

# **Initial Screening of Alternatives**

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## Nicollet-Central Transit Alternatives

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## Table of Contents

<b>1. Introduction</b>	<b>1</b>
<b>2. Initial Screening</b>	<b>3</b>
<b>3.0 Transit Modes</b>	<b>4</b>
3.1 POTENTIAL RIGHT-OF-WAY IMPACTS	5
3.2 PROVIDES ACCESS TO COMMUNITY	6
3.3 COMPATIBLE WITH LOCAL AND REGIONAL PLANS	8
3.4 CONSISTENT WITH EXISTING COMMUNITY CHARACTER	10
3.5 PROVIDES APPROPRIATE LEVEL OF TRANSIT CAPACITY	12
3.6 COMMUNITY AND STAKEHOLDER SENTIMENT	13
3.7 SUMMARY OF INITIAL SCREENING: MODES	14
<b>4.0 Alignment</b>	<b>17</b>
4.1 CONNECTS ACTIVITY CENTERS	18
4.2 COMPATIBLE WITH LOCAL AND REGIONAL PLANS	21
4.3 COMMUNITY AND STAKEHOLDER SENTIMENT	24
4.4 EFFECTIVE ALIGNMENT THAT PROVIDES FOR DIRECT ACCESS	26
4.5 CONSISTENT WITH COMMUNITY CHARACTER	28
4.6 SUMMARY OF INITIAL SCREENING: ALIGNMENT	29
<b>5.0 Findings and Recommendations</b>	<b>32</b>
5.1 FEEDBACK FROM THE TECHNICAL/COMMUNITY ADVISORY COMMITTEE (T/CAC)	32
5.2 FEEDBACK FROM THE PUBLIC	33
5.3 DISCUSSION AND ACTION BY THE POLICY ADVISORY COMMITTEE (PAC)	33
<b>6. Summary of Alternatives for Detailed Definition</b>	<b>35</b>

## List of Tables

Table 1	Project Goals/Initial Screening Criteria Matrix	3
Table 2	Initial Screening Criteria – Transit Modes	4
Table 3	Screening Results: Potential Right-of-Way Impacts	6
Table 4	Screening Results: Provides Access to the Community	8
Table 5	Screening Results: Consistency with Local and Regional Plans	10
Table 6	Screening Results: Consistent with Existing Community Character	11
Table 7	Screening Results: Provides Appropriate Level of Transit Capacity	12
Table 8	Screening Results: Community and Stakeholder Sentiment	13
Table 9	Initial Screening Criteria – Alignments	16
Table 10	Screening Results: Connects Activity Centers	20
Table 11	Screening Results: Consistency with Local and Regional Plans	22
Table 12	Screening Results: Community and Stakeholder Sentiment	24

Table 13 Screening Results: Effective Alignment that Provides for Direct Access..... 26  
Table 14 Screening Results: Consistent with Community Character ..... 27

**List of Figures**

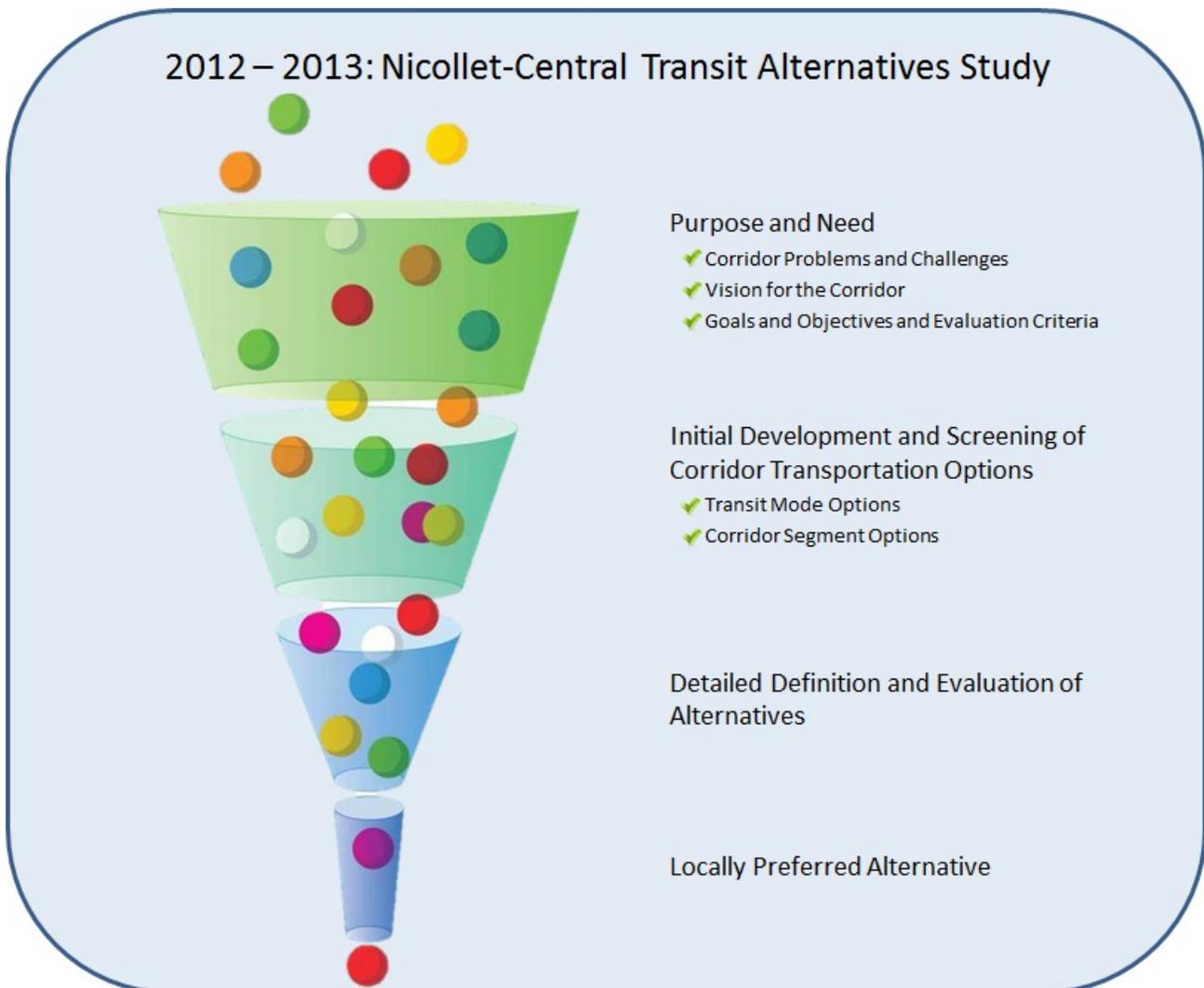
Figure 1 Screening and Evaluation Process ..... 1  
Figure 2 Results of Initial Screening of Modes ..... 15  
Figure 3 Corridor Segments for Initial Screening ..... 18  
Figure 4 Results of for Initial Screening of Alignments ..... 30  
Figure 5 Enhanced Bus and Modern Streetcar Examples ..... 34

## 1. Introduction

This document provides an overview of the screening process employed to define the alternatives for detailed evaluation. It describes the process for defining the universe of alternatives along with the methodology and results of the initial screening. The overall process has been designed to narrow the universe of alternatives into a Locally Preferred Alternative (LPA). This consists of:

1. Identifying the full range of modal and alignment alternatives.
2. Conducting an initial high level screening to screen out alternatives that do not meet the project’s purpose and need.
3. Following the completion of Step 2, defining a short-list of paired mode and alignment alternatives for detailed evaluation.
4. Conducting a detailed evaluation of the short-listed alternatives.
5. Selecting an LPA based on the results of the detailed evaluation.

Figure 1: Screening and Evaluation Process



This screening and evaluation process is designed to build upon the Purpose and Need Statement, and as described in more detail below, uses evaluation criteria that reflect the goals and objectives identified in the Purpose and Need document, developed with the Project's various committees and feedback from the public and stakeholders. These goals and objectives are:

### **Connect People and Places**

- Connect downtown with nearby neighborhoods
- Enhance connections between corridor activity centers and destinations
- Improve connections between the corridor and the regional transit system

### **Increase the Attractiveness of Transit**

- Provide transit capacity for future growth
- Maximize transit ridership
- Improve visibility and identification of the transit system
- Provide improved passenger amenities and infrastructure
- Provide reliable, frequent service
- Provide transit service and facilities that are easy to use for people who live in, work in and visit the corridor
- Provide safe and comfortable transit service and facilities
- Improve accessibility for people with mobility challenges

### **Catalyze and Support Economic Development**

- Support the economic vitality of downtown
- Support the economic vitality of small neighborhood businesses
- Support local and regional goals to foster compact, mixed-used development along the corridor

### **Integrate with the Transportation System**

- Integrate with the existing transit network
- Provide acceptable traffic operations and reasonable parking options
- Support walkable neighborhoods and multimodal transportation choices

### **Support Healthy Communities and Environmental Practices**

- Minimize impacts to historical and cultural and natural resources
- Minimize impacts to low-income and minority communities
- Minimize neighborhood and property impacts
- Support improved transportation, housing and economic opportunities for people of all income levels

### **Develop an Implementable Project with Community Support**

- Define transit improvements with strong public, stakeholder and agency support
- Identify transit improvements that are financially feasible and competitive
- Develop transit improvements that allow for phased implementation

## 2. Initial Screening

To expedite the evaluation process, the first step is to conduct an initial high-level screening of transit modes and alignments that do not meet the project’s goals. The initial screening focuses on two areas:

- Transit modes
- Alignments

The initial screening is intended to rely on readily available information and focus on high-level, qualitative assessments of modal and alignment options because of the relatively large number of alternatives to be evaluated typically associated at this juncture. This initial screening identified modes and alignments that should be dropped from further consideration and those that should be brought forward for more detailed analysis. In cases where there is not sufficient information to dismiss modes or alignments from further consideration, those options were brought forward into the detailed evaluation. The criteria used for the initial screening, and their relationship to the project goals, are summarized in Table 1.

**Table 1: Project Goals/Initial Screening Criteria Matrix**

<b>Criteria:</b>	<b>Goals: Connect people and places</b>	<b>Increase attractiveness of transit</b>	<b>Catalyze and support economic development</b>	<b>Integrate with the transportation system</b>	<b>Support healthy communities and environmental practices</b>	<b>Develop an implementable project with community support</b>
Potential right-of-way impacts				X	X	X
Provides access to community	X	X	X	X	X	X
Compatible with local and regional plans	X	X	X	X	X	X
Consistent with existing community character			X	X		
Provides appropriate level of transit capacity	X			X		
Community and stakeholders sentiment		X	X		X	X
Connects Activity Centers	X		X			X
Effective Alignment that Provides for Direct Access	X	X		X		X

In addition to identifying the appropriate transit modes and alignments to the Nicollet-Central corridor, the initial screening also identified a potential starter line for transit mode(s) other than bus, recognizing that more costly alternatives would likely entail implementation in phases. While a starter line or implementation phasing is typically analyzed towards the end of the Detailed Definition of Alternatives task, because of the rather complex bus service integration that would be entailed for this project, it is being approached in the initial screening of alternatives. Any preliminary starter line identified at this juncture is subject to change based on results of key factors such as ridership, cost, economic development benefits and public and stakeholder feedback.

The process for identifying a potential starter line is described in further detail in Section 5.0.

### 3.0 Transit Modes

Transit can be provided through a variety of modes; however, not all modes are appropriate for all environments, so a key first step for this project was to identify the modes that are appropriate and to screen out those that are not. In the initial screening, transit modes were screened based on the following criteria, which are a subset of the criteria identified in Table 1 appropriate for modal screening:

- Potential right-of-way impacts
- Provides access to community
- Compatible with local and regional plans
- Consistent with existing community character
- Provides appropriate level of transit capacity
- Community and stakeholder sentiment

Table 2 defines each of these criteria together with the output of the analysis and information used in the analysis.

**Table 2: Initial Screening Criteria – Transit Modes**

<i>Criteria</i>	<i>Screening Output</i>	<i>Data Sources and References</i>
Potential right-of-way impacts	Qualitative and quantitative evaluation of ability to accommodate mode within the existing right-of-way of alignment	<ul style="list-style-type: none"> <li>• Based on typical cross sections for modes and an assessment of the available right-of-way at particular points along the corridor.</li> </ul>
Provides access to community	Qualitative evaluation of the ability for the mode to provide access to the community.	<ul style="list-style-type: none"> <li>• Based on typical stop spacing for mode’s ability to meet existing travel market</li> <li>• Based on typical stop spacing compared to the location of special trip generators</li> <li>• Overall qualitative assessment of 1 and 2</li> </ul>
Compatible with local and regional plans	Qualitative evaluation of mode’s compatibility with local and regional plans	<ul style="list-style-type: none"> <li>• Qualitative assessment of how each mode fits in with local and regional planning efforts.</li> </ul>
Consistent with existing community character	Qualitative evaluation of mode compatibility with the land use and community character	<ul style="list-style-type: none"> <li>• Qualitative evaluation of how consistent an mode is with existing land uses in the corridor</li> </ul>
Provides appropriate level of transit capacity	Qualitative evaluation of mode’s ability to accommodate existing transit ridership in the corridor	<ul style="list-style-type: none"> <li>• Quantitative evaluation of existing transit ridership in the corridor, compared with typical transit capacity of mode</li> </ul>
Community and stakeholders sentiment	Qualitative evaluation of mode compatibility from stakeholder interviews, public open houses, on-line surveys, and meetings and outreach activities	<ul style="list-style-type: none"> <li>• Qualitative assessment of the applicability of the mode based on public involvement activities to date</li> </ul>

Ten transit modes were evaluated as part of the initial screening. Each of the transit modes received a rating of poor, fair, good, or best for each of the six screening criteria shown in Table 2.

- Local bus
- Enhanced bus
- Bus rapid transit
- Modern streetcar
- Light rail transit
- Heavy rail

- Commuter rail
- Maglev
- Monorail
- Personal rapid transit

### **3.1 Potential Right-of-Way Impacts**

#### **3.1.1 Data Sources and References**

The screening of potential right-of-way impacts was based on typical cross sections for modes and an assessment of the available right-of-way at particular points along the corridor.

#### **3.1.2 Screening Methodology**

The screening of potential right-of-way impacts was based on a qualitative and quantitative evaluation of ability to accommodate mode within the existing right-of-way of alignment

#### **3.1.3 Screening Results**

Table 3 presents the results of the initial screening of modes based on potential right-of-way impacts.

**Table 3: Screening Results: Potential Right-of-Way Impacts**

<b>MODE ALTERNATIVE</b>	<b>EVALUATION</b>	<b>FULFILLS CRITERION</b>
<i>Conventional Bus</i>	<i>Operates in mixed traffic, using the sidewalk for boarding and alighting. Can be implemented with as little as 60' of right-of-way, with parking along alignment except at stop locations. Wouldn't require any additional right-of-way or disruption of the existing uses of the right-of-way.</i>	<i>Best</i>
<i>Enhanced Bus</i>	<i>Operates in mixed traffic, stations can either center platforms or integrated with sidewalks. At station locations, on-street parking would be prohibited.</i>	<i>Good</i>
<i>Bus Rapid Transit in a Dedicated right-of-way</i>	<i>Operates in a dedicated right-of-way, if at-grade it would require two travel lanes be devoted to transit, reducing the number of travel lanes in each direction. In portions, of the corridor where there is 80 ft. or less right-of-way (e.g. Central Avenue south of 18<sup>th</sup> Avenue NE, Nicollet Mall, and Nicollet Avenue), it would require either, the elimination of non-transit traffic, on-street parking, or ~50 percent of the pedestrian zone where there are not stations. At station locations, it would require the elimination of at least 2 or the previously mentioned uses. Otherwise may be accommodated through grade separation, which can be cost prohibitive.</i>	<i>Poor</i>
<i>Modern Streetcar</i>	<i>Operates in mixed traffic, stations can either center platforms or integrated with sidewalks. At station locations, on-street parking would be prohibited.</i>	<i>Good</i>
<i>Light Rail Transit</i>	<i>Operates in a dedicated right-of-way, if at-grade it would require two travel lanes be devoted to transit, reducing the number of travel lanes in each direction. In portions, of the corridor where there is 80 ft. or less right-of-way (e.g. Central Avenue south of 18<sup>th</sup> Avenue NE, Nicollet Mall, and Nicollet Avenue) would require either, the elimination of non-transit traffic, on-street parking, or ~50 percent of the pedestrian zone where there are not stations. At station locations, it would require the elimination of at least 2 or the previously mentioned uses. Otherwise maybe accommodated through grade separation, which can be cost prohibitive.</i>	<i>Poor</i>
<i>Heavy Rail</i>	<i>Requires a fully dedicated right-of-way with no cross traffic (vehicle or pedestrian). As a result, it would require grade separation.</i>	<i>Poor</i>
<i>Commuter Rail</i>	<i>Operate in a dedicated right-of-way, typically operates in a freight rail corridor.</i>	<i>Poor</i>
<i>Maglev</i>	<i>Requires a fully dedicated right-of-way with no cross traffic (vehicle or pedestrian). As a result, it would require grade separation.</i>	<i>Poor</i>
<i>Monorail</i>	<i>Requires a fully dedicated right-of-way with no cross traffic (vehicle or pedestrian). As a result, it would require grade separation.</i>	<i>Poor</i>
<i>Personal Rapid Transit</i>	<i>Requires a fully dedicated right-of-way with no cross traffic (vehicle or pedestrian). As a result, it would require grade separation.</i>	<i>Poor</i>

**3.2 Provides Access to Community**

**3.2.1 Data Sources and References**

The evaluation of how well each mode provides access to the community was based on:

- Typical stop spacing for mode’s ability to meet existing travel market
- Typical stop spacing compared to the location of special trip generators
- Overall qualitative assessment of 1 and 2



### **3.2.2 Screening Methodology**

The evaluation was a qualitative evaluation of the ability for the mode to provide access to the community.

### **3.2.3 Screening Results**

The two primary bus routes in the corridor, routes 10 and 18, are among the highest ridership routes in the region, serving over 20,000 weekday rides. These bus routes extend beyond the nine-mile study corridor, covering a total corridor distance of approximately 25 miles; however, there is strong existing demand for short passenger trips within the study corridor. Analysis of Metro Transit boarding and alighting data from Fall 2011 shows these routes averaged 20,300 daily boarding's on weekdays. Seventy percent, 14,300, of these trips occur entirely within 9.2 mile corridor from Columbia Heights Transit Center, Columbia Heights to 46th Street in south Minneapolis.<sup>1</sup> While on an even shorter segment between Lowry Avenue and Lake Street contains 53 percent of the trips, or 10,700 trips.

Table 4 presents the results of the initial screening of how well each mode provides access to the community.

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<sup>1</sup> Transit passenger trips were considered to be entirely within the segment if they were a boarding on an inbound bus trip or an alighting if they were on an outbound bus trip.

Table 4: Screening Results: Provides Access to the Community

MODE ALTERNATIVE	TYPICAL CORRIDOR LENGTH	TYPICAL STOP SPACING	BASED ON TYPICAL STOP SPACING FOR MODES ABILITY TO MEET EXISTING TRAVEL MARKET	TYPICAL STOP SPACING COMPARED TO LOCATION OF SPECIAL TRIP GENERATORS	OVERALL QUALITATIVE ASSESSMENT
<i>Conventional Bus</i>	<i>Varies</i>	<i>1/8 to 3/8 mile</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>
<i>Enhanced Bus</i>	<i>5 to 20 miles</i>	<i>1/4 to 1/2 mile</i>	<i>Best</i>	<i>Best</i>	<i>Best</i>
<i>Bus Rapid Transit in a Dedicated right-of-way</i>	<i>5 to 20 miles</i>	<i>Typically 1/2 to 1 mile</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>
<i>Modern Streetcar</i>	<i>2 to 5 miles</i>	<i>1/4 to 1/3 mile</i>	<i>Best</i>	<i>Best</i>	<i>Best</i>
<i>Light Rail Transit</i>	<i>10 to 20 miles</i>	<i>Typically 1 mile</i>	<i>Good</i>	<i>Fair</i>	<i>Fair</i>
<i>Heavy Rail</i>	<i>5 to 20 miles</i>	<i>1 to 2 miles</i>	<i>Good</i>	<i>Fair</i>	<i>Fair</i>
<i>Commuter Rail</i>	<i>20 to 100 miles</i>	<i>2 to 5 miles</i>	<i>Fair</i>	<i>Poor</i>	<i>Poor</i>
<i>Maglev</i>	<i>300 miles (not in revenue service in USA)</i>	<i>50 to 100 miles</i>	<i>Poor</i>	<i>Poor</i>	<i>Poor</i>
<i>Monorail</i>	<i>4 miles</i>	<i>1 to 2 miles</i>	<i>Good</i>	<i>Fair</i>	<i>Fair</i>
<i>Personal Rapid Transit</i>	<i>3 miles (only 1 system in revenue operations in US, it is not an FTA funded system)</i>	<i>&lt; 1/2 mile</i>	<i>Best</i>	<i>Poor</i>	<i>Good</i>

### 3.3 Compatible with Local and Regional Plans

#### 3.3.1 Data Sources and References

The initial screening included a review of existing local and regional plans. Specifically, this screening used the following documents as references:

- *Minneapolis Streetcar Feasibility Study, December 2007*  
[http://www.minneapolismn.gov/publicworks/transplan/comp/public-works\\_trans-plan\\_streetcarstudy](http://www.minneapolismn.gov/publicworks/transplan/comp/public-works_trans-plan_streetcarstudy)
- *Minneapolis Streetcar Funding Study, March 2010*  
[http://www.minneapolismn.gov/publicworks/transplan/comp/public-works\\_trans-plan\\_streetcarstudy](http://www.minneapolismn.gov/publicworks/transplan/comp/public-works_trans-plan_streetcarstudy)
- *Access Minneapolis Downtown Transportation Action Plan, adopted June 2007*  
[http://www.minneapolismn.gov/www/groups/public/@publicworks/documents/webcontent/convert\\_269667.pdf](http://www.minneapolismn.gov/www/groups/public/@publicworks/documents/webcontent/convert_269667.pdf)
- *Access Minneapolis Citywide Transportation Action Plan, adopted July 2009*  
[http://www.minneapolismn.gov/publicworks/transplan/comp/public-works\\_trans-plan\\_citywideactionplan](http://www.minneapolismn.gov/publicworks/transplan/comp/public-works_trans-plan_citywideactionplan)

- *The Minneapolis Plan for Sustainable Growth, City of Minneapolis*, adopted October 2009  
[http://www.minneapolismn.gov/cped/planning/plans/cped\\_comp\\_plan\\_2030](http://www.minneapolismn.gov/cped/planning/plans/cped_comp_plan_2030)
- *Nicollet Avenue: The Revitalization of Minneapolis' Main Street*, City of Minneapolis, adopted May 2000  
[http://www.minneapolismn.gov/www/groups/public/@cped/documents/webcontent/convert\\_261301.pdf](http://www.minneapolismn.gov/www/groups/public/@cped/documents/webcontent/convert_261301.pdf)
- *Central Avenue Small Area Plan*, adopted June 2008  
[http://www.minneapolismn.gov/cped/planning/plans/cped\\_central\\_ave\\_plan\\_update](http://www.minneapolismn.gov/cped/planning/plans/cped_central_ave_plan_update)
- *Midtown Minneapolis Land Use and Development Plan*, City of Minneapolis, adopted December 2005  
<http://www.minneapolismn.gov/www/groups/public/@cped/documents/webcontent/wcms1p-085287.pdf>
- *Midtown Greenway Land Use and Development Plan*, City of Minneapolis, adopted February 2007  
[http://www.minneapolismn.gov/cped/planning/plans/cped\\_midtown-greenway](http://www.minneapolismn.gov/cped/planning/plans/cped_midtown-greenway)
- *Downtown East-North Loop Plan*, City of Minneapolis, adopted October 2003  
[http://www.minneapolismn.gov/cped/planning/plans/master-plans\\_downtown-east-north-loop\\_index](http://www.minneapolismn.gov/cped/planning/plans/master-plans_downtown-east-north-loop_index)
- *Arterial Transitway Corridors Study*, Metro Transit, April 2012  
<http://www.metrotransit.org/corridor-concepts.aspx>
- *Southwest Transitway Locally Preferred Alternative Evaluation Documents*, September 2009  
[http://www.southwesttransitway.org/technical-documents/cat\\_view/9-draft-environmental-impact-statement-documents/12-deis-evaluation-documents.html](http://www.southwesttransitway.org/technical-documents/cat_view/9-draft-environmental-impact-statement-documents/12-deis-evaluation-documents.html)
- *2030 Transportation Policy Plan*, Metropolitan Council, adopted November 2010  
<http://www.metrocouncil.org/planning/transportation/TPP/2010/index.htm>
- *Regional Transitway Guidelines*, Metropolitan Council, February 2012  
<http://www.metrocouncil.org/planning/transportation/transitways/index.htm>
- *Minneapolis Bicycle Master Plan*, June 2011  
<http://www.minneapolismn.gov/bicycles/projects/plan>
- *Minneapolis Pedestrian Master Plan, 2009*  
[http://www.minneapolismn.gov/pedestrian/pedestrian\\_pedestrian-masterplan](http://www.minneapolismn.gov/pedestrian/pedestrian_pedestrian-masterplan)
- *2030 Transit Master Study*, Metropolitan Council, 2008  
<http://www.metrocouncil.org/planning/transportation/tpp/2008/TMSReport.pdf>
- *Downtown 2025 Plan*, Downtown Council, 2011  
<http://www.downtownmpls.com/page/show/423275-2025-plan>

### 3.3.2 Screening Methodology

We conducted a qualitative evaluation of each mode's compatibility with local and regional plans.

### 3.3.3 Screening Results

Table 5 presents the results of the initial screening of modes based on consistency with local and regional plans.

**Table 5: Screening Results: Consistency with Local and Regional Plans**

<b>MODE ALTERNATIVE</b>	<b>EVALUATION</b>	<b>FULFILLS CRITERION</b>
<i>Conventional Bus</i>	<i>Most plans support transit in the corridor, including improving local bus service.</i>	<i>Good</i>
<i>Enhanced Bus</i>	<i>The Metropolitan Council's 2030 Transportation Policy Plan, 2030 Transit Master Study and Arterial Transitway Corridors Study all recommend the development of arterial bus rapid transit in the Nicollet and Central Avenue corridors.</i>	<i>Best</i>
<i>Bus Rapid Transit in a Dedicated right-of-way</i>	<i>None of the local plans recommend Bus Rapid Transit in a Dedicated right-of-way for the Nicollet-Central corridor.</i>	<i>Fair</i>
<i>Modern Streetcar</i>	<i>The Minneapolis Streetcar Feasibility Study, December 2007 specifically recommends streetcar technology for the Nicollet - Central corridor. The Central Avenue Small Area Plan, adopted June 2008 recommends specifically streetcar technology for Central Avenue.</i>	<i>Best</i>
<i>Light Rail Transit</i>	<i>None of the local plans recommend Light Rail Transit for the Nicollet-Central Corridor. The Metropolitan Council's 2030 Transit Master Study evaluated LRT on the Nicollet and Central Avenue corridors and concluded that, while these corridors have strong transit demand, right-of-way constraints make LRT implementation too challenging and costly, and arterial bus rapid transit would be a better fit for the corridor. The Southwest Transitway project also evaluated LRT on Nicollet Avenue north of 29<sup>th</sup> Street in a tunnel configuration and recommended an alternative alignment in part due to the significant costs and impacts of LRT on Nicollet Avenue.</i>	<i>Fair</i>
<i>Heavy Rail</i>	<i>None of the local plans recommend heavy rail for the Nicollet-Central Corridor.</i>	<i>Poor</i>
<i>Commuter Rail</i>	<i>None of the local plans recommend commuter rail for the Nicollet-Central Corridor.</i>	<i>Poor</i>
<i>Maglev</i>	<i>None of the local plans recommend maglev for the Nicollet-Central Corridor.</i>	<i>Poor</i>
<i>Monorail</i>	<i>None of the local plans recommend monorail for the Nicollet-Central Corridor.</i>	<i>Poor</i>
<i>Personal Rapid Transit</i>	<i>None of the local plans recommend personal rapid transit for the Nicollet-Central Corridor.</i>	<i>Poor</i>

**3.4 Consistent with Existing Community Character**

**3.4.1 Data Sources and References**

Consistent with existing community character was based on existing land uses, Metro Transit’s service, typical roadway cross sections, and Google maps streetview.

**3.4.2 Screening Methodology**

We conducted a qualitative evaluation of mode compatibility with the land use and community character.

**3.4.3 Screening Results**

Table 6 presents the results of the initial screening of modes based on consistency with existing community character.



**Table 6: Screening Results: Consistent with Existing Community Character**

<b>MODE ALTERNATIVE</b>	<b>EVALUATION</b>	<b>FULFILLS CRITERION</b>
<i>Conventional Bus</i>	<i>Currently operating within corridor, could be expanded with minimal impact on existing communities, land use, and businesses.</i>	<i>Best</i>
<i>Enhanced Bus</i>	<i>Would require construction of enhanced stops and transit signal priority. Enhanced bus would cause disruption to local businesses' and residences'. However, it would primarily be confined to station locations, and some minimal impacts at signalized intersections.</i>	<i>Best</i>
<i>Bus Rapid Transit in a Dedicated right-of-way</i>	<i>Would require construction of a dedicated guideway, within the existing road right-of-way. During construction this would require disruptions to local businesses' and residences throughout the corridor. Following construction, the reduction in the number of general purpose travel lanes would have a long term impact on residence and businesses, reduction in automobile capacity in the corridor, as well as, reduced turning movements along the corridor limiting access to local businesses and residences.</i>	<i>Fair</i>
<i>Modern Streetcar</i>	<i>Would require construction of a guideway, within the existing road right-of-way. During construction this would require disruptions to local businesses' and residences throughout the corridor. However, following construction auto traffic would continue to operate along the corridor in mixed traffic with the streetcar allowing access to businesses and residences to remain open, and minimal impact to automobile capacity in the corridor.</i>	<i>Good</i>
<i>Light Rail Transit</i>	<i>Would require construction of a dedicated guideway, within the existing road right-of-way. During construction this would require disruptions to local businesses and residences throughout the corridor. Following construction, the reduction in the number general purpose travel lanes would have a long term impact on residence and businesses, reduction in automobile capacity in the corridor, as well as, reduced turning movements along the corridor limiting access to local businesses and residences.</i>	<i>Fair</i>
<i>Heavy Rail</i>	<i>Would require construction of a dedicated guideway, within the existing road right-of-way. During construction this would require significant disruptions to local businesses and residences throughout the corridor. Following construction the guideway would be physically separated from the surrounding neighborhoods and businesses creating a visual and physical barrier between the transit patrons and the neighborhood.</i>	<i>Poor</i>
<i>Commuter Rail</i>	<i>Would require construction of a dedicated guideway, within the existing road right-of-way. During construction this would require significant disruptions to local businesses and residences throughout the corridor. Following construction the guideway would physically separated from the surrounding neighborhoods and businesses creating a visual and physical barrier between the transit patrons and the neighborhood.</i>	<i>Poor</i>
<i>Maglev</i>	<i>Would require construction of a dedicated guideway, within the existing road right-of-way. During construction this would require significant disruptions to local businesses and residences throughout the corridor. Following construction the guideway would physically separated from the surrounding neighborhoods and businesses creating a visual and physical barrier between the transit patrons and the neighborhood.</i>	<i>Poor</i>
<i>Monorail</i>	<i>Would require construction of a dedicated guideway, within the existing road right-of-way. During construction this would require significant disruptions to local businesses and residences throughout the corridor. Following construction the guideway would physically separated from the surrounding neighborhoods and businesses creating a visual and physical barrier between the transit patrons and</i>	<i>Poor</i>

MODE ALTERNATIVE	EVALUATION	FULFILLS CRITERION
	<i>the neighborhood.</i>	
<i>Personal Rapid Transit</i>	<i>Would require construction of a dedicated guideway, within the existing road right-of-way. During construction this would require significant disruptions to local businesses and residences throughout the corridor. Following construction the guideway would physically separated from the surrounding neighborhoods and businesses creating a visual and physical barrier between the transit patrons and the neighborhood.</i>	<i>Poor</i>

**3.5 Provides Appropriate Level of Transit Capacity**

**3.5.1 Data Sources and References**

Metro Transit: September 2011 APC and farebox data provided by Metro Transit, ridership on peer systems throughout the United States.

**3.5.2 Screening Methodology**

We conducted a quantitative evaluation of existing transit ridership in the corridor, compared with typical transit capacity of mode.

**3.5.3 Screening Results**

Table 7 presents the results of the initial screening of modes based on consistency with existing community character. Existing ridership on routes 10 and 18 in the Nicollet Central Corridor between 41st St and 46th Street is 14,000 to 15,000 riders per weekday, total ridership on routes 10 and 18 is over 20,000 per weekday.

**Table 7: Screening Results: Provides Appropriate Level of Transit Capacity**

<b>MODE ALTERNATIVE</b>	<b>EVALUATION</b>	<b>FULFILLS CRITERION</b>
<i>Conventional Bus</i>	<i>500-20,000 riders per average weekday</i>	<i>Best</i>
<i>Enhanced Bus</i>	<i>500-20,000 riders per average weekday</i>	<i>Best</i>
<i>Bus Rapid Transit in a Dedicated right-of-way</i>	<i>7,000-50,000 riders per average weekday</i>	<i>Good</i>
<i>Modern Streetcar</i>	<i>500-20,000 riders per average weekday</i>	<i>Best</i>
<i>Light Rail Transit<sup>2</sup></i>	<i>7,000-50,000 riders per average weekday</i>	<i>Good</i>
<i>Heavy Rail<sup>3</sup></i>	<i>30,000-325,000 riders per average weekday</i>	<i>Poor</i>
<i>Commuter Rail</i>	<i>10,000-20,000 riders per average weekday</i>	<i>Fair</i>
<i>Maglev</i>	<i>Unproven technology, currently no FTA funded system in operation.</i>	<i>Poor</i>
<i>Monorail</i>	<i>4,000 riders per average weekday</i>	<i>Fair</i>
<i>Personal Rapid Transit</i>	<i>Unproven technology, currently no FTA funded system in operation.</i>	<i>Poor</i>

### 3.6 Community and Stakeholder Sentiment

#### 3.6.1 Data Sources and References

Based on survey responses from surveys conducted at the September Open Houses and on-line survey in August and October 2012. The open houses were attended by 115 people and approximately 1,400 people completed the survey on-line. Input was also received through interviews with 14 key stakeholders, two Policy Advisory Committee meetings, two Technical/Community Advisory Committee Meetings, and presentations at 29 community meetings attended by over 500 people.

#### 3.6.2 Screening Methodology

We conducted a quantitative evaluation of existing transit ridership in the corridor compared to typical transit capacity of mode around the United States.

#### 3.6.3 Screening Results

Table 8 presents the results of the initial screening of modes based on community and stakeholder sentiment.

<sup>2</sup> Excluding Boston's Green line, which carries over 220,000 riders per average weekday.

<sup>3</sup> Excluding Cleveland Red line, which carries around 11,000 riders per average weekday.

Table 8: Screening Results: Community and Stakeholder Sentiment

MODE ALTERNATIVE	EVALUATION	FULFILLS CRITERION
<i>Conventional Bus</i>	<i>Identified as promising by less than 10 percent of survey respondents</i>	<i>Poor</i>
<i>Enhanced Bus</i>	<i>Identified as promising by 25 percent of survey respondents</i>	<i>Good</i>
<i>Bus Rapid Transit in a Dedicated right-of-way</i>	<i>Identified as promising by 15 percent of survey respondents, Very few downtown businesses were interested in BRT.</i>	<i>Fair</i>
<i>Modern Streetcar</i>	<i>Identified as promising by 44 percent of survey respondents</i>	<i>Best</i>
<i>Light Rail Transit</i>	<i>Identified as promising by less than 10 percent of survey respondents, Stakeholders were divided regarding benefits of light rail</i>	<i>Fair</i>
<i>Heavy Rail</i>	<i>Identified as promising by less than 10 percent of survey respondents</i>	<i>Poor</i>
<i>Commuter Rail</i>	<i>Identified as promising by less than 10 percent of survey respondents</i>	<i>Poor</i>
<i>Maglev</i>	<i>Identified as promising by less than 10 percent of survey respondents</i>	<i>Poor</i>
<i>Monorail</i>	<i>Identified as promising by less than 10 percent of survey respondents</i>	<i>Poor</i>
<i>Personal Rapid Transit</i>	<i>Identified as promising by less than 10 percent of survey respondents</i>	<i>Poor</i>

### 3.7 Summary of Initial Screening: Modes

Through numerous previous planning efforts, discussions and stakeholder interviews, there was a strong preference for transit modes that can operate within the existing street and will not require grade-separation or a dedicated runningway. For these reasons modes that require grade separation such as heavy rail, commuter rail, maglev, monorail, and personal rapid transit were not recommended for further consideration. Similarly modes such as light rail transit and bus rapid transit in a dedicated busway were not recommended for further consideration because they require a dedicated right-of-way and providing a dedicated right-of-way would likely entail property acquisition, costly grade separation, and/or significant and permanent changes in the use and function of the street, inconsistent with the project's goals and objectives. Each of these modes received a poor or fair rating for potential right-of-way impacts, compatibility with local plans, consistent with existing community character, and community and stakeholder sentiment. On the other hand, enhanced bus and modern streetcar both received good or best ratings for all criteria. Each of these modes has been designed to operate within existing streets as much as possible. The stop spacing associated with enhanced bus and modern streetcar is frequent enough to provide improved service, while less frequent than current local bus service resulting in a faster trip. As a result, enhanced bus and modern streetcar were both recommended for detailed definition and evaluation.

Local bus (existing service) was also evaluated as part of the initial screening. It received good and best ratings in most categories – best for categories such as right-of-way impacts and consistent with existing community character because local bus is currently operating in the corridor and would not require any property acquisitions or changes to the community character. However, local bus received a poor rating for community and stakeholder

sentiment; feedback from the project's members of the public and stakeholders regard local bus as unable to address the project's purpose and need and fulfill its goals and objectives.

The results of the initial screening of transit modes are summarized in Figure 2 and identify local bus, enhanced bus and modern streetcar for further definition and evaluation.

Figure 2: Results of Initial Screening of Modes

Screening Criteria	Local Bus	Enhanced Bus	Bus Rapid Transit	Modern Streetcar	Light Rail Transit*	Heavy Rail*	Commuter Rail	Maglev	Monorail	Personal Rapid Transit
Potential right-of-way impacts	Best	Good	Poor	Good	Poor	Poor	Poor	Poor	Poor	Poor
Provides access to community	Good	Best	Good	Best	Fair	Fair	Poor	Poor	Fair	Good
Compatible with local and regional plans	Good	Best	Fair	Best	Fair	Poor	Poor	Poor	Poor	Poor
Consistent with existing community character	Best	Best	Fair	Good	Fair	Poor	Poor	Poor	Poor	Poor
Provides appropriate level of transit capacity	Best	Best	Good	Best	Good	Poor	Fair	Poor	Fair	Poor
Community and stakeholders sentiment	Poor	Good	Fair	Best	Fair	Poor	Poor	Poor	Poor	Poor
<b>Overall Rating</b>	<b>Good</b>	<b>Best</b>	<b>Fair</b>	<b>Best</b>	<b>Fair</b>	<b>Poor</b>	<b>Poor</b>	<b>Poor</b>	<b>Poor</b>	<b>Poor</b>
<b>Advanced into Detailed Evaluation</b>	Local Bus	Enhanced Bus		Modern Streetcar						

\*Potentially at-grade or with grade separation (subway/elevated tracks)

## 4.0 Alignment

The assessment of alignment alternatives was conducted concurrent with the analysis of transit modes and employed a similar high-level approach. Because this study is intended to improve transit service in the Nicollet-Central corridor, Nicollet Avenue and Central Avenue are the focal point for the development of alignment alternatives. However, the screening process also explored the possibility of parallel alignments within the study corridor to determine if a parallel alignment could better accomplish the project’s goals and objectives. The study evaluated all streets that currently provide connections across major barriers in the corridor (e.g. railroads, Mississippi River, I-94, Midtown Greenway). To analyze various alignment alternatives, the corridor was divided into six segments, shown in Figure 3.

In this initial screening and similar to the mode screening presented in section 3, alignment options were analyzed based on the following criteria, which are a subset of the criteria presented in Table 1 appropriate for alignment screening:

- Connects activity centers
- Compatible with local and regional plans
- Community and stakeholder sentiment
- Effective alignment that provides for direct access
- Consistent with existing community character

The initial screening criteria for alignment options are defined in Table 9.

**Table 9: Initial Screening Criteria – Alignments**

<b>Initial Screening Criteria - Alignments</b>	<b>Screening Output</b>	<b>Data Sources and References</b>
<b>Connects Activity Centers</b>	<i>Qualitative and quantitative evaluation of how well the alignment connect major activity centers</i>	<ul style="list-style-type: none"> <li>• Quantitative evaluation of the number of major activity centers within one-quarter mile of alignment</li> <li>• Quantitative evaluation of population and employment within one-quarter mile of alignment</li> <li>• Qualitative assessment of how well an alignment serves population and employment in corridor</li> </ul>
<b>Compatible with Local and Regional Plans</b>	<i>Qualitative evaluation of how well the alignment meets local and regional plans</i>	<ul style="list-style-type: none"> <li>• Qualitative assessment of how well alignment fits in with local and regional planning efforts</li> <li>• Qualitative assessment of how enhanced transit service aligns with local and regional plans</li> <li>• Overall qualitative assessment of 1 and 2</li> </ul>
<b>Community and Stakeholder Sentiment</b>	<i>Qualitative evaluation of alignment compatibility from stakeholder interviews, public open houses, online surveys, meetings, and outreach activities</i>	<ul style="list-style-type: none"> <li>• Qualitative assessment of the suitability of alignment for enhanced transit service based on public involvement activities to date</li> </ul>
<b>Effective Alignment that Provides for Direct Access</b>	<i>Qualitative and quantitative assessment of alignment directness</i>	<ul style="list-style-type: none"> <li>• Qualitative evaluation of any physical challenges impacting directness of alignment</li> <li>• Quantitative evaluation of the alignment’s ability to serve corridor well</li> <li>• Overall qualitative evaluation of how direct the alignment is in the north-south direction and at connecting various segments of entire corridor</li> </ul>

<b>Initial Screening Criteria - Alignments</b>	<b>Screening Output</b>	<b>Data Sources and References</b>
<b>Consistent with Existing Community Character</b>	<i>Quantitative and qualitative evaluation based on information regarding existing transit ridership and community character</i>	<ul style="list-style-type: none"> <li>• Qualitative evaluation of how consistent an enhanced transit service is with existing land uses along alignment</li> <li>• Quantitative evaluation of presence of existing transit service along alignment</li> <li>• Overall qualitative evaluation of how well enhanced transit service in alignment fits in with the urban form and character</li> </ul>

**4.1 Connects Activity Centers**

**4.1.1 Data Sources**

The following data sources were used for this criteria evaluation:

- Major activity centers compiled from a list of major activity centers along the corridor, as shown in Table 5 in the Draft Purpose and Need Statement document produced as part of this effort.
- Population data is from U.S. Census Bureau’s Census 2010 at the census block level.
- Employment data is from the U.S. Census Bureau’s Longitudinal Employer-Household Dynamics 2010 dataset at the census block level.

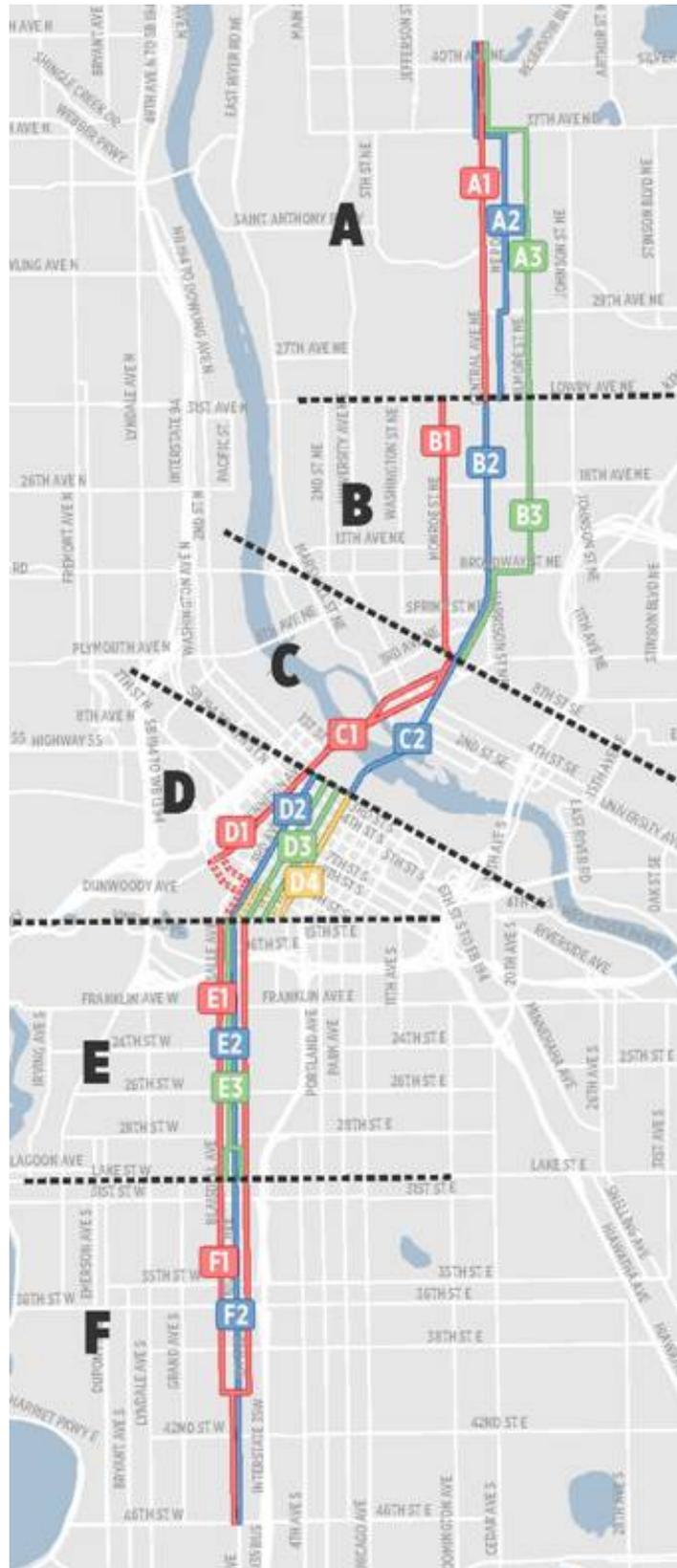
**4.1.2 Evaluation Methodology**

The study team used two quantitative evaluation processes in order to assess how well each alignment could connect major activity centers. One assessed the population and employment served by each alignment and the other assessed the number of major activity centers served by each alignment.

**4.1.3 Population and Employment**

The first process was an estimation of the number of people who could be served by enhanced transit service along each alignment. This estimate was based on population data (counts of all individuals by census block) from the U.S. Census Bureau’s Census 2010. The study team imported the population data into the project’s GIS database to plot the count of individuals by census block. Population counts for census blocks within ¼-mile and ½-mile of each were summed in order to generate an estimate of the number of people that could be served by each alignment.

Figure 3: Alignment Options Considered in the Initial Screening



Similarly, the study team estimated the number of jobs who could be served by enhanced transit service along each alignment with a process very similar to the population estimation. This estimate was based on job data from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics 2010 dataset. This dataset shows the total number of jobs per census block, with certain limitations.<sup>4</sup> The study team imported the employment data into the project's GIS database to plot the count of jobs by census block. Employment counts for census blocks within ¼-mile and ½-mile of each alignment were summed in order to generate an estimate of the number of jobs that could be served by each alignment.

To score each alternative on serving population and employment, their population and employment numbers were summed at the ½-mile and ¼-mile levels for each alternative. Within each segment, this combined population and employment value was indexed, such that each alternative's value was divided by the alternative with the maximum value (therefore the alternative with the highest value received a 1.00 and the remaining alternatives were less than 1.00). This calculation resulted in a final score for each alternative's population and employment at ¼-mile and ½-mile.

### Major Activity Centers

The third process was an assessment of the number of major activity centers that could be served by each alignment. The study team used the list of major activity centers from Table 5 – Corridor Special Trip Generators – presented in the Purpose and Need Statement. The location of each activity center was plotted in GIS and the number of activity centers within ¼-mile and ½-mile of each alternative was summed. To score each alternative on serving major activity centers, the study team used an indexing process similar to the population and employment process. Within each segment, each alternative's activity center value (number served) was divided by the maximum value (again giving the alternative serving the maximum number of activity centers a value of 1.00 and the remaining alternatives less than 1.00). This was done for ½-mile and ¼-mile catchment areas, resulting in two final scores for each alternative.

### Criteria Rating Process

The processes described above resulted in an indexed score for each alternative's ability to serve population, employment, and activity centers. The four scores were summed to give each alternative an overall score for this criteria. Alternatives with a score of 4.00 were rated best; alternatives with a score between 3.00 and 3.99 were rated good; alternatives with a score between 2.00 and 2.99 were rated fair; alternatives with a score less than 2.00 were rated poor, see Table 10.

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<sup>4</sup> The LEHD data is an excellent source for employment data and offers the most comprehensive and detailed data on employment, though the data comes with two notable drawbacks that should be kept in mind when interpreting the results. The data represents approximately 93% of all non-military employment in the United States, but excludes employees not subject to unemployment insurance. Excluded employees include federal employees, self-employed individuals, uniformed military, railroad workers, and other small groups. Secondly, employees of employers with multiple worksites are occasionally not assigned to their correct worksite in the data, so employees of multi-worksite employers may be incorrectly located.

Table 10: Screening Results: Connects Activity Centers

SEGMENT / ALIGNMENT	POP&EMP 2010 SCORE (1/4 MI)	POP&EMP 2010 SCORE (1/2 MI)	ACTIVITY CENTER SCORE (1/4 MI)	ACTIVITY CENTER SCORE (1/2 MI)	OVERALL SCORE (MAX OF 4)	ASSESSMENT
A1 Central Ave NE	0.827	0.909	1.00	1.00	3.736	Good
A2 NE Polk Street	0.953	0.992	1.00	1.00	3.946	Good
A3 Fillmore Street NE	1.000	1.000	1.00	1.00	4.000	Best
B1 Monroe Street NE	1.000	1.000	1.00	1.00	4.000	Best
B2 Central Ave NE	0.846	0.982	1.00	1.00	3.829	Good
B3 Fillmore Street NE	0.903	0.988	0.00	0.00	1.891	Fair
C1 E. Hennepin/ 1st Ave NE (river crossing)	0.984	1.000	1.00	1.00	3.984	Good
C2 Central Ave NE/ 3rd Avenue S (river crossing)	1.000	0.975	1.00	1.00	3.975	Good
D1 Hennepin Ave	0.851	0.948	1.00	1.00	3.799	Good
D2 Nicollet Mall	1.000	0.941	0.90	1.00	3.841	Good
D3 Marq/2nd Ave S	0.946	0.973	0.40	0.90	3.219	Good
D4 3rd Ave S	0.954	1.000	0.30	0.80	3.054	Good
E1 Blaisdell/1st Ave S	0.901	0.935	0.75	1.00	3.586	Good
E2 Nicollet Ave S (through Kmart)	1.000	1.000	1.00	1.00	4.000	Best
E3 Nicollet Ave S (via Blaisdell/1st)	0.945	0.970	1.00	1.00	3.915	Good
F1 Blaisdell/1st Ave S/Nicollet Ave S	0.836	0.858	1.00	1.00	3.694	Good
F2 Nicollet Ave S	1.000	1.000	1.00	1.00	4.000	Best

## 4.2 Compatible with Local and Regional Plans

### 4.2.1 Data Sources

The initial screening included a review of existing local and regional plans. Specifically, this screening used the following documents as references:

- *Minneapolis Streetcar Feasibility Study*, City of Minneapolis, December 2007  
[http://www.minneapolismn.gov/publicworks/transplan/comp/public-works\\_trans-plan\\_streetcarstudy](http://www.minneapolismn.gov/publicworks/transplan/comp/public-works_trans-plan_streetcarstudy)
- *Minneapolis Streetcar Funding Study*, City of Minneapolis, March 2010  
[http://www.minneapolismn.gov/publicworks/transplan/comp/public-works\\_trans-plan\\_streetcarstudy](http://www.minneapolismn.gov/publicworks/transplan/comp/public-works_trans-plan_streetcarstudy)
- *Access Minneapolis Downtown Transportation Action Plan*, City of Minneapolis, adopted June 2007  
[http://www.minneapolismn.gov/www/groups/public/@publicworks/documents/webcontent/convert\\_26\\_9667.pdf](http://www.minneapolismn.gov/www/groups/public/@publicworks/documents/webcontent/convert_26_9667.pdf)
- *Access Minneapolis Citywide Transportation Action Plan*, City of Minneapolis, adopted July 2009  
[http://www.minneapolismn.gov/publicworks/transplan/comp/public-works\\_trans-plan\\_citywideactionplan](http://www.minneapolismn.gov/publicworks/transplan/comp/public-works_trans-plan_citywideactionplan)

- *The Minneapolis Plan for Sustainable Growth*, City of Minneapolis, adopted October 2009  
[http://www.minneapolismn.gov/cped/planning/plans/cped\\_comp\\_plan\\_2030](http://www.minneapolismn.gov/cped/planning/plans/cped_comp_plan_2030)
- *Nicollet Avenue: The Revitalization of Minneapolis' Main Street*, City of Minneapolis, adopted May 2000  
[http://www.minneapolismn.gov/www/groups/public/@cped/documents/webcontent/convert\\_261301.pdf](http://www.minneapolismn.gov/www/groups/public/@cped/documents/webcontent/convert_261301.pdf)
- *Central Avenue Small Area Plan*, City of Minneapolis, adopted June 2008  
[http://www.minneapolismn.gov/cped/planning/plans/cped\\_central\\_ave\\_plan\\_update](http://www.minneapolismn.gov/cped/planning/plans/cped_central_ave_plan_update)
- *Midtown Minneapolis Land Use and Development Plan*, City of Minneapolis, adopted December 2005  
<http://www.minneapolismn.gov/www/groups/public/@cped/documents/webcontent/wcms1p-085287.pdf>
- *Midtown Greenway Land Use and Development Plan*, City of Minneapolis, adopted February 2007  
[http://www.minneapolismn.gov/cped/planning/plans/cped\\_midtown-greenway](http://www.minneapolismn.gov/cped/planning/plans/cped_midtown-greenway)
- *Downtown East-North Loop Plan*, City of Minneapolis, adopted October 2003  
[http://www.minneapolismn.gov/cped/planning/plans/master-plans\\_downtown-east-north-loop\\_index](http://www.minneapolismn.gov/cped/planning/plans/master-plans_downtown-east-north-loop_index)
- *Arterial Transitway Corridors Study*, Metro Transit, April 2012  
<http://www.metrotransit.org/corridor-concepts.aspx>
- *2030 Transportation Policy Plan*, Metropolitan Council, adopted November 2010  
<http://www.metrocouncil.org/planning/transportation/TPP/2010/index.htm>
- *Minneapolis Bicycle Master Plan*, City of Minneapolis, June 2011  
<http://www.minneapolismn.gov/bicycles/projects/plan>
- *Minneapolis Pedestrian Master Plan*, City of Minneapolis, 2009  
[http://www.minneapolismn.gov/pedestrian/pedestrian\\_pedestrian-masterplan](http://www.minneapolismn.gov/pedestrian/pedestrian_pedestrian-masterplan)
- *2030 Transit Master Study*, Metropolitan Council, 2008  
<http://www.metrocouncil.org/planning/transportation/tpp/2008/TMSReport.pdf>
- *Downtown 2025 Plan*, Downtown Council, 2011  
<http://www.downtownmpls.com/page/show/423275-2025-plan>
- *Columbia Heights Comprehensive Plan*, City of Columbia Heights, 2010  
<http://www.ci.columbia-heights.mn.us/index.aspx?NID=198>

**4.2.2 Screening Methodology**

Conducted a qualitative assessment of how well alignment fits in with local and regional plan efforts and how enhanced transit service aligns with local and regional plans, see Table 11.

**Table 11: Screening Results: Consistency with Local and Regional Plans**

SEGMENT / ALIGNMENT		EVALUATION	FULFILLS CRITERION
A1	Central Ave NE	Local plans that address Central Avenue NE generally support transit-oriented development and the implementation of transit along Central Avenue NE. Supportive plans include: <ul style="list-style-type: none"> <li>• Columbia Heights Comprehensive Plan, City of Columbia Heights, 2010</li> <li>• The Minneapolis Plan for Sustainable Growth, City of Minneapolis, October 2009</li> <li>• Central Avenue Small Area Plan, City of Minneapolis, June 2008</li> <li>• Access Minneapolis Citywide Transportation Action Plan, City of Minneapolis, July 2009</li> <li>• Minneapolis Streetcar Feasibility Study, City of Minneapolis, December 2007</li> <li>• Minneapolis Streetcar Funding Study, City of Minneapolis, March 2010</li> <li>• 2030 Transportation Policy Plan, Metropolitan Council, November 2010</li> <li>• Arterial Transitway Corridors Study, Metro Transit, April 2012</li> </ul>	Best
A2	NE Polk Street	None of the local plans address an alignment or transit-oriented development along NE Polk Street.	Fair
A3	Fillmore Street NE	None of the local plans address an alignment or transit-oriented development along Fillmore Street NE.	Fair



SEGMENT / ALIGNMENT		EVALUATION	FULFILLS CRITERION
B1	Monroe Street NE	None of the local plans address an alignment or transit-oriented development along Monroe Street NE.	Fair
B2	Central Ave NE	Local plans that address Central Avenue NE generally support transit-oriented development and the implementation of transit along Central Avenue NE. Supportive plans include: <ul style="list-style-type: none"> <li>• The Minneapolis Plan for Sustainable Growth, City of Minneapolis, October 2009</li> <li>• Central Avenue Small Area Plan, City of Minneapolis, June 2008</li> <li>• Access Minneapolis Citywide Transportation Action Plan, City of Minneapolis, July 2009</li> <li>• Minneapolis Streetcar Feasibility Study, City of Minneapolis, December 2007</li> <li>• Minneapolis Streetcar Funding Study, City of Minneapolis, March 2010</li> <li>• 2030 Transportation Policy Plan, Metropolitan Council, November 2010</li> <li>• Arterial Transitway Corridors Study, Metro Transit, April 2012</li> </ul>	Best
B3	Fillmore Street NE	None of the local plans address an alignment or transit-oriented development along Fillmore Street NE.	Fair
C1	E. Hennepin/ 1st Ave NE (river crossing)	Several plans support transit-oriented development and implementation of transit along E. Hennepin/1st Avenue NE. Supportive plans include: <ul style="list-style-type: none"> <li>• The Minneapolis Plan for Sustainable Growth, City of Minneapolis, October 2009</li> <li>• Access Minneapolis Citywide Transportation Action Plan, City of Minneapolis, July 2009</li> <li>• Minneapolis Streetcar Feasibility Study, City of Minneapolis, December 2007</li> <li>• Minneapolis Streetcar Funding Study, City of Minneapolis, March 2010</li> </ul> E. Hennepin/1 <sup>st</sup> Avenue NE is part of the Access Minneapolis Primary Transit Network and Minneapolis Streetcar Feasibility Study/Funding Long-term Streetcar Network; it is not part of the arterial bus rapid transit network identified in the 2030 Transportation Policy Plan and Arterial Transitway Corridors Study.	Good
C2	Central Ave NE/ 3rd Avenue S (river crossing)	Several plans support transit-oriented development and implementation of transit along Central Ave NE/3 <sup>rd</sup> Avenue S. Supportive plans include: <ul style="list-style-type: none"> <li>• The Minneapolis Plan for Sustainable Growth, City of Minneapolis, October 2009</li> <li>• Access Minneapolis Citywide Transportation Action Plan, City of Minneapolis, July 2009</li> <li>• 2030 Transportation Policy Plan, Metropolitan Council, November 2010</li> <li>• Arterial Transitway Corridors Study, Metro Transit, April 2012</li> </ul> Central Avenue NE/3 <sup>rd</sup> Avenue S is part of the Access Minneapolis Primary Transit Network and arterial bus rapid transit network identified in the 2030 Transportation Policy Plan and Arterial Transitway Corridors Study, but is not part of the Minneapolis Streetcar Feasibility Study/Funding Long-term Streetcar Network.	Good
D1	Hennepin Ave	Several plans support transit-oriented development and implementation of transit on Hennepin Avenue for the southwest travelshed between downtown and Uptown: <ul style="list-style-type: none"> <li>• The Minneapolis Plan for Sustainable Growth, City of Minneapolis, October 2009</li> <li>• Access Minneapolis Citywide Transportation Action Plan, City of Minneapolis, July 2009</li> <li>• Access Minneapolis Downtown Transportation Action Plan, City of Minneapolis, June 2007</li> <li>• Minneapolis Streetcar Feasibility Study, City of Minneapolis, December 2007</li> <li>• Minneapolis Streetcar Funding Study, City of Minneapolis, March 2010</li> <li>• 2030 Transportation Policy Plan, Metropolitan Council, November 2010</li> <li>• Arterial Transitway Corridors Study, Metro Transit, April 2012</li> </ul> While an Uptown-to-Downtown Hennepin Avenue transit corridor is specifically included in the Access Minneapolis Primary Transit Network, Minneapolis Streetcar Feasibility Study Long-term Network, and Metro Transit arterial bus rapid transit network, none of these plans support a transit corridor on Nicollet Avenue south of downtown connecting to Hennepin Avenue through downtown. These plans prioritize Hennepin Avenue for a different transit travel market, as well as two-way auto traffic.	Fair
D2	Nicollet Mall	Several plans support transit-oriented development and implementation of transit on Nicollet Mall. Supportive plans include: <ul style="list-style-type: none"> <li>• Access Minneapolis Downtown Transportation Action Plan, City of Minneapolis, June 2007</li> <li>• Minneapolis Streetcar Feasibility Study, December 2007</li> <li>• Minneapolis Streetcar Funding Study, March 2010</li> <li>• Arterial Transitway Corridors Study, Metro Transit, April 2012</li> <li>• Downtown 2025 Plan, Downtown Council, 2011</li> <li>• 2030 Transportation Policy Plan, Metropolitan Council, November 2010</li> <li>• Arterial Transitway Corridors Study, Metro Transit, April 2012</li> </ul> The Access Minneapolis Transportation Action Plan evaluated alternative transit improvements for north-south transit service in downtown and recommended that local transit service in the north-south direction continue to operate on Nicollet Mall.	Best

SEGMENT / ALIGNMENT		EVALUATION	FULFILLS CRITERION
D3	Marq/2nd Ave S	Several plans support transit-oriented development and implementation of transit on Marquette and 2 <sup>nd</sup> Avenues S for express bus service, not local transit service: <ul style="list-style-type: none"> <li>• The Minneapolis Plan for Sustainable Growth, City of Minneapolis, October 2009</li> <li>• Access Minneapolis Downtown Transportation Action Plan, City of Minneapolis, June 2007</li> </ul> Based on the Access Minneapolis Downtown Transportation Action Plan recommendations, Marquette and 2 <sup>nd</sup> Avenues S were reconstructed in 2009 to provide double-wide bus lanes and enhanced passenger facilities for express bus and highway bus rapid transit service.	Fair
D4	3rd Ave S	None of the plans specifically support implementation of transit service on 3rd Avenue in Downtown. With the reconstruction of the double-wide bus lanes on Marquette and 2 <sup>nd</sup> Avenues S, express bus service was eliminated from 3 <sup>rd</sup> Avenue S in 2009.	Fair
E1	Blaisdell/1st Ave S	None of plans reference implementation of transit on Blaisdell/1st Avenue S.	Fair
E2	Nicollet Ave S (through Kmart)	Several local plans specifically support restoring the street grid at the Kmart site and transit-oriented development and implementation of transit on Nicollet Avenue S: <ul style="list-style-type: none"> <li>• Minneapolis Streetcar Feasibility Study, December 2007</li> <li>• Minneapolis Streetcar Funding Study, March 2010</li> <li>• Access Minneapolis Citywide Transportation Action Plan, July 2009</li> <li>• The Minneapolis Plan for Sustainable Growth, City of Minneapolis, October 2009</li> <li>• Nicollet Avenue: The Revitalization of Minneapolis' Main Street, City of Minneapolis, May 2009</li> <li>• Midtown Minneapolis Land Use and Development Plan, City of Minneapolis, December 2005</li> <li>• Midtown Greenway Land Use and Development Plan, City of Minneapolis.</li> </ul> In addition, the following plans support transit-oriented development and implementation of transit on Nicollet Avenue, without referencing restoring the street grid at the Kmart site: <ul style="list-style-type: none"> <li>• 2030 Transportation Policy Plan, Metropolitan Council, November 2010</li> <li>• Arterial Transitway Corridors Study, Metro Transit, April 2012</li> </ul>	Best
E3	Nicollet Ave S (via Blaisdell/1st)	While all of the plans mentioned for E2 support transit-oriented development and implementation of transit on Nicollet Avenue north of the Kmart site, only the following plans make no reference to restoring the street grid at the Kmart site: <ul style="list-style-type: none"> <li>• 2030 Transportation Policy Plan, Metropolitan Council, November 2010</li> <li>• Arterial Transitway Corridors Study, Metro Transit, April 2012</li> </ul>	Good
F1	Blaisdell/1st Ave S/Nicollet Ave S	None of the plans directly support the alignment on Blaisdell/1st Avenue S/Nicollet Avenues S. The local plans support transit oriented redevelopment directly on Nicollet Avenue through the entire corridor.	Fair
F2	Nicollet Ave S	Local plans that address Nicollet Avenue support transit investments and transit-oriented redevelopment on Nicollet Avenue. The following plans directly support an alignment on Nicollet Avenue: <ul style="list-style-type: none"> <li>• Minneapolis Streetcar Feasibility Study, December 2007</li> <li>• Minneapolis Streetcar Funding Study, March 2010</li> <li>• Access Minneapolis Citywide Transportation Action Plan, adopted July 2009</li> <li>• The Minneapolis Plan for Sustainable Growth, City of Minneapolis, adopted October 2009</li> <li>• Nicollet Avenue: The Revitalization of Minneapolis' Main Street, City of Minneapolis, adopted by May 2009</li> <li>• Arterial Transitway Corridors Study, Metro Transit, April 2012</li> <li>• 2030 Transportation Policy Plan, Metropolitan Council, November 2010</li> </ul>	Best

### 4.3 Community and Stakeholder Sentiment

#### 4.3.1 Data Sources

This evaluation was based on three primary sources, which were summarized in Public Outreach Summary Report for Phase I: Purpose and Need.

- In-person stakeholder interviews conducted the week of August 13, 2012 and several follow-up telephone interviews conducted in late August.
- Input received from three public open house meetings held the week of September 24, 2012. Several surveys were conducted at the open house meetings. The first survey focused on transportation needs



within the corridor, and the second survey focused on the most appropriate transit modes within the corridor.

- Input received from an online survey conducted between September 5<sup>th</sup> and October 31<sup>st</sup>. A total of 1,395 surveys were received.

**4.3.1 Screening Methodology**

Based on the three community input sources listed above, a qualitative evaluation was conducted for each potential alignment in the corridor. While it was not possible to take into account every comment received from the community input process, the evaluation qualitatively identified whether there was strong support or opposition to any particular alignment. Because the community was asked to react to the alignment that generally followed the major corridors, the focus of the evaluation was to identify whether there was opposition to a transit enhancement along the primary streets in the corridor or if there were preferred deviations outside of these major streets.

Based on this evaluation, the only alignment option that received mixed supported by stakeholders and the larger community were alignments C1 and C2. This was largely tied to the question of which bridge to use (Hennepin or 3<sup>rd</sup> Avenue). While stakeholders had a slight preference for Hennepin, they also felt that both alignments served this area equally well and that the decision on which alignment to use would need to be based on more information about cost and operational feasibility, see Table 12.

**Table 12: Screening Results: Community and Stakeholder Sentiment**

SEGMENT / ALIGNMENT		EVALUATION	FULFILLS CRITERION
A1	Central Ave NE	Strong stakeholder support for the Central Avenue NE alignment, primarily for commercial and residential access and to support economic development.	Best
A2	NE Polk Street	No stakeholder suggestion to serve a street other than Central Avenue NE in this area.	Fair
A3	Fillmore Street NE	No stakeholder suggestion to serve a street other than Central Avenue NE in this area.	Fair
B1	Monroe Street NE	No stakeholder suggestion to serve a street other than Central Avenue NE in this area.	Fair
B2	Central Ave NE	Strong stakeholders support for the Central Avenue NE alignment, primarily for commercial and residential access and to support economic development (especially in the industrial areas where some redevelopment is already occurring).	Best
B3	Fillmore Street NE	No stakeholder suggestion to serve a street other than Central Avenue NE in this area.	Fair
C1	E. Hennepin/ 1st Ave NE (river crossing)	Mixed sentiment from stakeholders on the preferred alignment through this area, but due to limited options, most support this alignment because of assumed use of the Hennepin Avenue bridge. One stakeholder suggested the possibility of conversion from one-way to two-way streets.	Good
C2	Central Ave NE/ 3rd Avenue S (river crossing)	Stakeholder support mixed on this alignment, and the decision was more tied to which bridge was used connecting downtown and this area. The Hennepin Avenue bridge was generally the preferred alignment among most stakeholders.	Good
D1	Hennepin Ave	While some stakeholders mentioned the advantage of a Hennepin alignment as a way to avoid conflicts with special events on Nicollet Mall, generally, stakeholders had strong interest in the Nicollet Mall alignment.	Fair
D2	Nicollet Mall	Most stakeholders support the Nicollet Mall alignment, many of which tied a transit investment in this corridor to reconstruction of the Nicollet Mall, which was noted as "showing its age." Some stakeholders only want to consider Nicollet and were not open to other alignments through downtown. Some stakeholders also envisioned the positive redevelopment possibilities associated with a Nicollet Avenue alignment, especially on the north end around the library. Public input reflected strong interest in improving transit on Nicollet Mall, although some people are concerned with negatively impacting the character of Nicollet Mall or would like it to be a pedestrian mall without any transit service.	Good

SEGMENT / ALIGNMENT		EVALUATION	FULFILLS CRITERION
D3	Marq / 2nd Ave S	There was little support for a transit enhancement on 2nd and Marquette, and some stakeholders were adamant that these streets should not be considered due to very recent reconstruction of these streets for express service and I-35W BRT (MARQ2). Most of this sentiment related to streetcar and some suggested that bus service could be appropriate on this alignment.	Fair
D4	3rd Ave S	Very little support for this alignment among stakeholders, primarily due to the distance from the major commercial and entertainment districts on Nicollet and Hennepin Avenues.	Fair
E1	Blaisdell / 1st Ave S	Several stakeholders suggested that these streets could be considered, but they also acknowledged they do not provide good access or visibility to commercial and residential uses along Eat Street. Serving Nicollet Avenue S was also noted as a better alignment for visitors or tourists who might be staying downtown.	Fair
E2	Nicollet Ave S (through Kmart)	Strong stakeholder support for enhanced transit on Nicollet Avenue S over other alignments, and many mentioned the economic development opportunities associated with reconnecting Nicollet directly to Lake Street.	Best
E3	Nicollet Ave S (via Blaisdell / 1st)	Strong stakeholder support for enhanced transit on Nicollet Avenue S and most supported reconnecting Nicollet at Lake Street rather than use the existing deviation via Blaisdell and 1st Avenue S.	Good
F1	Blaisdell / 1st Ave S/Nicollet Ave S	Strong stakeholders support for reconnecting Nicollet Avenue S at Lake Street rather than use of Blaisdell Avenue S and 1st Avenue S.	Fair
F2	Nicollet Ave S	Strong stakeholder support for directly serving Nicollet Avenue S south of Lake Street and no suggestion for another alignment.	Best

**4.4 Effective Alignment that Provides for Direct Access**

**4.4.1 Data Sources**

The primary source for conducting this evaluation was Street View and aerial photography in Google Maps. Supplemental field work was also conducted at certain locations.

**4.4.2 Screening Methodology**

Each potential alignment was carefully evaluated to determine whether there were potential issues with an enhanced transit operation within the alignment as well as connections between segments. Several specific items were evaluated along each potential alignment:

- Deviations or turns required due to indirect routing
- Total length of alignment
- Operational issues due to one-way or two-way streets
- Presence of low or narrow undercrossings
- Presence of at-grade freight rail crossings
- Availability of transit only lanes in downtown

Based on these items, each alignment option was qualitatively evaluated and assigned a Poor, Fair, Good, Best rating system. As with other criteria, the rating was based on the alignment options within each segment, not for the corridor as a whole. The goal was to select those alignments that provided the most direct access within the corridor, see Table 13.



**Table 13: Screening Results: Effective Alignment that Provides for Direct Access**

SEGMENT / ALIGNMENT		EVALUATION	FULFILLS CRITERION
A1	Central Ave NE	No deviation or turns would be required, though there is an at-grade railroad crossing near 36th Avenue NE.	Good
A2	NE Polk Street	Turning movements would be required to access NE Polk Street (at 37th Avenue NE) and another set of turns at 29th Avenue NE. There is an at-grade rail crossing north of 36th Avenue NE.	Poor
A3	Fillmore Street NE	Two turning movements would be required to access NE Fillmore Street (at 37th Avenue NE). There is an at-grade rail crossing north of 36th Avenue NE.	Fair
B1	Monroe Street NE	Monroe Street NE was an historic streetcar corridor, but there is a low, restricted clearance railroad undercrossing near NE 18th Avenue (13'10").	Poor
B2	Central Ave NE	No deviations or turns would be required, though there is a restricted use railroad undercrossing north of 14th Avenue NE	Best
B3	Fillmore Street NE	Fillmore Street does not connect at Lowry Avenue (restricted to pedestrians/bikes only). There is also a low, restricted clearance undercrossing at 13th Avenue NE (13'8").	Poor
C1	E. Hennepin/ 1st Ave NE (river crossing)	Street configuration would require a split alignment (southbound on 1st Avenue NE and northbound on E. Hennepin Avenue). Turning movements would be required at Central Avenue NE on the northern end of the segment. The number of turns and travel distance varies on the south end depending on segment D alignment.	Good
C2	Central Ave NE/ 3rd Avenue S (river crossing)	No deviations or turning movements would be required on the northern end of the segment; however, the number of turns and travel distance varies on the south end depending on segment D alignment.	Good
D1	Hennepin Ave	Number of turns depends on the alignment connection from the north. No turns on the north end coming from Hennepin/1st Avenue NE but several turns required connecting from the 3rd Avenue bridge. Turns on the south end would also be required on connecting streets to Nicollet Avenue (there are multiple alignments). Connecting streets would likely require a split alignment due to the one-way street configuration. This corridor is also a much less direct connection to the southern end of the corridor (Segment D) near 11th/12th. There are no transit-only lanes on Hennepin, despite significant traffic volumes; a southbound contraflow bus-only lane on Hennepin Avenue was eliminated in 2009 with the conversion of Hennepin Avenue from one-way to two-way traffic, consistent with the Access Minneapolis Downtown Transportation Action Plan.	Fair
D2	Nicollet Mall	Number of turns depends on the alignment connection from the north. Minimal turns on the north end coming from Hennepin/1st Avenue NE but several turns required connecting from the 3rd Avenue bridge. Alignment would also require following the curves on the Nicollet Mall. Alignment has the advantage of existing transit lanes for local transit service; car traffic is prohibited from Nicollet Mall.	Best
D3	Marq/2nd Ave S	Turns required for both connecting alignments from the north. Turns also required on the south end connecting to Nicollet Avenue S. While Marquette and 2 <sup>nd</sup> Avenues S have double-wide bus lanes, these lanes were designed for express bus service and are heavily used by express buses during the peak period. It is anticipated that express bus service will continue to grow, particularly with the implementation of highway BRT on I-35W, placing greater demand on these bus lanes for express bus service.	Fair
D4	3rd Ave S	Number of turns depends on the alignment connection from the north. No turns on the north end coming from Central Avenue NE but several turns required connecting from the Hennepin/1st Avenue NE alignment. Turns on the south end would also be required on connecting streets to Nicollet Avenue (there are multiple alignments). Connecting streets would likely require a split alignment due to the one-way street configuration. There is no existing transit service, nor transit only lanes on 3 <sup>rd</sup> Avenue S.	Fair
E1	Blaisdell/1st Ave S	Turns required for all connecting alignments coming from downtown. This would also require a split alignment due to the one-way street configuration on Blaisdell Avenue and portions of 1st Avenue S. The distance between the north and south alignment is about 800 feet.	Fair
E2	Nicollet Ave S (through Kmart)	Number of turns depends on the alignment connection from the north. No turns on the north end coming from the Nicollet Mall, but all other alignment connections would require turning movements. No other turns required on the south end of the alignment (assuming Nicollet Avenue S is reconnected at Lake Street).	Best
E3	Nicollet Ave S (via Blaisdell/1st)	Number of turns depends on the alignment connection from the north. No turns on the north end coming from the Nicollet Mall, but all other alignment connections would require turning movements. Turns required on the south end of the alignment via Blaisdell and 1st Avenue S.	Good
F1	Blaisdell/1st Ave S/Nicollet Ave S	Number of turns depends on the alignment connection from the north. No turns on the north end coming from the Blaisdell/1st Avenue S alignment, but would require turns from the E2 alignment (if Nicollet Avenue S were reconnected at Lake Street). Turns required on the south end of the alignment to connect to Nicollet Avenue S.	Fair

SEGMENT / ALIGNMENT		EVALUATION	FULFILLS CRITERION
F2	Nicollet Ave S	Number of turns depends on the alignment connection from the north. No turns on the north end coming from Nicollet (if the street is reconnected), but the Blaisdell/1st Avenue S alignment would require turning movements. No turns required on the south end of the alignment.	Best

**4.5 Consistent With Community Character**

**4.5.1 Data Sources**

The following data sources were used for this criteria evaluation:

- Existing and future land use in *The Minneapolis Plan for Sustainable Growth*
- Existing bus service routing and frequency in existing Metro Transit schedules and system map

**4.5.2 Screening Methodology**

A qualitative evaluation was conducted for each alignment option within each segment of the corridor that evaluated existing land use patterns as well as the presence of existing transit service (and service type, such as hi-frequency, urban local, suburban local, express, etc.). As with other criteria, each alignment option was evaluated compared to other alignment options with a segment rather than compared to the corridor as a whole. Based on this evaluation, a summary of the evaluation was provided, and each alignment option was rated as either Poor, Fair, Good or Best, see Table 14.

**Table 14: Screening Results: Consistent with Community Character**

SEGMENT / ALIGNMENT		EVALUATION	FULFILLS CRITERION
A1	Central Ave NE	Central Avenue NE has an existing Hi-Frequency bus line and is the primary commercial corridor in this part of Northeast Minneapolis. Future land use identifies both sides of the corridor as mixed use with an Activity Center at Lowry and Central.	Best
A2	NE Polk Street	No current bus service on Polk Street, and existing land use is mostly urban single-family residential	Fair
A3	Fillmore Street NE	No current bus service on Fillmore Street, and existing land use is mostly urban single-family residential	Fair
B1	Monroe Street NE	South of Broadway Avenue NE, a portion of this segment of Monroe St SE has local bus service (route 17), and existing land use is a mix of urban single-family residential, industrial and public uses. Future land uses to remain urban residential.	Fair
B2	Central Ave NE	Central Avenue NE has an existing Hi-Frequency bus line and is the primary commercial corridor in this part of Northeast Minneapolis. Future land use identifies both sides of the corridor as either mixed use (on the north end of the segment) or transitional industrial (on the south end of the segment).	Best
B3	Fillmore Street NE	No current bus service on Fillmore Street NE, and existing land use is a mix of urban single-family residential, public and industrial uses. Future land use is either urban residential or transitional industrial.	Fair
C1	E. Hennepin/ 1st Ave NE (river crossing)	Current land use is a mix of commercial, mixed use and medium- to high-density residential uses (with some industrial uses). Future land use is either mixed use or commercial and this entire area has been identified as an Activity Center. This alignment has a mix of local and limited stop buses, including route 11 from Nicollet Mall.	Good
C2	Central Ave NE/ 3rd Avenue S (river crossing)	Current land use is a mix of commercial, mixed use and medium- to high-density residential uses. This alignment has a mix of local and limited stop buses, including the Hi-Frequency Route 10 and routes 17, 25 and 59 from Nicollet Mall.	Good
D1	Hennepin Ave	Current and future land uses are high-density commercial, public or institutional and Hennepin Avenue has been identified as an Activity Center. Extensive bus service is provided on Hennepin Avenue, including Hi-Frequency Route 6. No Nicollet Avenue or Central Avenue buses operate on Hennepin Avenue downtown.	Good
D2	Nicollet Mall	Current and future land uses are high-density commercial, public or institutional. Nicollet Mall is the primary retail corridor in downtown Minneapolis. Extensive bus service is provided on	Best

SEGMENT / ALIGNMENT		EVALUATION	FULFILLS CRITERION
		Nicollet Avenue, including Hi-Frequency Routes 10 and 18 that operate on Nicollet and Central avenues outside downtown. Nicollet Mall does not have any car traffic; it was designed and prioritized to serve pedestrians and local transit circulation.	
D3	Marq/2nd Ave S	Current and future land uses are high-density commercial, public or institutional. Extensive regional express bus service is provided on these two corridors. No Nicollet Avenue or Central Avenue buses operate on Marquette/2 <sup>nd</sup> .	Fair
D4	3rd Ave S	Current and future land uses are high-density commercial, public or institutional. There is no bus service on this segment of 3 <sup>rd</sup> Avenue S in downtown.	Fair
E1	Blaisdell/1st Ave S	Existing land use is mostly residential (low, medium and high) with some commercial on the northern end of the corridor and at some nodes. No existing bus service exists on Blaisdell/1 <sup>st</sup> Ave S, except near Lake Street where Nicollet Avenue is disconnected.	Fair
E2	Nicollet Ave S (through Kmart)	Existing land use is mostly commercial, mixed use and residential (medium and high). Future land use identifies Nicollet as the primary commercial corridor in this area. Extensive bus service exists on Nicollet, including the Hi-Frequency Route 18.	Good
E3	Nicollet Ave S (via Blaisdell/1st)	Existing land use is mostly commercial, mixed use and residential (medium and high). Future land use identifies Nicollet as the primary commercial corridor in this area. Extensive bus service exists on Nicollet, including the Hi-Frequency Route 18.	Good
F1	Blaisdell/1st Ave S/Nicollet Ave S	Existing and future land uses on Blaisdell and 1st Avenue S are almost exclusively residential, with the exception of some commercial uses between 34th Street and Lake Street. No bus service exists on Blaisdell except a short segment between 31st and 29th Streets where Nicollet Avenue is disconnected.	Fair
F2	Nicollet Ave S	Existing and future land uses on Nicollet is a mix of residential (low and medium density) and commercial uses (mostly at major intersections). Hi-Frequency bus service operates on this alignment (Route 18).	Best

**4.6 Summary of Initial Screening: Alignment**

Based on the initial screening of potential alignments, the primary streets in the corridor were selected as the recommended alignment for the detailed evaluation. Figure 4 summarizes the results of the initial screening of alignments.

Starting from the north end of the corridor, the initial screening of potential alignments is summarized below.

**4.6.1 Segment A (Central Avenue NE between 41st and Lowry Avenue NE)**

The analysis showed that Alignment A1 (Central Avenue) was clearly the best alignment in this segment and is recommended for the detailed evaluation. The other potential alignments (NE Polk Street and NE Fillmore Street) only received a Good or Best rating in one category (Connects activity centers), primarily because this criterion evaluated population and employment within a ½-mile buffer and the golf course/Shoreham Yards along Central Avenue gave NE Polk and Fillmore Streets a higher rating.

**4.6.2 Segment B (Central Avenue NE between Lowry Avenue NE and Fourth Street SE)**

Similar to Segment A, Central Avenue NE was clearly the best alignment in Segment B. NE Polk and Fillmore Streets both had Poor ratings in the Effective alignment that allows for direct access criterion due to low underpasses and indirect street configurations.

**4.6.3 Segment C (Central Avenue NE from Fourth Street SE to Downtown Minneapolis)**

The two potential river-crossing alignments in Segment C (Alignment C1 via E. Hennepin/1<sup>st</sup> Avenue NE and Alignment C2 via Central Avenue SE) both had very similar ratings and were deemed equally effective at meeting the purpose and need of the corridor based on the screening criteria. The detailed evaluation will identify key differences between the two alignments. Thus, both alignments are carried forward to the detailed evaluation.



### **4.6.4 Segment D (Downtown Minneapolis between Washington Avenue and Grant Street)**

The downtown segment of the corridor included four potential alignments: Hennepin Avenue (D1), Nicollet Mall (D2), Marquette and Second Avenue S one-way pair (D3), and Third Avenue S (D4). Of these, Nicollet Mall alignment rated highest because Nicollet Mall provides the most direct connection to Nicollet Avenue south of downtown; it has been designed and prioritized for pedestrian and local transit use as a auto-free street; and it has been prioritized in local and regional plans and currently serves the local transit market in the north-south direction. Hennepin Avenue and Marquette and 2<sup>nd</sup> Avenues, in contrast, have been designed and prioritized for other transit travel markets (local transit service in the southwest direction to Uptown on Hennepin Avenue and express bus service on Marquette and 2<sup>nd</sup> Avenues S) as well as auto traffic, while Third Avenue is located several blocks from the downtown core.

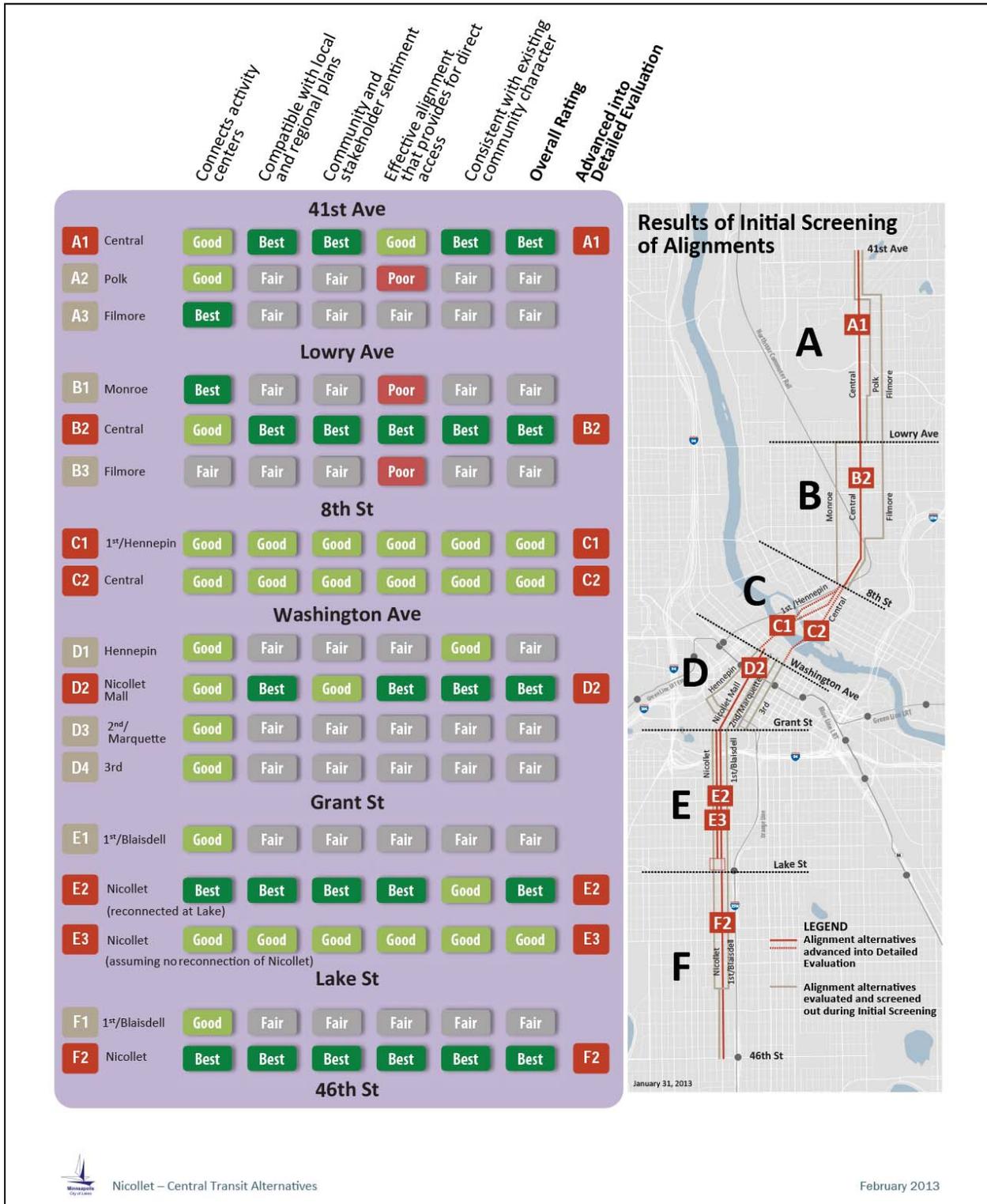
### **4.6.5 Segment E (Nicollet Avenue S between Grant and Lake Street)**

Three potential alignments were evaluated in Segment E. Alignment E1 used the one-way couplets of Blaisdell and First Avenue S and alignments E2 and E3 were variations of the same alignment that mostly operate on Nicollet Avenue S. Alignment E2 assumed Nicollet Avenue S would be reconnected through the K-mart site while alignment E3 would use Blaisdell and First Avenue S to connect the segment of the corridor between 28<sup>th</sup> and Lake Streets. Alignment E1 was rated significantly lower than E2 and E3 and was not recommended for further study. Alignments E2 and E3, however, were rated similarly and only differ at the south end of the segment. Thus, the Nicollet Avenue S alignment alternatives, E2 and E3, were recommended for the detailed evaluation with the caveat that the specific routing between 28<sup>th</sup> and Lake Streets would be determined at a later date (e.g. advanced concept design, preliminary engineering).

### **4.6.6 Segment F (Nicollet Avenue S between Lake and 46th Street)**

Alignment F2 (Nicollet Avenue S) was clearly the best alignment in this segment and is recommended for the detailed evaluation. The other potential alignment, F1, via Blaisdell and First Avenue S only received a good or best rating in one category (“connects activity centers”), primarily because the Blaisdell corridor captured more of the population density west of the corridor.

Figure 4: Results of Initial Screening of Alignments



## 5.0 Findings and Recommendations

Initial screening of modes and alignments narrowed the number of alternatives to those options that would best meet the purpose and need of the project. The alternatives identified for detailed definition and evaluation are as follows:

- “No-Build,” defined as bus service as it exists today with planned schedule changes on Central Avenue
- Enhanced bus using the following alignment:
  - Central Avenue from 41<sup>st</sup> Avenue NE to Washington Avenue
  - Nicollet Mall in downtown - Study two existing options for crossing the Mississippi River
    - via Hennepin/1<sup>st</sup> Avenues
    - 3<sup>rd</sup> Avenue/Central Avenue
  - Nicollet Avenue S between Grant Street and 46<sup>th</sup> Street S, via First and Blaisdell Avenues between 29<sup>th</sup> and Lake Street
- Modern streetcar using the following alignment:
  - Central Avenue from 41<sup>st</sup> Avenue NE to Washington Avenue
  - Nicollet Mall in downtown – Study two existing options for crossing the Mississippi River
    - via Hennepin/1<sup>st</sup> Avenues
    - 3<sup>rd</sup> Avenue/Central Avenue
  - Nicollet Avenue S between Grant Street and 46<sup>th</sup> Street S – Study two options for connecting to Lake Street
    - Through First and Blaisdell Avenues between 29<sup>th</sup> and Lake Street
    - Through the existing Kmart site

Additionally, based on cost and experience of peer cities in implementing modern streetcar, a preliminary starter line concept will also be studied. The initial conceptual alignment is defined as the segment of the Nicollet-Central corridor between Lake Street and Hennepin Avenue NE, approximately 3-½ miles long. The length and end points of this modern streetcar starter line may be refined based on detailed evaluation results.

Following is a summary of feedback received as part of the initial screening phase.

### 5.1 Feedback from the Technical/Community Advisory Committee (T/CAC)

The results of the initial screening were presented to the Technical/Community Advisory Committee (T/CAC) at its November 2012 meeting. At that meeting, the T/CAC requested additional information to further substantiate the selection of Nicollet Mall as the preferred downtown alignment. Specifically, there was interest in learning more about how modern streetcar operating on Nicollet Mall would impact deliveries and underground facilities such as areaways, and utilities. In response to these comments, the T/CAC’s December 2012 meeting provided this information. In summary, the reasons for selecting Nicollet Mall through downtown are as follows:

- Provides the most direct connection to Nicollet Avenue south of downtown.
- Best serves the circulation needs in downtown, connecting the LRT on 5<sup>th</sup> Street with the Convention Center on 13<sup>th</sup> Street and the major employers, hotels, and shopping district in-between.
- Provides the best option in a congested downtown environment to circulate people because it is a car-free street prioritized for pedestrian and local transit use in the north-south direction, whereas other streets such as Hennepin Avenue and Marquette and 2<sup>nd</sup> Avenues have been prioritized for other transit travel markets and auto traffic.

Regarding potential impacts of modern streetcar on deliveries, areaways and utilities, following is a summary of the information discussed with the T/CAC:

- Deliveries. The City and Metro Transit do not anticipate any changes to policies regarding deliveries and vehicular access on Nicollet Mall as a result of the implementation of a transit enhancement on Nicollet Mall, regardless of mode. Deliveries to businesses located along Nicollet Mall will continue to occur on side streets and alleys rather than on Nicollet Mall.
- Areaways. Areaways are located under many downtown streets and the City routinely addresses them as needed as part of its projects. The City has an ordinance in place that gives it authority to abandon or partially abandon an areaway if it conflicts with the public good of a project. Areaways have been addressed on local bus projects (e.g. dual bus lanes on Second and Marquette Avenues) and on modern streetcar projects in other cities (e.g. Portland, Seattle).
- Utilities. The primary concern with utilities is the ability to maintain access to vaults and manholes relative to a major transit project (in this case, modern streetcar) that would be constructed and operate within the same space. While it is generally preferred to avoid utilities during the planning and design of a major transit project such as modern streetcar, other systems such as those in Portland and Seattle have incorporated manholes within the runningway when it is not possible to avoid utilities at great cost. Examples from Portland were presented to demonstrate how access to utilities is maintained there. All downtown streets have underground utilities

### 5.2 Feedback from the Public

The recommendations were presented to the public at a series of three open houses held throughout the corridor from February 12<sup>th</sup> through 14<sup>th</sup>, 2013. At these open houses and through the project web site (from February 15<sup>th</sup> through 28<sup>th</sup>, 2013), the public provided feedback on several key themes:

- Strong support of modern streetcar
- Need to integrate bicycle infrastructure with improved transit
- Transit ridership is an important factor
- Support for attracting jobs and housing to the corridor
- New transit service should integrate well with existing bus routes
- Concern for the environment
- Cost effectiveness
- Minimize negative impacts on pedestrian experience especially Nicollet Mall
- Interest in the length of time it would take to implement the new system
- Support for re-opening Nicollet Avenue at Lake Street
- Concern that the Twin Cities' transit system is "falling behind" other peer cities
- Interest in extending the corridor south to 66th Street in Richfield
- Appeal not only to local users, but also visitors to the City
- Minimize automobile traffic conflicts and delays

Overall, 85 percent of the 119 respondents identified modern streetcar as their preferred alternative. (Respondents could choose more than one alternative.) Of respondents who preferred modern streetcar, 79 percent identified it as their only choice. Documentation of public and stakeholder feedback at the February 2013 open house is provided under separate cover as *Public Outreach Summary Report #2: Development of Alternatives*.

### 5.3 Discussion and Action by the Policy Advisory Committee (PAC)

At its meeting on February 28, 2013, the PAC approved the core resolution on alternatives for detailed definition and evaluation, as follows:

- "No-Build" as bus service as it exists today with planned schedule changes on Central Avenue

- Enhanced bus, from 41<sup>st</sup> Street NE in Columbia Heights to 46<sup>th</sup> Street S in Minneapolis, generally along Central Avenue, Nicollet Mall, and Nicollet Avenue, with the option to cross the Mississippi River via 1<sup>st</sup>/Hennepin Avenues or Central/3<sup>rd</sup> Avenues.
- Modern streetcar, from 41<sup>st</sup> Street NE in Columbia Heights to 46<sup>th</sup> Street S in Minneapolis, generally along Central Avenue, Nicollet Mall, and Nicollet Avenue, with the option to cross the Mississippi River via 1<sup>st</sup>/Hennepin Avenues or Central/3<sup>rd</sup> Avenues. As well as a preliminary modern streetcar starter line concept defined as the segment between Lake Street and East Hennepin Avenue, approximately 3½ miles. The length and end points of the starter line may be refined based on the results of the evaluation.

## 6. Summary of Alternatives for Detailed Definition

To support the detailed evaluation of alternatives recommended for further definition following this initial screening, the following alternatives will be developed to facilitate cost estimating and ridership forecasting. These alternatives were approved by the PAC on February 28, 2013.

- “No-Build” as bus service as it exists today with planned schedule changes on Central Avenue
- Enhanced bus from 41<sup>st</sup> Street NE in Columbia Heights to 46<sup>th</sup> Street S in Minneapolis, generally along Central Avenue, Nicollet Mall, and Nicollet Avenue, with the option to cross the Mississippi River via 1<sup>st</sup>/Hennepin Avenues or Central/3<sup>rd</sup> Avenues.
- Modern streetcar, from 41<sup>st</sup> Street NE in Columbia Heights to 46<sup>th</sup> Street S in Minneapolis, generally along Central Avenue, Nicollet Mall, and Nicollet Avenue, with the option to cross the Mississippi River via 1<sup>st</sup>/Hennepin Avenues or Central/3<sup>rd</sup> Avenues. As well as a preliminary modern streetcar starter line concept defined as the segment between Lake Street and East Hennepin Avenue, approximately 3½ miles. The length and end points of the starter line may be refined based on the results of the evaluation.

**Figure 5: Enhanced Bus and Modern Streetcar Examples**

**Enhanced Bus in Suburban Seattle**



**Modern Streetcar in Seattle**



The detailed definition of these alternatives will be documented under separate cover, and will address the aspects listed below. At the planning level, the type of information developed is still relatively high-level and are still focused on comparison and order-of-magnitude. During environmental review, advanced concept design and preliminary engineering, when there are more refined information such as basemapping and utility surveys, the level of detail increases with the identification of a preferred alternative.

- Stop locations – For purposes of identifying the number of stop facilities and estimating ridership, run times, and capital and operations and maintenance costs of these facilities.
- Service plan and operations
- Runningway – Describe assumption that any improvement will be accommodated within existing roadway/curb limits except at stop locations. Explain cost implications.
- Vehicles
- For the modern streetcar alternative: infrastructure for power supply distribution and maintenance/storage facility
- Stop amenities
- Technology
- Fare collection.