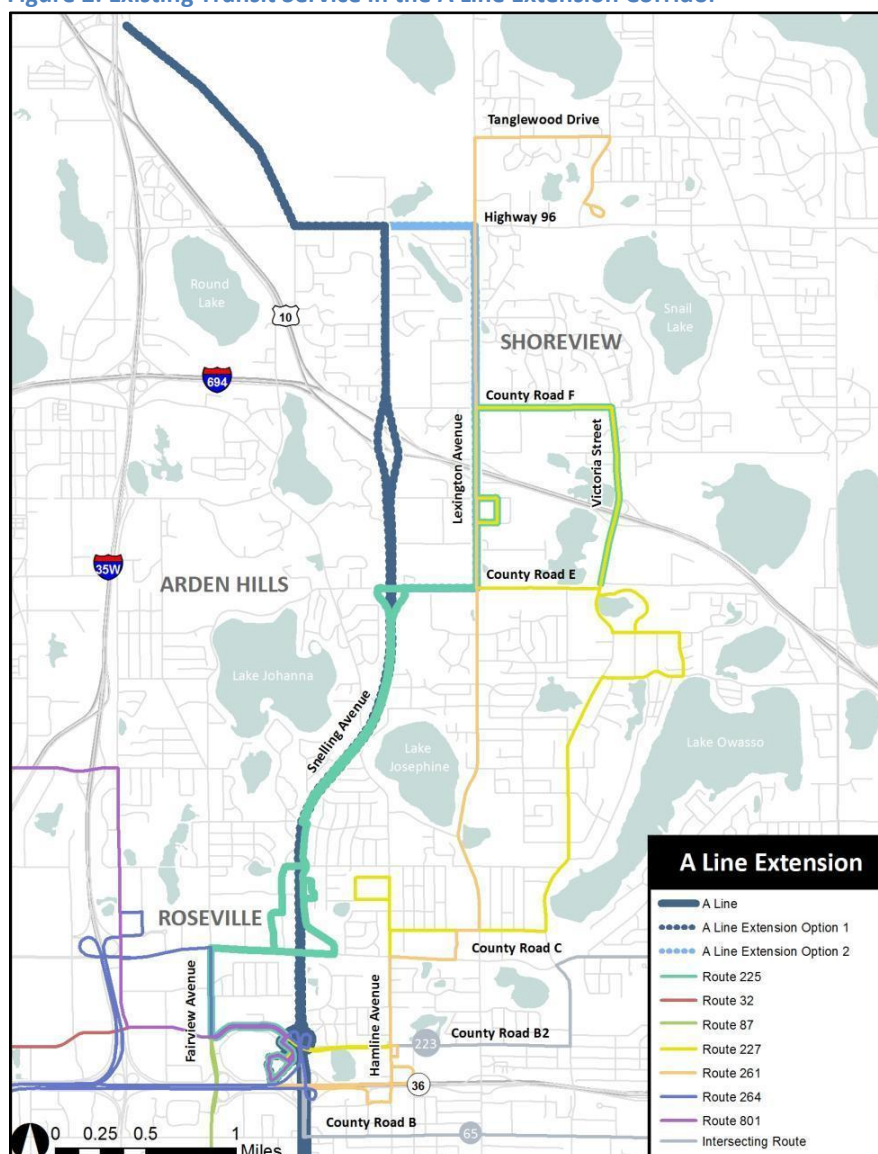
Table 4. Daily Transfers to and From Route 225 and 84, September 2013

Go To Card Transfers (Route 225- Route 84) Sept. 16-20, 2013	Daily Go To Card Transfers (Route 225-Route 84)	Monthly Go To Card Use Route 225	Total Daily Transfers (Route 225- Route 84)
64	13	54%	24
Go To Card Transfers (Route 84-Route 225) Sept. 16-20, 2013	Daily Go To Card Transfers (Route 84-Route 225)	Monthly Go To Card Use Route 84	Total Daily Transfers (Route 84-Route 225)
48	10	45%	22

Demographic and Employment Figures

The two A Line Extension alignments have similar population figures, however the Lexington alignment has slightly more persons than the Hamline Alignment (Table 5). The current A Line alignment, which travels through more consistently dense portions of Saint Paul and Minneapolis, has the largest corridor population. While the proposed extensions have fewer individuals living along the corridor than the A Line, they do have similar jobs figures.

Figure 2: Existing Transit Service in the A Line Extension Corridor



The A Line still has the highest number of jobs overall, but Option 2, which travels by Boston Scientific, Land O’Lakes, and Country Financial, has nearly as many jobs. Option 1 has the smallest population and fewest jobs compared to Option 2 and the A Line. Because of existing transit service, employment, and existing pedestrian infrastructure, nearly all findings and recommendations assumed Option 2’s alignment.

Table 5. Population and Employment Figures for Alternatives 1 and 2 and the A Line, 2008-2012

	Total Population	Percent of 7 County Population	Jobs (2011)
A Line	90,392	3.16%	34,301
Hamline Alignment	40,764	1.42%	26,892
Lexington Alignment	42,456	1.48%	31,208

Population Source: 2008 American Community Survey 5 Year Estimate

Employment Source: Longitudinal Employer Housing Dynamics program

2040 Forecasted Growth

The four cities that would be most directly served by the A Line Extension (Arden Hills, Mounds View, Roseville, and Shoreview) are all projected to experience positive growth in population, housing, and employment through 2040 (Table 6). However, the majority of the growth anticipated through 2040 is projected to be independent of TCAAP’s development. Metropolitan Council TAZ (Transportation Analysis Zone) 2020-2040 forecasts for the TCAAP site project an approximate 3,000 person population growth by the year 2040 (Table 7).

Table 6. Projected Populations of Communities in A Line Extension Service Area, 2010-2040

Year	Arden Hills	Mounds View	Roseville	Shoreview
2010	9,552	12,155	33,600	25,043
2030 - Projected	12,000	12,300	34,000	25,500
2040 - Projected	12,900	12,400	34,500	25,600
Projected Percent Increase 2010 - 2040	35%	10%	3%	16%

Source: MSP Thrive 2040 – Forecasts (July 2015)

In addition, household unit and employment are expected to reach approximately 1,300 units and 1,000 jobs by 2040. Because of the current and forecasted growth in the corridor, as well as at the TCAAP site specifically, recommendations for the development of ABRT took an approach suited for incremental, but still moderate growth.

Table 7. Household, Population, and Employment Forecasting Figures for TCAAP Site, 2014-2040

TCAAP Site (TAZ#1003)	Households	Population	Employment
2014	0	0	132
2020 (Projected)	300	730	380
2030 (Projected)	830	1,920	650
2040 (Projected)	1,280	3,030	950

Source: Metropolitan Council TAZ (Transportation Analysis Zone) 2020-2040 forecasts (January 2015)

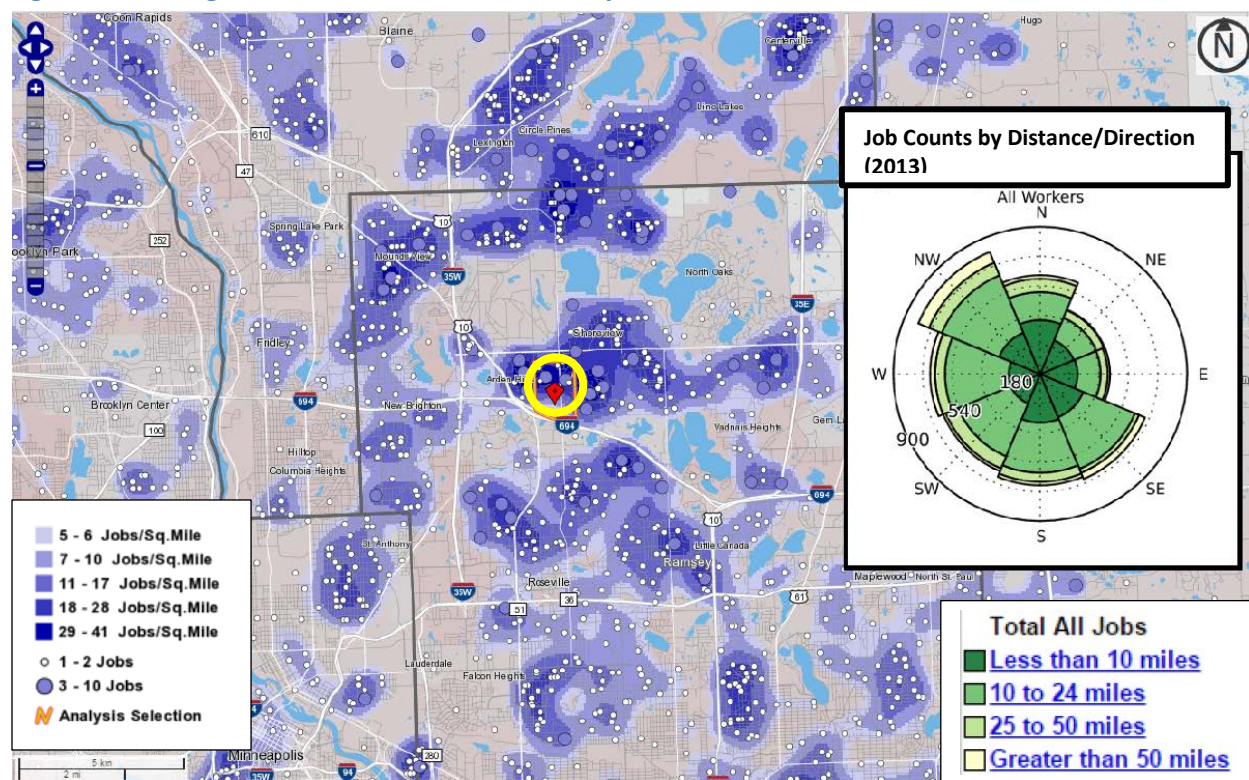
4. Suburban Employer Comparison Case: Best Buy HQ Campus, Richfield

During project discussions with agency and local government staff professionals representing the A Line Extension Corridor's various communities, interest was expressed in comparing Cummings Jobs Park (Jobs Park), an employment concentration near Lexington Avenue and County Road F West, transit mode share to other similar suburban employment centers in the metropolitan region. Through comparison, staff hoped to glean how the corridor's various communities might plan for a future with greater public transit access and use. A "best case" comparison is made to the Best Buy campus.

Home-Destination Analysis for Cummings Jobs Park

To better understand what the potential and actual transit customer segment in the Jobs Park is, a home-destination analysis was performed (Figure 3). Because the A Line is due south of where the A Line Extension would serve Arden Hills and the Cummings Jobs Park, the Southwest, South, and Southeast primary and inter-primary directions were selected for analysis (Table 8). Based on the likelihood of potential customers to use transit, as well as data availability, this analysis focused on current employees living between 0 – 10 miles of the Jobs Park.

Figure 3. Cummings Jobs Park Home-Destination Analysis



Inset: "Job Counts by Distance/Direction (2013)" radial-density map portrays aggregated density and direction of employee homes

Of the approximately 5,000 employees working in the Jobs Park in 2013, approximately 2,022 (41%) of those employees live in a Southerly direction from the Jobs Park. Of those 2,022 employees, roughly 780, or 16% of the overall Jobs Park workforce, live within 10 miles of the jobs park in that direction.

Table 8. Employees Living Southwest, South, and Southeast of Jobs Park

	Southwest of Work Blocks		South of Work Blocks		Southeast of Work Blocks		Southern Directional Total
	Count	Share	Count	Share	Count	Share	
Total Jobs in Direction	643	100%	681	100%	698	100%	Total
< 10 miles	195	30%	299	44%	286	41%	780
10 - 24 miles	350	54%	306	45%	346	50%	1,002
25 - 50 miles	81	13%	55	8%	26	4%	162
> 50 miles	17	3%	21	3%	40	5%	78

<http://onthemap.ces.census.gov> (2013)

Current Transit Use in Jobs Park Analysis

An analysis of current transit service in the Jobs Park found that it is served by 7 bus stops (Table 9) and 3 bus routes. However, in terms of transit providing morning and evening peak service to and from the jobs park, respectively, the Jobs Park is served by bus route 225 (Figure 4). Passenger Count Data revealed that an average of 8 people are utilizing northbound Rt 225 to arrive at the jobs park on weekday mornings between 6:52am – 8:45am (Table 9).

Figure 4. Bus Route 225 Service Map in Jobs Park

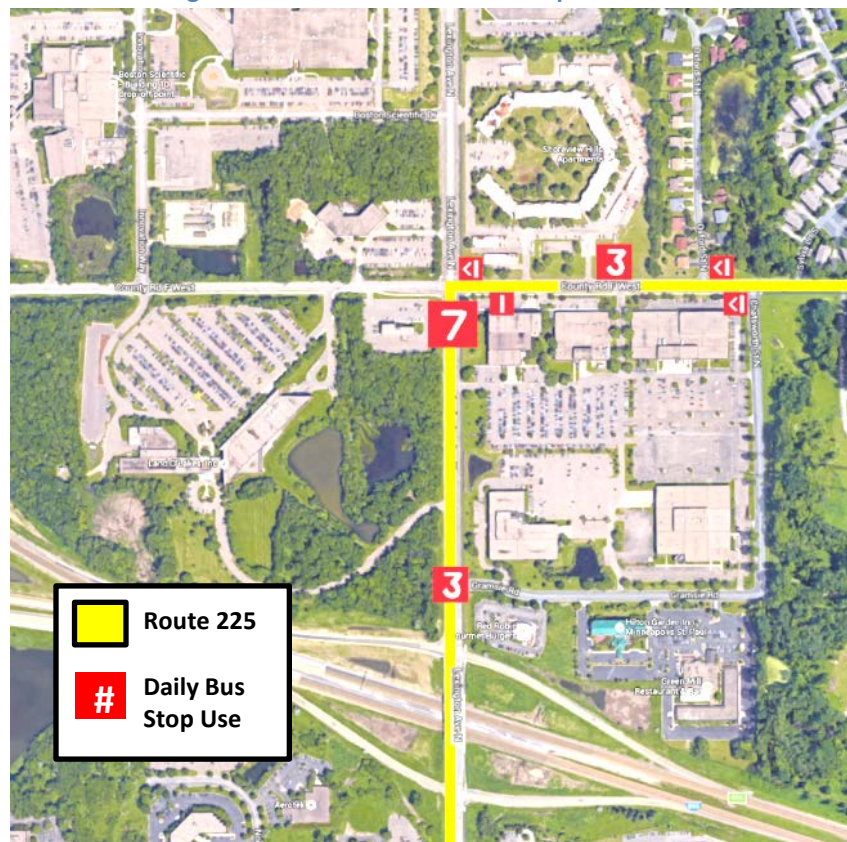


Table 9. Current Bus Route 225 Service and Ridership in Jobs Park

Bus Stop	Number of AM Peak Hour Trips (North bound)	AM Peak Hour Alightings (6:30-9am)	Number of PM Peak Hour Trips (South bound)	PM Peak Hour Boardings (3-6pm)	Total Daily Trips per Bus Stop
1. LEXINGTON AVE & GRAMSIE RD	5	2	5	1	3
2. LEXINGTON AVE & CO RD F		4		3	7
3. CO RD F & LEXINGTON AVE		< 1		N/A	< 1
4. CO RD F & #4138 -4134		N/A		3	3
5. CO RD F & #1050		1		N/A	1
6. CO RD F & OXFORD ST		N/A		< 1	< 1
7. CO RD F & CHATSWORTH ST		< 1		N/A	< 1
Approximate Total Number of Trips		8		8	16

August Pick 2014 Automated Passenger Counter report

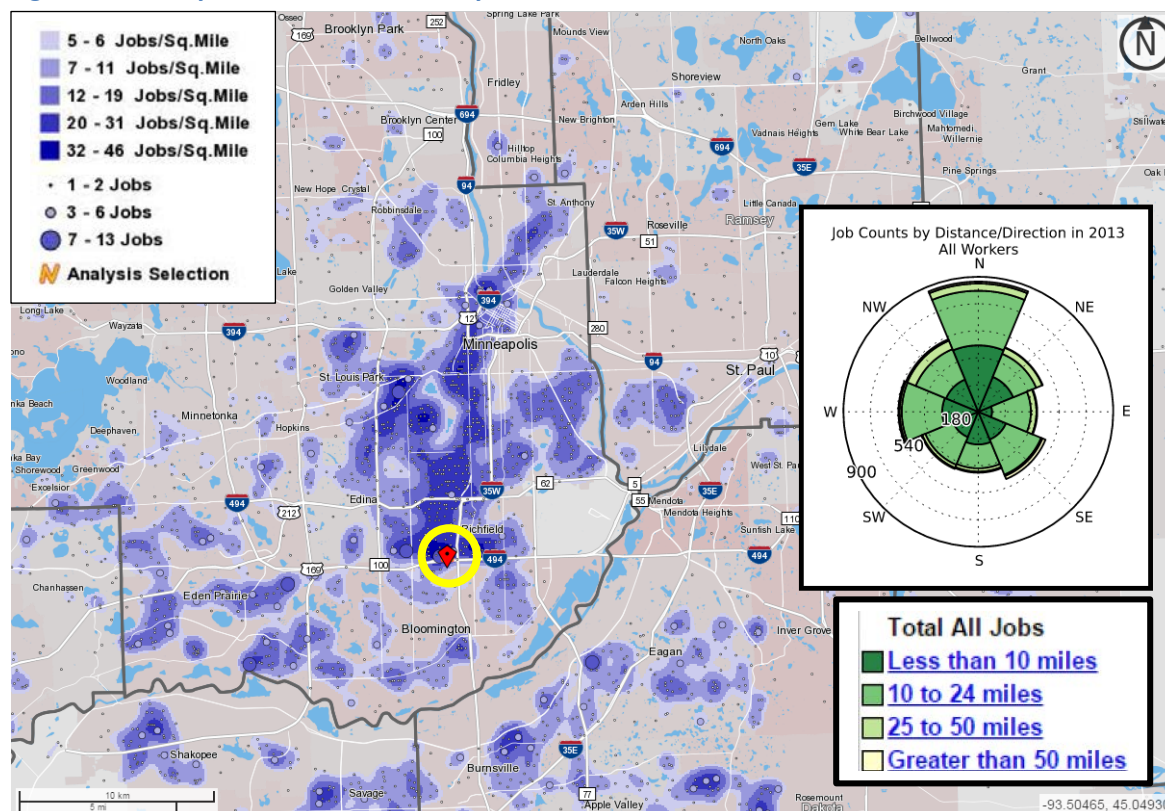
The ultimate finding of the Home-Destination and Current Transit Use Analysis of the Jobs Park showed that of the approximately 780 employees most likely to utilize current transit options, and thus the A Line Extension, 8 employees (1.02%) are currently doing so during regular working hours. Relative to the entire Jobs Park, 8 transit users constitutes a 0.16% transit ridership share. Analysis also revealed that employees living south of the Jobs Park are only served by Rt 225 during morning and evening peak hours. Improved transit service could increase this share somewhat.

Best Buy Headquarters Campus

Peer suburban Jobs Parks and employment centers average a 1.9% transit ridership share. However, there is a one particular outlier that sees transit ridership of 6%: the area including the Best Buy Headquarters Campus. Located in Richfield, it has proven to be the most successful example of suburban transit mode share in suburban areas in the entire metro region with a 250 persons a day (6%) employee transit ridership share. This is not necessarily due to the number of jobs at the site as that number was at approximately 4,100 in 2013, which is less than the level of employment at Cummings Jobs Park in 2013 (5,000). The home-destination analysis of Best Buy HQ reveals 3 distinct advantages it has relative to most other suburban jobs parks which contribute its higher (6%) employee transit ridership share. This increased performance is relative, however, as downtown Minneapolis achieves a transit mode split near 40 percent.

1. The first advantage is the geographic concentration of Best Buy HQ's workforce. As Figure 5 may suggest and data verifies, 45.3% (1,856) of all Best Buy HQ employees live in the Northwest, North, and Northeast primary and inter-primary directions (Table 10). Many employees living in this generally northern direction live in a fairly consistent, unbroken, geographic pattern.

Figure 5. Best Buy Home-Destination Analysis



Inset: “Job Counts by Distance/Direction (2013)” radial-density map portrays aggregated density and direction of employee homes

2. The second advantage is that 45.6% (1,870) of all employees live within 10 miles of work. Figure 5 reveals that in actuality, many of those employees living within 10 miles of work are within 5 – 7.5 miles of work. The concentration of employee households also generally increases with greater proximity to Best Buy HQ. Compiling these two advantages shows that 928 employees (22.7% of all employees) living within 10 miles of work live in the generally northern directions.

Table 10. Employees Living Northwest, North, and Northeast of Jobs Park

	Northwest of Work Blocks		North of Work Blocks		Northeast of Work Blocks		Totals
	Count	Share	Count	Share	Count	Share	
Total Jobs in Direction	523	100.0%	868	100.0%	465	100.0%	1,856
< 10 miles	233	44.6%	443	51.0%	252	54.2%	928
10 - 24 miles	219	41.9%	364	41.9%	346	35.7%	929
25 - 50 miles	61	11.7%	48	5.5%	26	9.5%	135
> 50 miles	10	1.9%	13	1.5%	40	0.6%	63

3. Best Buy HQ is centrally located within the 14.3 mile long American Boulevard Corridor (Figure 6), which was home to 86,000 jobs and 33,000 people per the “Arterial Transitway Corridors Study” in 2010, and is located directly off of I-494 and I-35W. Because of the high level of employment and

housing development in the corridor in which Best Buy HQ is sited, it benefits from transit service including reverse commute express buses and urban/suburban local buses.

As an additional factor outside of employment-household geography, Best Buy is an award-winning leader in its support for non-SOV commuting. In addition to offering 100% employer-paid transit pass, secured bike parking, flexible work options, on-site child care (the state's largest child care center), on-site gym, and extensive on-site food options that limit needs for midday vehicles by employees. To a lesser extent these amenities are also available to Jobs Park employees, depending on the employer.

Figure 6. Best Buy HQ Campus Relative to American Boulevard Corridor



Moving Forward in Cummings Jobs Park

Additional transit service will not by itself overcome geographically dispersed and low density home locations of current Jobs Park employees. Transit service can support a reshaped hiring recruitment and housing location choice for current and prospective employees. Even limited transit service additions are unlikely to be sustained without a strong partnership led by area employers and local governments. But additional immediate steps can be taken within the Jobs Park area to maximize transit ridership.

Moving forward, it would be strategic to focus on increasing the transit ridership share among employees who are currently most well positioned to do so. Such employees include:

- A. Employees currently living within 10 miles of the jobs park in the generally southern direction
- B. Employees living in a location with easy access to current transit (Route 225)
- C. Have an information session informing interested employees about transit access and benefits, as well as fielding and aggregating hurdles prospective transit riders face so that specific needs may be addressed

There are approximately 780 employees in the Jobs Park living in the generally southern direction within 10 miles. A much more attainable short-term aspiration may be aiming for increased transit ridership share among those 780 Southerly-dwelling employees, which would be about 47 employees. Such transit utilization, coupled with fostering a broader culture of transit use in the Jobs Park, could sustain current service levels and support future service increases to the area.

5. Findings

Preferred Alignment Option

Results of existing roadway conditions, existing transit service, demographic and employment figures, and the forecasted growth within both alignment options were shared with stakeholders during engagement efforts. Based on the analysis of those existing conditions and feedback from stakeholders and the Staff Working Group, further findings assumed “Lexington Avenue” alignment as the selected option (Figure 7) due to:

- Feedback from engagement efforts
 - Greater number of existing destinations
- Greater existing and comprehensive pedestrian infrastructure

Running Time

It is estimated that A Line Extension buses will operate at speeds between 18 and 20 miles-per-hour depending on the time of day and direction of travel. The 8 mile corridor is estimated to have a one-way running time of 18.8 minutes. At current peak 10-minute service frequency, A Line Extension operations require four additional peak buses. A spare bus will be required for fleet reliability purposes.

Capital Costs

Based on 2015 A Line costs, the A Line Extension is estimated to cost \$16.15 million (Table 11). Construction costs are estimated at \$9.7 million, plus design (15%) and construction (10%) soft costs. Procuring five additional BRT vehicles to operate the A Line Extension will cost approximately \$2.5 million, and an unallocated contingency of 10 percent is

Figure 7: A Line Extension Map - Preferred Alignment



Table 11: A Line Extension Capital Costs- 2015 Dollars

<i>Project Component</i>	<i>Estimated Cost</i>
Platform Construction	\$ 8,800,000
Station Shelters	\$ 450,000
Operator Facilities	\$ 250,000
Transit Signal Priority	\$ 200,000
Soft Costs: Design	\$ 1,450,000
Soft Costs: Construction	\$ 1,000,000
Vehicles	\$ 2,500,000
Unallocated Contingency	\$ 1,500,000
Total	\$ 16,150,000

service to the A Line) operated over 64,000 annual bus hours. Running the A Line between 46th Street and Rosedale Mall will require 14,000 additional annual bus hours in the corridor. If the A Line extended to Rice Creek commons, it would require an additional 51,000 annual hours of bus service. Initial A Line operations substantially replaced Route 84 service. Without substantial existing service north of Rosedale, all extension hours are expansion hours requiring new resources. 8).

The annual operational cost premium to run the A Line (above and beyond pre-A Line transit service in the corridor) is \$1.6 million. The annual operational cost premium to extend the A Line to TCAAP (above and beyond the original A Line) is an additional \$4.2 million (Table 12).

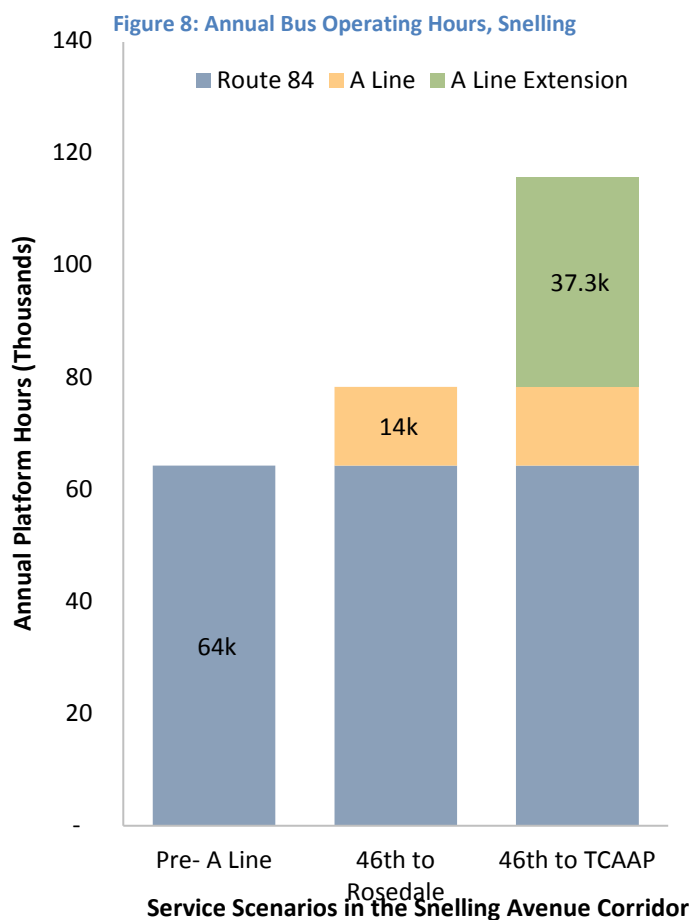
Table 12: Operational Costs of Snelling Avenue Service Scenarios

<i>Service</i>	<i>Bus Hours</i>	<i>\$ /bus hour</i>	<i>Annual Operation Cost</i>
Pre-A Line Service	64,200	\$ 112	\$ 7,200,000
Add A Line Service	14,000	\$ 112	+ \$ 1,600,000
Add A Line Extension	37,300	\$ 112	+ \$ 4,200,000 (above A Line)

assumed. Inflationary increases would need to be accounted for as implementation timelines become known. Costs could be reduced if current and future roadway projects plan, locate, and prepare civil infrastructure for future BRT construction. These savings could result in up to \$200,000 of savings per BRT-ready pre-constructed station platform.

Extension Annual Operating Costs

Operating cost models vary in sophistication. For this evaluation, a simplified hourly cost model is used. Prior to A Line implementation, Route 84 (the precursor



Transit Service Productivity

Per the Regional Transitway Guidelines adopted in August of 2012, Arterial Bus Rapid Transit Lines should serve a minimum of 20 rides per in-service hour. The A Line Extension would need to provide nearly 2,000 rides per weekday to meet minimum service productivity guidelines (Table 13).

Table 13: Ridership Requirements

	<i>A Line</i>	<i>A Line Extension</i>
Daily Weekday In-Service Hours	27.6	98.7
Additional daily riders needed to meet ABRT minimum service productivity standards	550	2,000
Pre-BRT Corridor Ridership	> 4,000	< 300

The A Line extension service area would likely need substantial land use change (and revised employee home locations) *throughout* the corridor to achieve even minimum required levels of service productivity to meet the estimated incremental operating cost. A phased approach of improved local service and future, phased BRT service may provide a path toward sufficient service productivity to sustain service, while also supporting land use goals and transportation needs in the corridor.

Extending the Route 84 offers a comparatively affordable operating cost toward extending BRT service in the future. After A Line service began, local Route 84 began to run every 30 minutes. Extending this route along the A Line Extension corridor would require 12,000 additional bus hours and \$1.35 million additional annual operational costs (above and beyond the A Line to Rosedale), and two buses would be required to operate to Rice Creek Commons at 30-minute frequency. A single bus investment would require approximately half this cost and could reach existing major employers in the extension corridor.

On a weekday basis, the local route extension would add 33 hours. Local bus service also requires a minimum service productivity of 20 rides/service hour. To meet this productivity for the Route 84 bus extension, 660 additional weekday rides would still be necessary but may present an achievable nearer-term target. Comparisons in frequency, hours, and cost are shown below (Table 14).

Due to these lower in-service hours, extending the Route 84 to TCAAP is about 1/3 of the operational cost of the full A Line Extension. This may allow for a phased implementation as these resources could be applied to future Arterial BRT service, offsetting the incremental annual cost of BRT.

Table 14: Options for Improved Transit Service in the A Line Extension Corridor

	<i>Frequency</i>	<i>Bus Hours</i>	<i>\$ /bus hour</i>	<i>Added Annual Operation Cost</i>
Add A Line Extension	10 minute	37,300	\$ 112	\$ 4,200,000
Add Rt 84 Extension	30 minute	12,000	\$ 112	\$ 1,350,000

Park-and-Ride Facilities

While Park and Ride facilities and options are not included in capital or operation costs, they may be considered in future project planning. Currently, a park-and-ride facility exists near the north terminus of the alignment on County Road H between County Road 10 and I-35W. While a station platform is not planned for this location, it could be incorporated into a future cost estimate. To avoid the costs

associated with building a larger, and/or additional park-and-ride facilities, there is precedence for existing commercial parking lot space to be shared or leased for transit purposes. Future local comprehensive plans may consider these opportunities for low-cost added access to the extension corridor.

6. Phased Development of the A Line Extension

Bus Requirements

Phasing in the A Line Extension may be a cost effective way to implement the transitway. Systematically choosing temporary termini of the transitway based on bus requirements and layover opportunity will help spread capital costs over time and build ridership in the corridor.

Figure shows how many vehicles are needed to operate the A Line Extension (10 minute frequency) to every proposed station location. The A Line Extension would require the purchase of four additional arterial bus rapid transit vehicles. Extending the Route 84 (30 minute frequency) would require the use of two regular fleet buses.

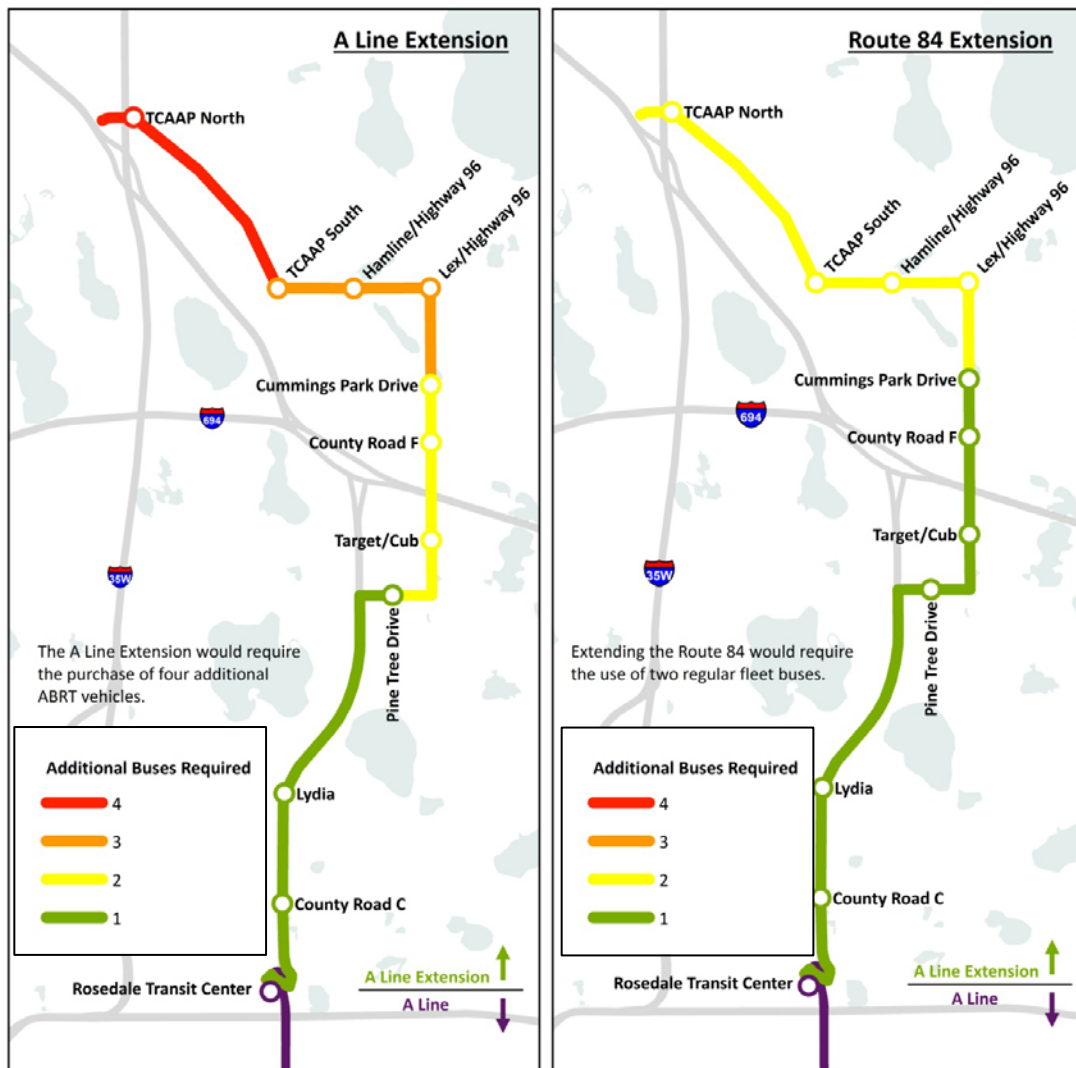


Figure 9: Additional buses necessary to operate two service scenarios in the A Line Extension corridor

Layover Opportunities for Phased Transit Implementation

Transit route terminals require infrastructure to accomplish several functions, including:

- A nearby operator break area with restrooms
- Close proximity between final stop and layover location
- Area for storage of more than one bus (80+ feet minimum) for the event that an arriving and departing bus have overlapping layovers
- On- or off-street roadways for buses to turn around and begin subsequent trips

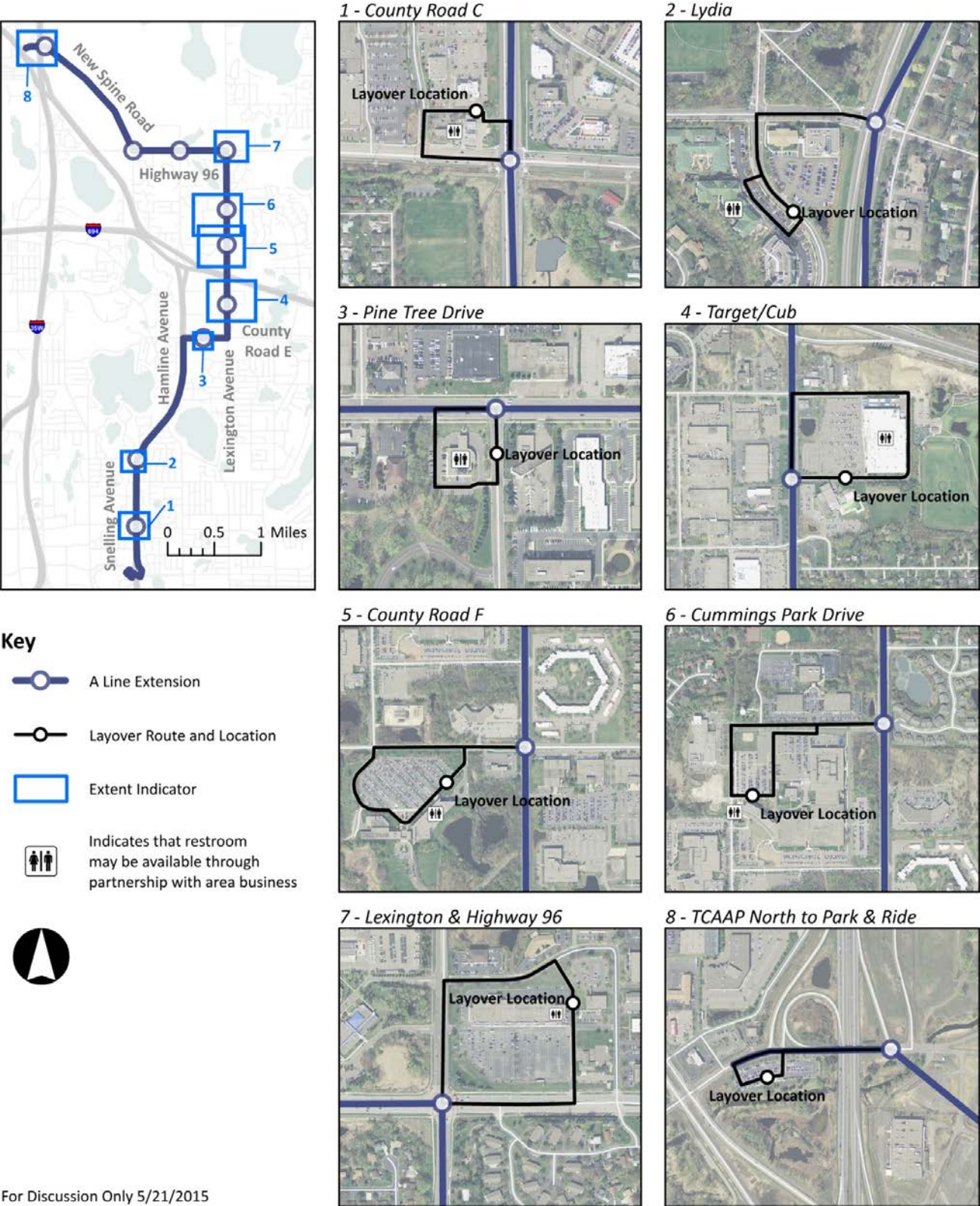
Based on these criteria, neither the TCAAP Stations nor the Hamline & Highway 96 station can act as termini. The pros and cons of the potential layover locations for the remaining stations are detailed below in Table 15.

Table 15: Characteristics of Potential Layover Locations by Station

Potential Termini	Bus Layover Location	Operator Restroom	Miles from final station	Notes
1 County Road C	On access road north of Marathon	Marathon	0.28	Laying over in private property
2 Lydia	Northwestern campus	Northwestern	0.82	Significant distance to layover location
3 Pine Tree	Pine Tree Drive (south of Co Rd E)	Wells Fargo	0.19	Assumes bus layover in existing Co Rd E traffic lane
4 Cub/Target	ROW South of Target	Target	0.65	Proposed restroom is significant walking distance, limited hours
5 County Road F	Land O' Lakes campus	Land O' Lakes	0.70	Need Land O Lakes partnership for access, restrooms
6 Cummings Park	Quality Dr. (behind Boston Scientific campus)	Boston Scientific	0.73	Need Boston Scientific partnership for access, restrooms
7 Lex/Hwy 96	Bridge Street (east of Subway)	Subway	0.59	Laying over in private property
8 Terminus	I-35W & Co Rd H Park and Ride	None	0.47	Using existing park and ride layover location

Figure 10 on the following page shows these proposed layover locations.)

Figure 10: A Line Extension Corridor Layover Opportunities



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7. Recommendations

Given these operational characteristics, extension evaluation findings are split into three overall categories of recommendations for A Line Extension corridor facilities, transit service, and land uses.

Facility Recommendations

Include transit-ready infrastructure and amenities in road reconstruction plans

Planning for A Line Extension implementation during road reconstructions could decrease capital costs. As roadway improvements proceed to design, Metro Transit staff should be engaged in local municipality design conversations to ensure that infrastructure requirements are put in place. Installing station flatwork and shelter foundations, installing conduit for future electrical connections, or providing driver restrooms or break areas for layovers are all cost-saving measures that local jurisdictions could do for low cost while area roadways are under separate construction.

Continued development of pedestrian friendly street designs

An accessible, safe, and comfortable pedestrian environment will be crucial for riders to safely arrive to and leave from their ultimate destinations, especially at station intersections. The pedestrian and bicycle infrastructure upgrades made during the summer of 2015 to County Road E and Lexington Avenue are the sort of investments required to meet these needs. A sustained commitment to pedestrian infrastructure in the corridor will increase the accessibility for local bus and future A Line riders. In addition, walking and cycling path planning should account for future BRT-ready station areas.

Transit-Oriented Development, per the Metropolitan Council's "Guide for Transit-Oriented Development," requires a comprehensive commitment to a mix of uses tailored to the level of transit service, as well as pedestrian oriented spaces. Based upon Arden Hills and Shoreview being classified in the MSP Thrive 2040 plan as "Suburban," it is recommended that the cities making up the A Line Extension Corridor take the parameters and guidelines laid out in the "Guide for Transit-Oriented Development" into strong consideration when updating their local comprehensive plans.

Service Recommendations

Evaluate using existing resources to provide more transit service

Implementing the A Line in 2016 substantially changed local Route 84. If the route experiences running time savings a short route extension toward University of Northwestern may become possible at low cost. If achievable, this extension offers a potential first step to increasing transit options in the corridor. Post-A Line schedule effects will be known in late 2016. A critical factor in achieving this extension may include robust transit signal priority at Co Rd B2 & Snelling Avenue Ramps to reduce signal delay.

Construct needed bus system infrastructure for service growth

Metro Transit is currently operating above its maximum garage capacity, significantly limiting incremental bus expansion. A planned new garage requires significant investment to enable local or BRT service expansion regionwide, including this corridor. In addition, Metro Transit has a Service Improvement Plan (SIP) that prioritizes new bus service region wide.

Land Use Recommendations

Plan for changes in density and land use patterns through comprehensive plan updates

In order for a high frequency transitway to operate successfully, the land use patterns of the A Line Extension corridor will need to change and densify. Reorienting the quantity and character of growth in

area through a commitment in comprehensive plans and capital investments will help support the more frequent transit and large infrastructure investment of an Arterial Bus Rapid Transit line. An opportunity for strategic coordination and commitment may be for all cities in the service area to incorporating land use recommendations into their local comprehensive plans, which are required to be updated by December 31, 2018.

8. Conclusion

Through the implementation of the A Line, Metro Transit is poised to continue significant transit investment in core and suburban communities. Extending the line could also leverage transportation benefits in one of the region's strongest development opportunities, Rice Creek Commons. While resources are not available and ridership is unlikely support an immediate A Line Extension, planning for concurrent development of improved transit with land use change over time will allow for the shared realization of both Rice Creek Commons development plans and the A Line Extension. These projects' synergies will also yield increased connectivity of suburban community employment and residential areas to the broader regional transitway network.

To achieve this shared vision, a phased implementation is recommended, with major milestones and development steps as outlined below. As early milestones are accomplished, a major investment study should be considered. This would prepare a more complete evaluation of the A Line Extension as new ridership models and demographic changes take effect. A county-led, county-sponsored study could also qualify the extension project for existing sales tax funding for capital and operating costs of the A Line Extension, significantly reducing the funding hurdles to build and operate the line.

Table 16. A Line Extension Implementation Path. Timing. and Lead Roles

	Implementation Leads for A Line Extension Actions				
	Local Communities-Land Use	Local Communities-Transportation	Private Sector	Transit Agency	Transit Funders
Near Term Strategies (0-5 years)	Continue to implement pedestrian-friendly development Plan for A Line development in comprehensive planning	Design and construct BRT readiness into Rice Creek Commons, local roadway projects	Begin Rice Creek Commons Implementation Foster transit-supportive workplace initiatives	Evaluate potential local bus expansion to extension corridor destinations	Fund Metro Transit Service Improvement Plan and capital investments that enable system growth
Mid-Term Strategies	Focus growth and development along extension corridor	Scope road projects to include A Line Extension civil infrastructure	Continue Rice Creek Commons implementation	Conduct major investment study including ridership forecasting and detailed implementation planning	
Long Term Strategies (10+ years)	Maximize development potential along A Line corridor	Partner in construction of A Line Extension construction	Expand and construct pedestrian-and transit-oriented campuses	Develop and implement A Line Extension	Fund A Line Extension Capital and Operating Costs