

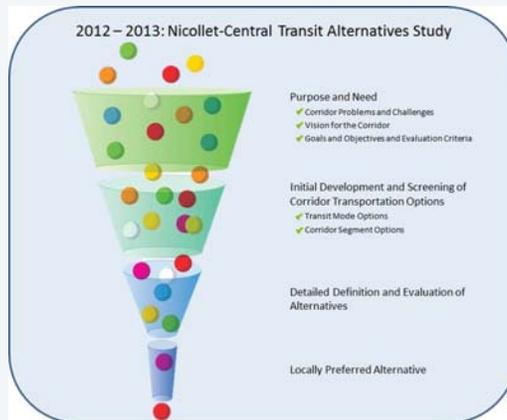
Nicollet – Central Transit Alternatives

T/CAC #8
May 28, 2013

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Overview of Evaluation Process

1. Identify full range of mode and alignment alternatives
2. Conduct initial high level initial screening to screen out alignments and modes that do not meet the project's purpose and need
3. Define short-list of paired mode and alignment alternatives
4. **Conduct detailed evaluation of the short-listed alternatives**
5. Select LPA



Alternatives for Detailed Evaluation

No Build
(existing bus)



Enhanced Bus
(9-mile)




Streetcar
(9-mile)




Streetcar
(Preliminary starter line)




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Evaluation Criteria

- 28 criteria organized around six goals:
 1. Connect People and Places
 2. Increase the Attractiveness of Transit
 3. Catalyze and Support Economic Development
 4. Integrate with the Transportation System
 5. Support Healthy Communities and Environmental Practices
 6. Develop and Implementable Project with Community Support
- Evaluation based on based on combination of quantitative and qualitative measures
- For each measure alternatives ranked as BEST , GOOD , or FAIR
- Ranking are relative to other alternatives



1. Connect People and Places

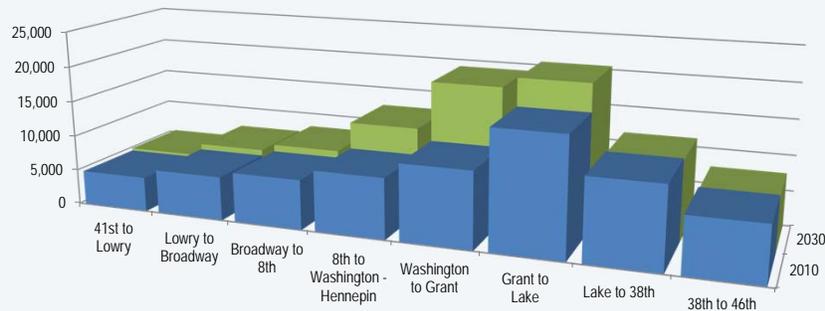
- 1.1 2010 and 2030 population density
- 1.2 2010 and 2030 employment density
- 1.3 Number of existing major activity centers served
- 1.4 Connections with major existing and future transitways
- 1.5 Quality of pedestrian connections
- 1.6 Quality of bicycle connections



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1.1 2010 & 2030 Population Density Served by Study Alignment

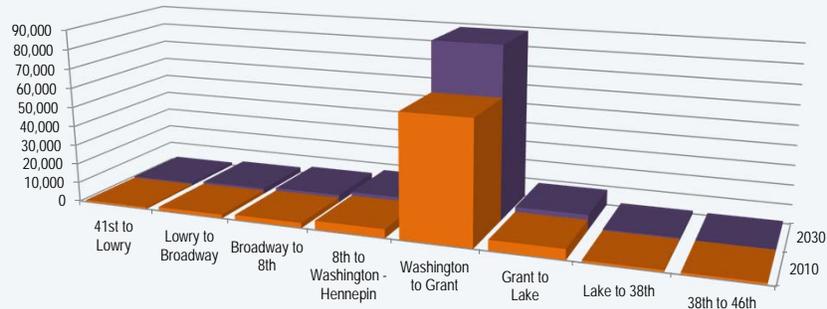


- Highest population densities currently between 8th and Lake
- Largest growth through 2030 is also between 8th and Lake
- Preliminary Streetcar Starter Line, at 40% of the length of Modern Streetcar, would serve:
 - 54% of current population
 - 66% of 2030 population
 - 96% of population growth

Enhanced Bus =	GOOD
Modern Streetcar =	GOOD
Streetcar Starter Line =	BEST

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1.2 2010 & 2030 Employment Density by Segment



- Employment heavily concentrated in downtown
- Through 2030, most growth will occur in downtown
- Preliminary Streetcar Starter Line, at 40% of the length of Modern Streetcar, would serve:
 - 94% of current employment
 - 94% of 2030 employment

- Enhanced Bus = **GOOD**
- Modern Streetcar = **GOOD**
- Streetcar Starter Line = **BEST**

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1.3 Service to Major Activity Centers



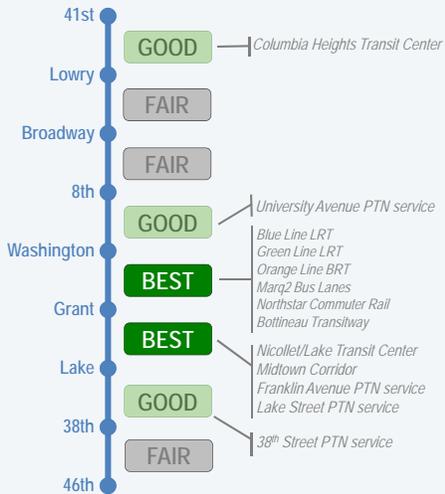
- Most major activity centers are clustered in and around downtown and between 8th and Washington and between Grant and Lake
- Outer end service is beyond location of most major activity centers

All alternatives serve all or nearly all major activity centers and rate as **BEST**



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1.4 Transit Connections



- Most important transit connections in downtown or between Grant and Lake
- Others at north end (Columbia Heights Transit Center), between 8th and Washington and at 38th Street
- All alternatives serve most high volume connections
- Long alternatives serve Columbia Heights Transit Center

Enhanced Bus =	BEST
Modern Streetcar =	BEST
Streetcar Starter Line =	GOOD



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1.5 Quality of Pedestrian Connections



- Preliminary Streetcar Starter Line could have high quality pedestrian connections throughout
- Pedestrian connections diminish somewhat farther north and south

Enhanced Bus =	GOOD
Modern Streetcar =	GOOD
Streetcar Starter Line =	BEST



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1.6 Quality of Bicycle Connections



Goal 1 Rankings: Connect People and Places

Criteria	Enhanced Bus	Long Streetcar	Short Streetcar
2.1 Population density served	GOOD	GOOD	BEST
2.2 Employment density served	GOOD	GOOD	BEST
2.3 Major activity centers served	BEST	BEST	BEST
2.4 Transitway Connections	BEST	BEST	GOOD
2.5 Quality of pedestrian connections	GOOD	GOOD	BEST
2.6 Quality of bicycle connections	GOOD	GOOD	BEST
Overall	GOOD	GOOD	BEST

2. Increase the Attractiveness of Transit

2.1 2030 Ridership

2.2 Ability to Accommodate Growth in Ridership (not yet available)



Ridership Assumptions

- Streetcar boardings assume rail bias based on average weekday Hiawatha LRT (Blue Line) ridership
- Range accounts for impact of service plan
 - “low” number assumes no change to background bus service
 - “high” number assumes modifications to the service plan
- Range is “wider” for Enhanced Bus to account for variation of potential service enhancement:



2.1 Range of 2030 Weekday Project Boardings



- Modern Streetcar would carry 14,000-20,000 per day
- Enhanced Bus would carry 4,600-13,000 per day
- Preliminary Streetcar Starter Line would carry 6,600-9,200 per day
- Range of ridership is highly dependent upon the supporting bus service

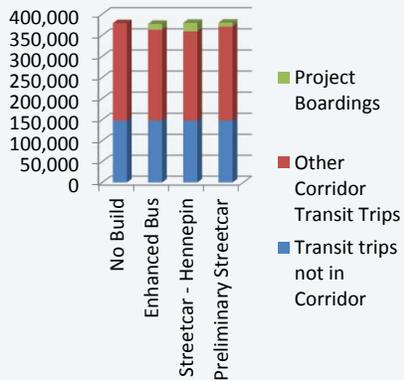


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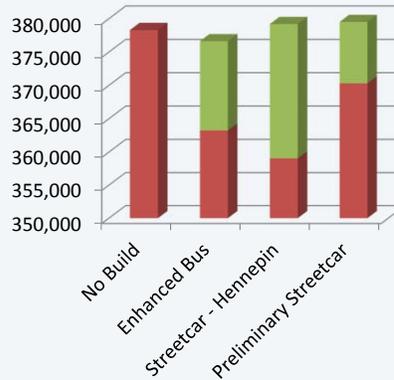
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2030 Weekday Linked Trips

Regional Transit Trips



Alternatives Effect on Region Transit Trips



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Goal 2 Rankings: Increase Attractiveness of Transit

Criteria	Enhanced Bus	Long Streetcar	Short Streetcar
2.1 2030 ridership	4,600-13,000	14,000-20,000	6,600-9,200
2.2 Ability to accommodate growth	(not yet available)		

Overall



3. Catalyze and Support Economic Development

- 3.1 Amount of potential development
- 3.2 Value of potential development
- 3.3 Potential to spur development



3. Catalyze and Support Economic Development

- Potential to spur development
 - *Based on experience from other areas (peer review):*
 - *Streetcar often stimulates economic development*
 - *Enhanced bus typically stimulates little development*
 - *Based on development forum:*
 - *Impacts in Minneapolis would be similar as elsewhere*
- Maximum allowable development capacity
 - *Densities and development patterns vary across the corridor, but there is plenty of space to support transit-oriented development*
 - *The greatest capacity – gross and in opportunity areas - is in the central corridor segments*
- Value of maximum allowable development capacity
 - *The value from the incremental development capacity manifests as increased property value, greater return on investment, and improved tax revenues.*



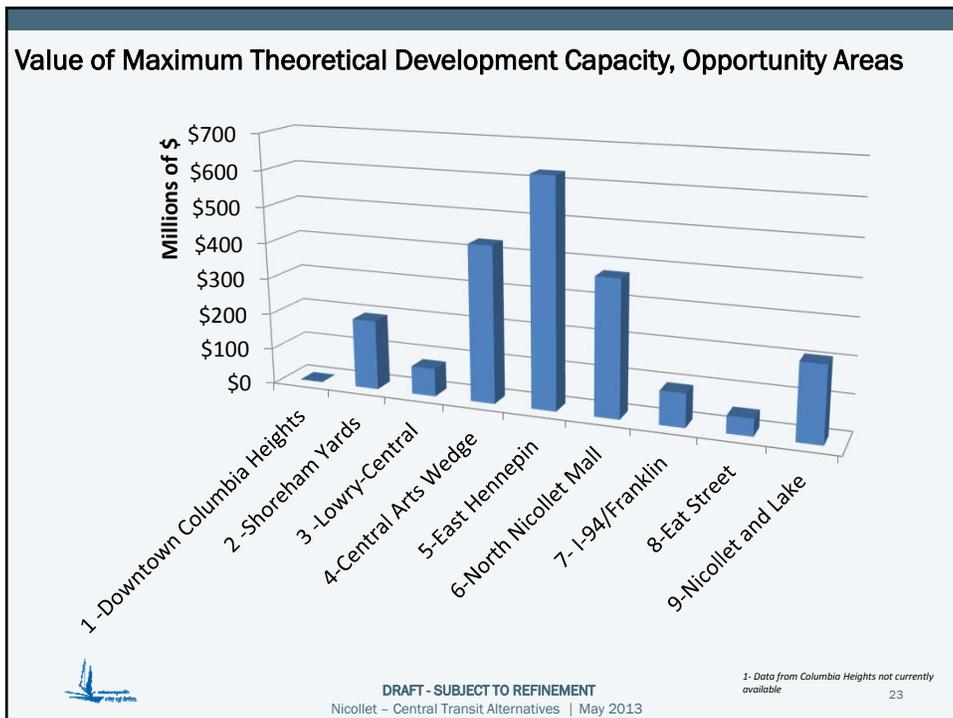
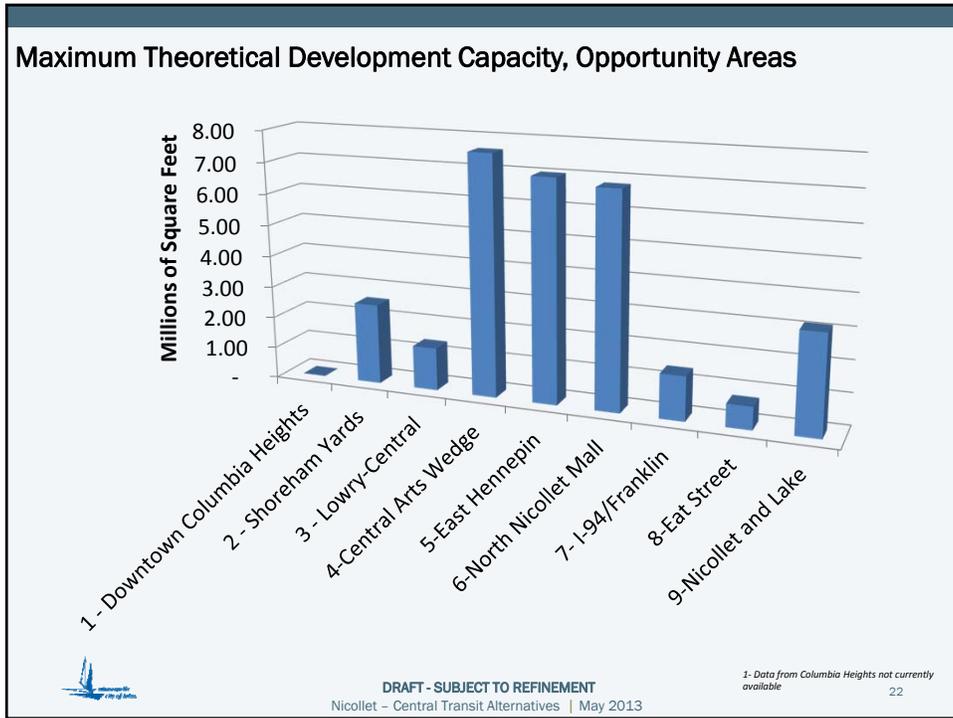
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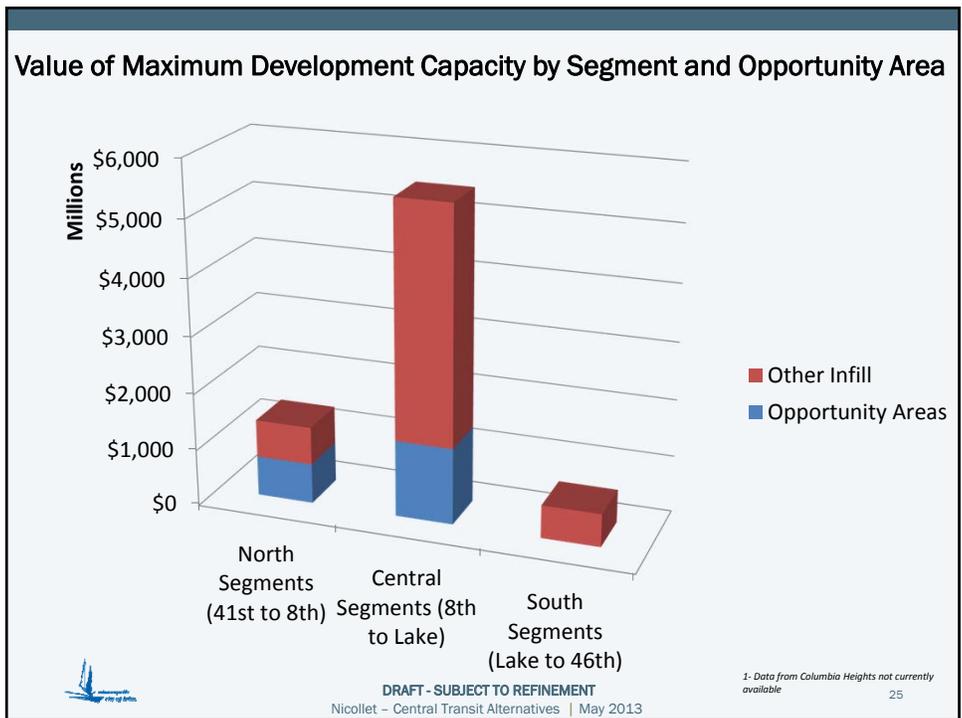
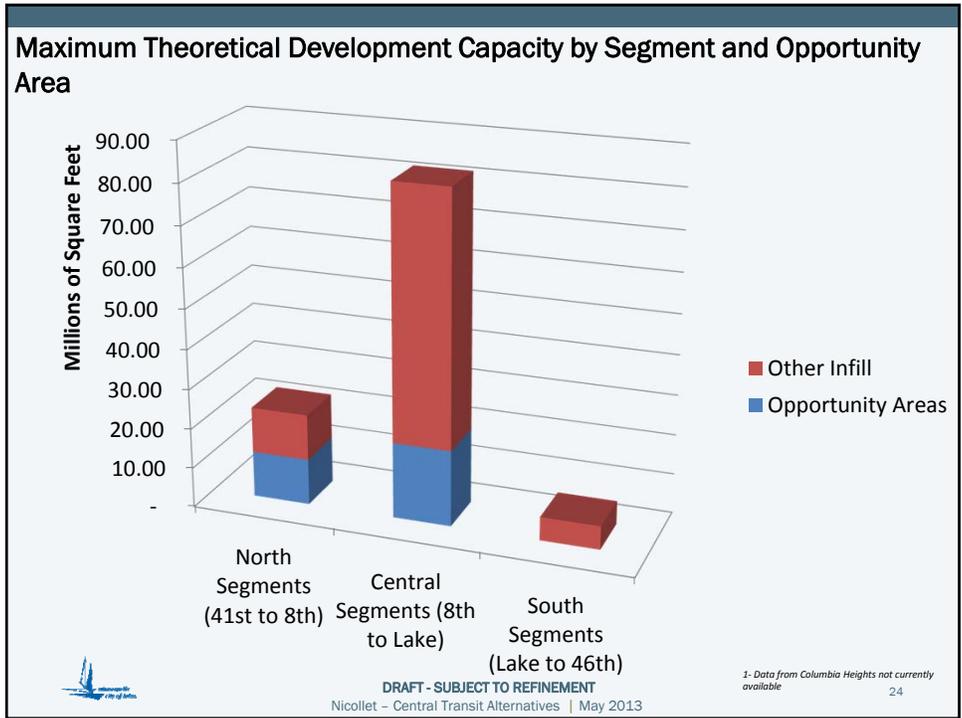
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Potential for Each Alternative to Spur Development: Developer Feedback

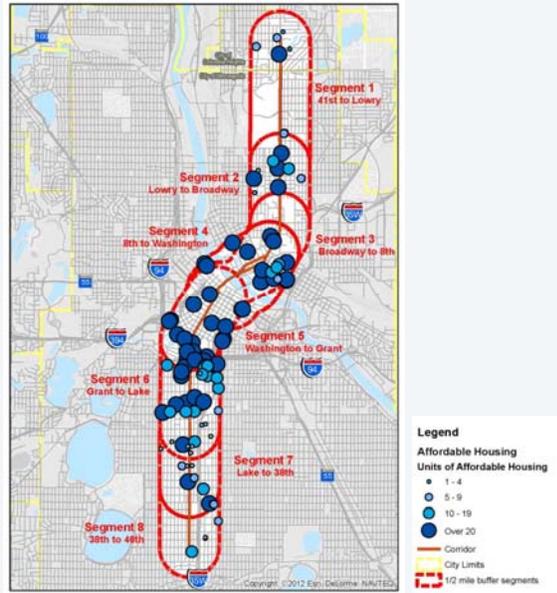
- A Developer Forum was held on May 6, 2013
- Participation from eight developers representing commercial, residential, mixed use sectors, with experience throughout the region and along the corridor
- Topics of discussion included:
 - Opinions on how different modes impact development
 - Locations along the corridor that are considered good development opportunities
 - How they would approach development differently if the transit project moves forward
 - Transit and design features that would be important and concerns that would have to be addressed

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Geographic Location of Current Affordable Housing Units



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3.3 Potential for Each Alternative to Spur Development

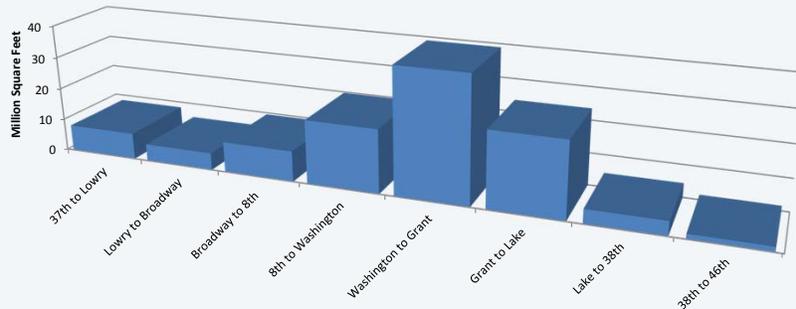
- Based on experience from other areas (peer review):
 - Streetcar can stimulate economic development
 - Enhanced bus would stimulate very little development
- Based on development forum:
 - Impacts in Nicollet-Central corridor would be similar as elsewhere

Criteria	Enhanced Bus	Streetcar
Potential to catalyze development	FAIR	BEST
Local developer perception	FAIR	BEST
Support vitality of downtown	GOOD	BEST
Foster compact, mixed-use development		
Infill development and mixed-use in Opportunity Areas	FAIR	BEST
Long term development in Opportunity Areas	FAIR	BEST
Overall	FAIR	BEST

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3.1 Maximum Development Potential (SF based on zoning)



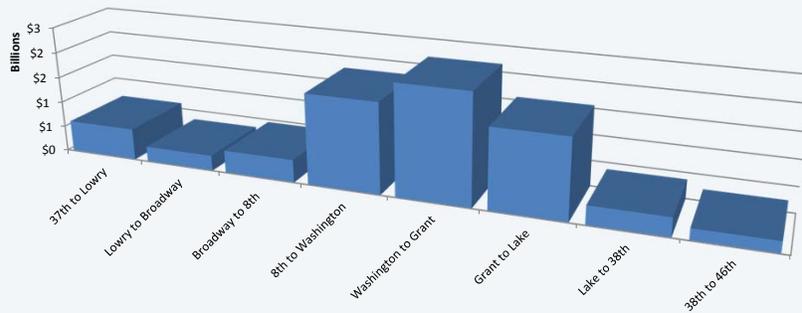
- Modern Streetcar could stimulate most development due to it's length
- Preliminary Streetcar Starter Line could stimulate up to 74% of development potential
- Enhanced Bus would have relatively little impact



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3.2 Maximum Value of Potential Development



- Modern Streetcar could stimulate most value due due it's length
- Preliminary Streetcar Starter Line could achieve up to 74% of value of Modern Streetcar
- Enhanced Bus would have relatively little impact



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Goal Rankings: Catalyze and Support Economic Development

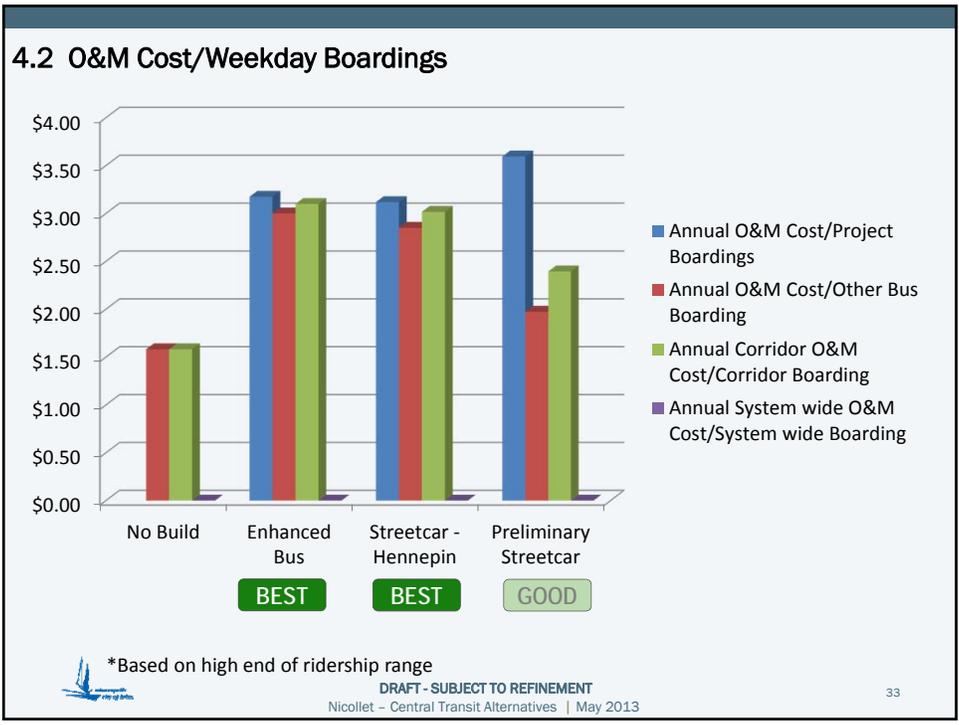
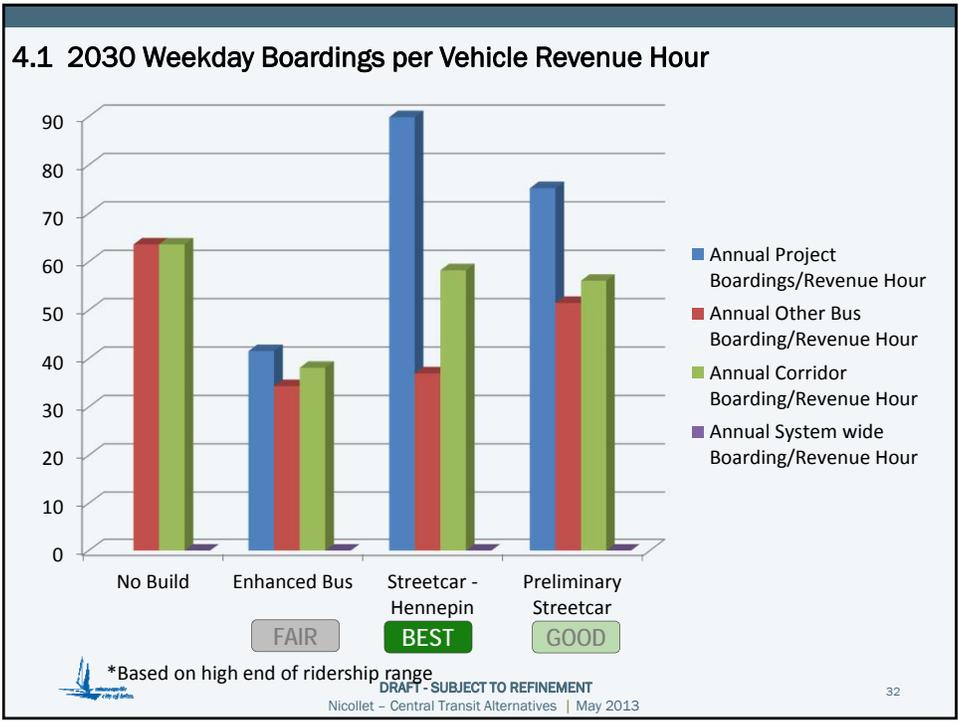
Criteria	Enhanced Bus	Long Streetcar	Short Streetcar
• Potential to spur development	FAIR	BEST	BEST
• Development Capacity–Sq. Ft. & Value	GOOD	GOOD	BEST
Overall	FAIR	GOOD	BEST



4. Integrate with Existing Transportation System

- 4.1 Transit ridership per vehicle revenue hour
- 4.2 O&M cost per passenger
- 4.3 Impact on corridor traffic
- 4.4 Impact on parking
- 4.5 Impact on freight railroads





4.3 Potential Impacts on Corridor Traffic

- Enhanced Bus and Modern Streetcar are not expected to have significant differences on impacts to general traffic
 - Transit vehicle volumes are a small percentage of regular traffic volumes for most of the corridor
 - During environmental review/advanced design, may need to further analyze transition points/key intersections (e.g. connection between Nicollet Mall and River)



4.4 Potential Impacts on On-Street Parking

- At each stop location, Enhanced Bus and Modern Streetcar would have similar potential parking impacts
 - 0 to 6 on-street parking spaces, depending on whether stops are shared with or separate from local bus service
 - Depends on individual stop/site conditions
- Expect more detailed analysis during environmental review/advanced concept design



4.5 Potential Impacts on Freight Rail

- All alternative have no impacts to existing grade-separated freight crossings
- Applies to at-grade rail crossing on Central near 36th Ave NE
 - Existing freight volume: 8 trains/day
 - Freight operations will have priority over transit
 - Potential transit delay: 8 to 10 minutes
 - Enhanced Bus: No change from existing conditions
 - Modern Streetcar: For purposes of AA, assume grade-separation
 - Further analysis during environmental review/advanced concept design
 - Discussions with stakeholders including railroad, MnDOT, etc.
 - Cost/benefit analysis of capital investment vs. annual operating cost of railroad agreement; railroad would still control crossing
 - Assume minimal disruption to modern streetcar operations



Goal 4 Rankings: Integrate with Existing Transit System

Criteria	Enhanced Bus	Modern Streetcar	Streetcar Starter Line
4.1 Ridership per vehicle revenue hour	FAIR	BEST	GOOD
4.2 O&M cost per passenger	BEST	BEST	GOOD
4.3 Impact on corridor traffic	No significant difference between alternatives		
4.4 Impact on parking	No significant difference between alternatives		
4.5 Impact on freight railroads	No impacts	Cost implications	No impacts
Overall	GOOD	BEST	GOOD



5. Support Healthy Communities

- 5.1 Potential impacts on historical, cultural and natural resources
- 5.2 Transit-dependent ridership
- 5.3 Benefits to low-income and minority population
- 5.4 Number of affordable rental units served
- 5.5 Environmental benefits



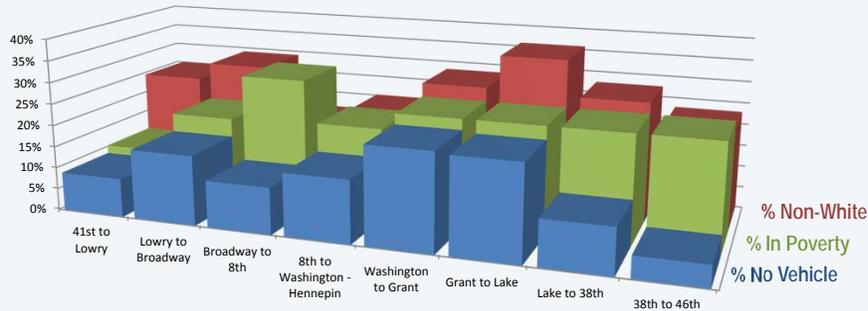
5.1 Number of Known Historical and Cultural Resources

- No significant impacts identified
- More detailed evaluation would be conducted during environmental review/advanced concept design

Criteria	Within ¼ mile of 9.2 mile Alignment	Within ¼ mile of 3.4 mile Alignment
Archaeology sites	3	3
Architectural sites	313	293



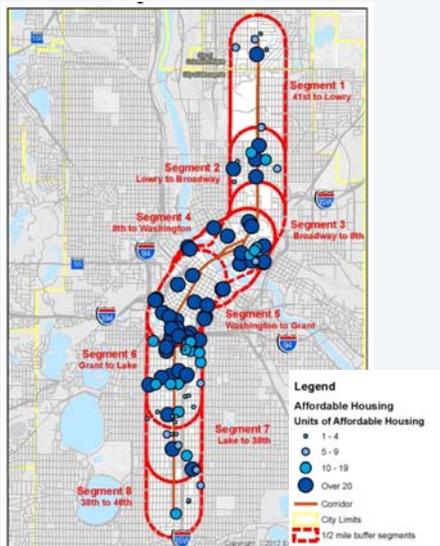
5.3 Benefits to 2010 Minority and Transit Dependent Populations



- Enhanced Bus and Modern Streetcar would provide the most benefits to minority to transit dependent populations
 - Highest populations in poverty between Broadway and 8th
 - Highest minority population located between Grant and Lake
- Highest populations without a vehicle do not correspond with populations in poverty (i.e., Washington to Lake)

Enhanced Bus =	BEST
Modern Streetcar =	BEST
Streetcar Starter Line =	GOOD

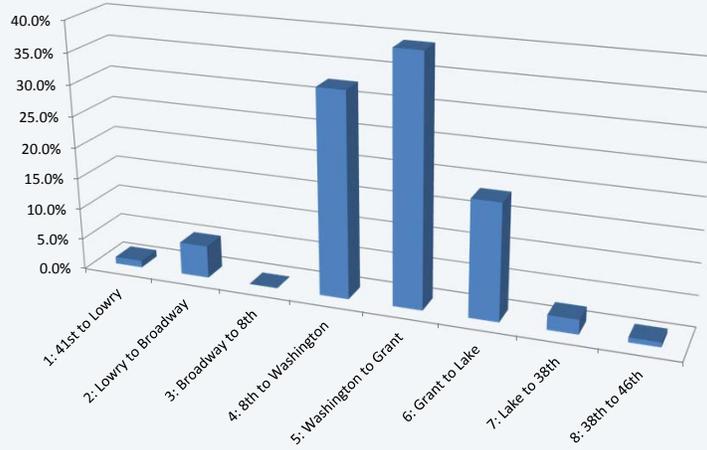
5.4 Percent of Housing Units that are Legally Binding Affordable Rental Units (within ½ mile)



- 7.3% of affordable housing units in the region are in the corridor
 - 4.3% of all housing units in the region are located in the corridor
- 9.2% of housing units within the corridor are affordable
 - 5.1% of all units across the 7-county region are affordable
- The greatest concentration of affordable housing units in the corridor is located between 8th and Lake
 - These segments contain **90.6%** of all affordable units in the corridor (but just 64.6% of total housing units)
 - 12.9% of housing units are affordable



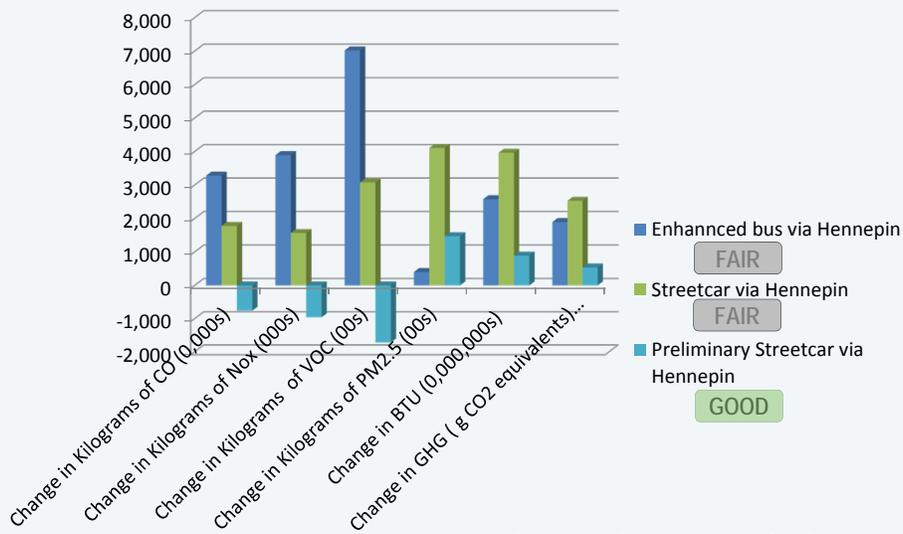
5.4 Percent of Housing Units that are Legally Binding Affordable Rental Units (within 1/2 mile)



- 90.6% of corridor affordable housing units are located between 8th and Lake

Enhanced Bus = **BEST**
 Modern Streetcar = **BEST**
 Streetcar Starter Line = **BEST**

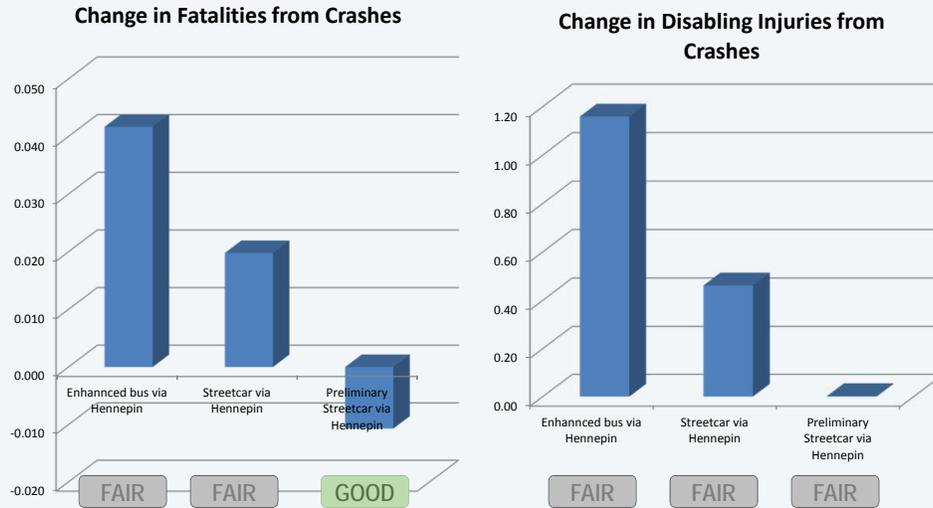
5.5 Environmental Benefits – Air Quality



Change is relative to No Build Alternative



5.5 Environmental Benefits – Safety



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Goal 5 Rankings: Support Healthy Communities

Criteria	Enhanced Bus	Long Streetcar	Short Streetcar
5.1 Number of known historical, cultural and natural resources	No significant impacts identified		
5.2 Transit-dependent ridership	(not yet available)		
5.3 Benefits to low income, transit dependent and minority populations	BEST	BEST	BEST
5.4 Affordable housing served	BEST	BEST	BEST
5.5 Environmental benefits	FAIR	FAIR	GOOD
Overall	GOOD	GOOD	BEST



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6. Develop Project with Community Support

- 6.1 Public sentiment
- 6.2 Developer community sentiment
- 6.3 Annual O&M cost estimate
- 6.4 Capital cost estimate
- 6.5 Cost-effectiveness



6.2 Developer Community Sentiment

- Conducted May 6, 2013, attended by 8 local developers
 - Developers were emphatic in their view that Streetcar would have a more impactful and enduring influence on economic development than Enhanced Bus
 - Particular reference made to the qualitative upgrade perceived in fixed-rail investment and permanence compared to Enhanced Bus
 - Developers stated preference for the streetcar includes the Preliminary Streetcar Starter Line since it is understood as a “starter” line.
 - Some developers present indicated that they would immediately increase densities in their projects in conceptual stages and some would consider reducing parking ratios for parking provided on-site or nearby (If the City committed to streetcar implementation).

Enhanced Bus =	FAIR
Modern Streetcar =	BEST
Streetcar Starter Line =	BEST



6.3 Annual O&M Costs

Service	No Build	Enhanced Bus (via Hennepin)	Modern Streetcar (via Hennepin)	Streetcar Starter (via Hennepin)
Modern Streetcar	\$ -	\$ -	\$20,100,000	\$10,600,000
Enhanced Bus	\$ -	\$13,600,000	\$ -	\$ -
Supporting Bus Network (Corridor only)	\$18,900,000	\$9,700,000	\$11,200,000	\$16,600,000
Build Alternative Supporting Bus Savings	N/A	-\$9,200,000	-\$7,700,000	-\$2,300,000
Systemwide Change in O&M Costs	N/A	\$4,400,000	\$12,400,000	\$8,300,000

* Approximately \$300,000-\$800,000 additional per year via Central



6.4 Preliminary Range of Capital Cost Estimates

Year 2013 \$

Alternative	Enhanced Bus (9.2 miles)	Modern Streetcar (9.2 miles)	Modern Streetcar MOS (3.4 miles)
Total Cost	\$101 million - \$110 million	\$400 million - \$451 million	\$184 million - \$213 million
Cost/Mile	\$11 million - \$12 million	\$43 million - \$49 million	\$54 million - \$63 million

Year 2017 \$ (assumes 3% annual growth)

Alternative	Enhanced Bus (9.2 miles)	Modern Streetcar (9.2 miles)	Modern Streetcar MOS (3.4 miles)
Total Cost	\$114 million - \$124 million	\$450 million - \$507 million	\$207 million - \$240 million
Cost/Mile	\$12 million - \$13 million	\$48 million - \$55 million	\$61 million - \$71 million





Goal 6 Rankings: Develop Project with Community Support

Criteria	Enhanced Bus	Long Streetcar	Short Streetcar
6.1 Public sentiment	(not yet available)		
6.2 Business/developer sentiment	FAIR	BEST	BEST
6.3 Annual O&M cost estimate	\$4.4 M	\$12.4 M	\$8.3 M
6.4 Capital cost estimate	\$101-\$110 M	\$400-\$451 M	\$196-\$213 M
6.5 Cost-effectiveness	BEST	GOOD	GOOD
Overall			

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Overall Summary

Goal	Enhanced Bus	Long Streetcar	Short Streetcar
1. Connect People and Places	GOOD	GOOD	BEST
2. Increase the Attractiveness of Transit		(not yet available)	
3. Catalyze and Support Economic Development	FAIR	BEST	BEST
4. Integrate with the Transportation System	GOOD	BEST	GOOD
5. Support Healthy Communities and Environmental Practices	GOOD	GOOD	BEST
6. Develop and Implementable Project with Community Support		(not yet available)	
Overall			



Mississippi River Crossing Options

Options examined using applicable criteria from overall process

- 1.4 Connections with transitways
- 1.5 Service to activity centers
- 1.7 Pedestrian connections
- 1.8 Bicycle connections
- 2.1 Ridership
- 6.3 O&M costs
- 6.4 Capital costs

Note: Other criteria could apply, but not significant issues identified in overall process, or additional evaluation required in ACE:

- 4.3 Impact on traffic
- 4.4 Impact on parking
- 5.1 Impact on historic resources



Mississippi River Crossing Options

	Hennepin/1st	3rd/Central
1.4 Connections with Transitways	<ul style="list-style-type: none"> Could share river crossings with future Hennepin-4th/University streetcar line 	<ul style="list-style-type: none"> No support for future streetcar expansion
1.5 Major Activity Centers	<ul style="list-style-type: none"> Better access to riverfront and Nicollet Island (park, hotel, high school, neighborhood) 	<ul style="list-style-type: none"> More limited access to riverfront No direct access to Nicollet Island
1.7 Pedestrian Connections	<ul style="list-style-type: none"> Accessible pedestrian connections to both sides of river and Nicollet Island 	<ul style="list-style-type: none"> Pedestrian access to riverfront only via stairs at NW corner of bridge
1.8 Bicycle Connections	<ul style="list-style-type: none"> Room for exclusive bicycle lane on Hennepin/1st Direct access to paths on both sides of river 	<ul style="list-style-type: none"> No room for exclusive bicycle lane on Central/3rd without parking impacts (existing shared lane markings) Access to riverfront paths is indirect
2.1 Ridership	<ul style="list-style-type: none"> ~ 1,000 more boardings due to faster travel time and access to Nicollet Island 	<ul style="list-style-type: none"> ~ 1,000 fewer boardings due to slower travel time and lack of access to Nicollet Island
6.3 O&M Costs	<ul style="list-style-type: none"> Slightly lower (~\$300-800K) due to longer length 	<ul style="list-style-type: none"> Slightly higher (~\$300-800K) due to shorter length
6.4 Capital Costs	<ul style="list-style-type: none"> Slightly less due to shorter length and one fewer vehicle 	<ul style="list-style-type: none"> Slightly more due to longer length and one additional vehicle

Overall **BEST** GOOD

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Overall Summary

Alternative

- Enhanced Bus
- Modern Streetcar
- Short Street

River Crossing

- Hennepin/1st **BEST**
- 3rd/Central GOOD

Recommended LPA

- XXX via Hennepin/1st

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