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Year 2030 P.M. Peak Volumes on West Bank

North Alignment Study
 University of Minnesota



086399
 March 2008

Figure 4

The analyzed intersections include those which will be modified under this potential alignment. They include:

- Washington Avenue/Northbound I-35E Off-Ramp
- Cedar Avenue/Cedar Connecting Ramp
- Cedar Avenue/3rd Street South

These intersections were included in the model. All three intersections would be signalized. The proposed signal phasing and lane configuration are listed below:

Washington Avenue/Northbound I-35E Off-Ramp/Cedar Connecting Ramp

- Northbound: left-thru lane, thru lane and a right-turn lane
- Southbound: dual left-turn lanes and a right-turn lane
- Eastbound: dual left-turn lanes and two thru lanes
- Westbound: two thru lanes and a right turn lane
- Phasing: Northbound and southbound will be split phased. Eastbound left-turns will be provided with protected only left-turn phasing, preferably lagging, with an southbound right-turn overlap
- Signal Operation: Actuated, but uncoordinated/free mode

Cedar Avenue/Cedar Connecting Ramp

- Northbound: left-turn lane and two thru lanes
- Southbound: thru lane and a thru-right lane
- Eastbound: dual right-turn lane (restrict right turn on red), left-turn lane (the middle lane could be a shared movement lane)
- Phasing: northbound left-turn movement will have a protected/permissive phase, preferably lagging, with an eastbound right-turn overlap
- Signal Operation: Pre-timed and coordinated

Cedar Avenue/3rd Street South

- Northbound: thru lane, thru-right lane
- Southbound: left-thru lane and a thru lane
- Westbound: left-turn lane and a right-turn lane
- Phasing: southbound left-turn movement will have a protected/permissive phase
- Signal Operation: Pre-timed and coordinated

A traffic operations analysis was completed with the re-routed year 2030 volumes and the proposed lane configurations described above. The results are shown in Table 2.

Table 2
Year 2030 PM Peak LOS

Intersection	Delay (s/veh)	LOS
Washington Avenue/Northbound I-35 Off-Ramp/ Cedar Connecting Ramp	35 – 40	D
Cedar Avenue/Cedar Connecting Ramp	25 – 30	C
Cedar Avenue/3rd Street South	20 – 25	C

To determine the amount of reserve intersection capacity, the v/c (volume to capacity) ratio was calculated for each intersection under study. This is shown in Table 3.

Table 3
Year 2030 PM Peak V/C Ratio

Intersection	Capacity (v/c)
Washington Avenue/Northbound I-35 Off-Ramp/ Cedar Connecting Ramp	0.74
Cedar Avenue/Cedar Connecting Ramp	0.70
Cedar Avenue/3rd Street S	0.62

The intersections operate at acceptable levels of service and have enough capacity. Queue lengths were calculated for key movements and are shown in Table 4.

Table 4
Year 2030 PM Peak Queue Lengths

Intersection	Movement	Storage	Average Queue	95th% Queue
Washington Ave/NB I-35 Off-Ramp/ Cedar Connecting Ramp	Southbound Left	600 ft	175 ft	400 ft
Cedar Avenue/Cedar Connecting Ramp	Southbound Thru	300 ft	200 ft	325 ft
Cedar Avenue/Cedar Connecting Ramp	Northbound Left	120 ft	125 ft	275 ft
Cedar Avenue/3rd Street South	Southbound Thru	300 ft	200 ft	325 ft

The queuing analysis shows that the southbound movements at the Cedar Avenue/Cedar Avenue Ramp and Cedar Avenue/3rd Street S intersection will periodically spill into the adjacent intersections during the pm peak hour under year 2030 volumes. These queues will not significantly increase the delay of the adjacent intersection.

APPENDIX B:
COMMENTS AND RESPONSES
TRACKING TABLES

Comment Response Letter	Comment Number	Comment Received	Comment Response Letter	SRF Response	
		City of Minneapolis (extracted from 30 April, 2008 e-mail communication from Heidi Hamilton)			
A	1	Historical impact of replacing Bridge 9 is not yet known.	A	Bridge # 9 Issues	Meetings have been held with SHPO, National Parks, and City of Minneapolis.
A	2	On Bridge 9, will the replacement section for bikes and pedestrians be comparable to existing width?		- Agency Review/Historic Impact	Discussed with Coast Guard. We are awaiting a response from Army Corp of Engineers
B	3	Cost of future signalized intersection along Granary Road should be included in the cost estimate.			City of Minneapolis is currently reviewing the need for any width greater than 15' in feasibility report
B	4	The cost to build a crash wall between LRT and Granary Road in the Dinkytown trench should be included in estimate		- Bike Trail Width	Use to be determined in Preliminary Engineering
D	5	Believe \$20/SF estimate for railroad right-of-way is too low.		- Cofferdam	
B	6	Cost for the relocation of the bike trail that will be constructed in 2009 should be included in the estimate.			
C	7	Not satisfied with the layout of the West Bank station area because it makes densification and development of the "trench" more challenging than what is proposed for the Washington Avenue alignment.	B	Future Granary Road	
		Hennepin County (extracted from 25 & 29 April, 2008 e-mail communication from Joseph Gladke)			
A	1	Question whether Parcel #16 (pinch point on east side of Bridge 9) is wide enough to fit LRT		-Future Signals on Granary Rd	The U of MN and City of Minneapolis are developing a MOU with Granary Road Design
G	2	Noted that the parking behind the U of M building (name?) near Parcel #51 will be lost		-Crash Barrier/ Track Relocation	The U of MN and City of Minneapolis are developing a MOU with Granary Road Design
D	3	Believe \$20/SF estimate for railroad right-of-way is too low.	C	West Bank Station Design	Replacement Cost included within Northern Alignment cost estimate
D	4	Think that BN may require additional risk insurance for operation of their line in conjunction to LRT.		-Developable Parcels	Concept plans have been developed
D	5	Question whether BN will accept clearances of 11' clearance on one side and 10' on the other. If not, does it put the Granary roadway project in jeopardy?		-Urban Design/Landscape	Concept plans have been developed
A	6	Regarding Bridge 9, would the foundation be reused?	D	BNSF	Meeting Set for 5-14-08, 3:00p. With BNSF, CCPO, City of Mpls, U of MN, and HCRA
		Central Corridor Planning Office (extracted from 30 April, 2008 presentation to CCMC)			
A	1	#9 Bridge is eligible as a historical structure.		-Land Value	
A	2	#9 Bridge demolition impacts to bike/pedestrian trail.		-Track Clearances	
F	3	Removal of Section 8 housing financed by HUD, impacts to remaining units.		-Risk Insurance	
A	4	Will require additional environmental permits from Corp. of Engineers, National Park Service/ MNRRA, FEMA and the Coast Guard.	E	Law School Trench	The alignment and trench geometrics have been enhanced to reduce impacts and improve LRT operation
E	5	A 25' deep open trench is required between 19th Ave. and Law School for LRT to cross Washington Ave. at-grade.		-Retaining Wall design	
A	6	US Coast Guard jurisdiction as a navigable waterway.		-Snow removal	
E	7	19th Avenue trench requires retaining walls.		-Length of Trench	
		a. Impacts Law School and 19th Avenue		-Depth of Trench	
		b. Construction impacts and method		-Maintenance Access	
A	8	Structural integrity of Bridge #9 coffer dam.	F	COOP Housing	Developed a plan for replacing units on site/within property limits
E	9	Fire, life and safety access		-Removal of 2 bldgs/4 units	Revised/Enhanced plan reduces impact, provides ornamental fence separation.
		a. Difficult in 19th Ave. trench		-Safety of Tenants	
		b. Limited in Dinkytown trench			
E	10	Snow removal from 19th Ave. trench			
E	11	Maintenance crew access limited due to restricted adjacent available right-of-way	G	Building Access	U of MN is assessing the current building access needs
D	12	Requires right-of-way acquisition from BNSF Railway			
D	13	Does not meet track separation requirements between freight and light rail			
D	14	Results in \$200 MM insurance, indemnification package due to proximity of passenger rail to freight rail			

Comment Number	Date Received	CCPO Comment Received	SRF Response	Estimate Impact	Estimate Increase / (Decrease)	Estimate Date
1	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #1	N/A	No		
2	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #2	N/A	No		
3	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #3	N/A	No		
4	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #4	Updated to 4 Stairs was 3 Stairs	Yes	\$75,000	4/7/2008
5	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #5	N/A	No		
6	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #6	N/A	No		
7	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #7	Updated from Large to Complex	Yes	\$191,000	4/7/2008
8	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #8	N/A	No		
9	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #9	N/A	No		
10	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #10 Continued in Comment Number 35	Revised MSE wall cost as SF based on Crosstown Costs. Revised Earthwork number and added Fence	Yes	(\$746,617)	4/7/2008
11	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #11	N/A	No		
12	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #12	Added to estimate	Yes	\$177,778	4/7/2008
13	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #13	No Impact to exiting freight rail	No		
14	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #14	Supported by 2 property purchases of \$18.11 and \$7.63	No		
15	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #15	Flaggers have been added for 775' of track construction	Yes	\$50,625	4/17/2008
16	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #16	2,621 CY included, added excavation and embankment	Yes	\$1,201,762	4/7/2008
17	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #17	N/A	No		
18	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #18	N/A	No		
19	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #19	Head house and Stair Encloses have been added	Yes	\$1,550,000	4/7/2008
20	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #20	No freight rail relocation required as part of this design	No		
21	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #21	Crash wall has been added for 775'	Yes	\$193,750	4/17/2008
22	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #22	N/A	No		
23	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #23	N/A	No		
24	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #24	N/A	No		
25	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #25	Traction Power Sub-Station Added	Yes	\$1,234,375	4/7/2008
26	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #26	Extra width not needed	No		
27	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #27	N/A	No		
28	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #1a	N/A	No		
29	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #2a	Breakdowns added and cost revised. Cost went from \$500,000 to \$652,730 this also included the roadway reconstruction	Yes	\$152,730	4/7/2008
30	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #3a	Corrosion Control for Embedded track has been added	Yes	\$34,321	4/7/2008
31	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #4a	N/A	No		
32	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #5a	N/A	No		
33	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #6a	N/A	No		
34	4/4/2008	040408 Comments to Northern Alignment 032808 Submission.pdf #7a	Cost added to townhouse reconstruction and parking provisions	Yes	\$100,000	4/7/2008
35	4/8/2008	I am having issues confirming your excavation and backfill quantities for the West Bank Trench. Could you provide a typical section of the excavation in this area? Also, I think you mentioned something about a 2:1 slope for the layback on the trench whereas we would typically use a 1:1 slope. Our unit prices are based the labor, equipment and materials required to remove the actual quantity of excavated materials, not pay quantity calculations.		Yes	Cost included in Comment Number 10	4/7/2008

Comment Number	Date Received	CCPO Comment Received	SRF Response	Estimate Impact	Estimate Increase / (Decrease)	Estimate Date
36	4/9/2008	<p>Why is this being treated as Unclassified Excavation - this is integral to the wall construction. Our Unclassified Excavation carries a \$12/CY unit costs because we were installing earth retention along the entire portal and tunnel. The unit cost also assumes the ability to drive trucks into the excavation - access to the west trench for trucks will be difficult - we would argue the higher structural excavation unit cost should be used.</p> <p>Does your unclassified excavation quantity include the overexcavation to create the frost free zone beneath the track and level slab? Constructability of the MSE Wall - this does not seem feasible without sheeting. This excavation is over 20 feet in depth and without sheeting it is questionable whether an engineered plan would be approved without sheeting or some other means of temp earth retention. Also, I do not think you have the reconstruction of 19th Avenue. Our preliminary investigation shows the edge of excavation will extend into the roadway on 19th Avenue. continued onto comment 37</p>	<p>Construction can be accomplished without sheeting. In order to reduce the construction footprint considering the required tie-back and 1:1 slope recovery lengths, We replaced a portion of the MSE wall with CIP wall with form-liner (125 LF) adjacent to the Law School building. The cost estimate is updated accordingly. As part of reviewing the MSE wall construction feasibility, we looked at the unit costs for structural excavation. Based on previous discussions, we understand that the \$35/ cubic yard cost for structural excavation was based on the Washington Ave portal construction which assumed that haul trucks would be required to back in/out for ½ the portal length. Since two-way construction traffic is feasible for MSE wall construction (both in the trench and along Washington Ave), SRF feels that a unit cost of \$20/ cubic yard is more appropriate for structural excavation. The quantity for the excavation below the track in the trench is included in the "Excavation/Backfill (2.5' additional below ballast) and in 40.01.05 "Demo Roadway for Ballasted Track".</p> <p>Previously, the 19th Ave reconstruction costs were carried with the utility reconstruction items. We have now moved those removal and replacement costs in consideration of the 1:1.5 slope recovery comment for constructability of the west bank trench area, we have replaced some of the MSE retaining walls with CIP walls.</p>	Yes	(\$621,217)	4/15/2008
37	4/15/2008	<p>A 4'-6" depth of frost free material is required from the top of ballast to the bottom of the MSE Wall Leveling pad. Your detail for quantity takeoff for the trench shows the leveling pad placed on native materials. See attached detail from Hiawatha.</p> <p>We previously recommended that the excavation be assumed at a 1:1 slope for the trench construction. Upon further review of OSHA requirements, we recommend classifying the existing soil along the trench as Class "C". This recommendation is based on the unknown subsurface conditions and the disturbed materials from existing utilities that will be encountered in the utility trenches along 19th Avenue. Previous work experience in this area has identified the material as sandy fill which will not stand at a 1:1. The excavation exceeds 20 feet, requiring an engineered plan, and we do not think any geotech will signoff on a plan with a slope of less than 1:1 ½. Excavation quantities should be increased to reflect this. We have included a markup of your proposed trench excavation -- as stated before, our unit costs are based on the work that needs to be completed, not construction pay limit quantities. Do you have any details for groundwater in this area? We identified groundwater on the east bank within the tunnel portal excavation and included dewatering for this work - I do not see anything identified in your estimate. Presence of groundwater would also support the 1:1 ½ slope for the excavation. Associated roadway quantities along 19th Avenue will increase accordingly. We estimate that the entire roadway on 19th Avenue with associated utilities will require reconstruction. With the width of excavation required, the construction staging and traffic control plans proposed on 19th Avenue will not be feasible.</p>		Yes		
38	4/15/2008	<p>Please also investigate the profile shown near the COOP housing and tower between the trench and No. 9 Bridge. There is a 10 ft cut identified in this area with no retaining walls. We feel this is not feasible due to the proximity to the neighboring buildings and the road configuration identified to maintain access to the two properties. What does the trackbed cross section look like in this area - it was not included in the typical sections we received? If retained fill is not used in this area and the edge of the trackbed is sloped to match existing grades, the ROW and the proposed access road to the COOP buildings will be impacted. Also, how is access to the tower loading dock accommodated with the grade change?</p>	<p>We have further investigated the profile adjacent to the CO-OP and tower housing units. Although not specifically identified on our current layout drawing, we do account for a retaining wall east of the LRT alignment adjacent to the CO-OP housing in our estimate. Structural excavation costs for this wall are also included in our estimate.</p> <p>We have modified the profile. Since we have already included costs for a retaining wall in current our estimate, we had to remove the wall and then add cost for excavation for the area north of the CO-OP</p>	Yes	\$604,552	4/21/2008
					(\$44,458)	4/17/2008

Northern Alignment- CCPO Comment Tracker

Comment Number	Date Received	CCPO Comment Received	SRF Response	Estimate Impact	Estimate Increase / (Decrease)	Estimate Date
39	4/15/2008	We'll need to see the complete base map for utilities to confirm. Our unit prices appear to have been used for the utility relocations, but absent from these costs are dewatering (12.5%), demo of existing (30%) and MPT (1.6%). Please review your unit costs and how we have estimated this work.	We have modified the Northern Alignment estimate to include the additional costs identified on the Washington Avenue at-grade estimate. However, based on soil boring information, our estimate excludes the costs identified for dewatering	Yes	\$170,541	4/21/2008
40	4/15/2008	Does the cost estimate include new traffic signals at 2nd and the Law School entrance?	No. Part of the signal system at each intersection can remain intact. As part of the temporary signal system cost, the existing equipment would be salvaged and re-installed at the completion of the construction.	Yes	\$100,000	4/15/2008
41	4/17/2008	Bridge No. 9 Our independent check shows that the cost of this bridge could be as much as \$5,000,000 too low. This is based on modifications to the following items and does not include the risk associated with reuse of the existing cofferdam Piles See adjustment to MH factor and Unit Costs Structural Steel Material Unit Price adjusted Bridge Demo based on recent experience with a similar structure Artwork Reduce budget to 5% Pedestrian Bridge Cost per sq ft low Flat slab bridges are shown on MSE wall. An MSE wall can not act as an abutment. These bridge costs might need to be adjusted.	As discussed at the steering committee meeting on 4-18-08 we have further investigated the removal costs for this item. Based on discussions with MnDOT, contractors, and previous experience on other projects with similar scope, we have slightly adjusted our costs maintain a value on the conservative end of these three sources. Upon further investigation, the bridge costs in the estimate were based off a 14' wide deck. We adjusted the estimate to include costs for a 20' wide deck (to match the width shown on typical sections previously submitted). MSE walls are not acting as Bridge Abutments. MSE walls stop short of bridge limits and tie into poured concrete abutments. Bridge costs include these concrete abutments.	Yes		
42	4/18/2008	1st St. S signal should be large not medium	We modified the designation, and therefore the costs, from "medium" to "large" in our estimate	Yes	\$816,944	4/21/2008
43	4/21/2008		SRF changed aggregate depth for all roadways from 18" to 6" to be consistent with At grade option	Yes	(\$898,369)	4/21/2008
44	4/24/2008	Ballast Curb (Line 70) was omitted from the Northern Alignment cost estimate. As the Northern Alignment has limited clearances within the trench area near future Granary Road, it is unlikely that ballast can be placed with a 1V:2H slope. This line item was omitted from your sheet 'Segment 1 - SCC' and there are no units in sheet 'TAKE-OFF -Segment 1 - Guideway'. I can not find anything in my records where we agreed that this would be omitted from your estimate. The unit cost for ballasted curb is \$50/LF.	The Northern Alignment cost estimate did not include any cost for ballast curb for the east bank trench area as this is an existing rail corridor. Congruent with the guidelines established for this project, no costs were added for the 'potential future development' of Granary Road, therefore ballast curb is not a requirement for this segment of the Northern Alignment.	No		
45	4/24/2008	Demo Roadway for Embedded Track (Line 162) is omitted from the Northern Alignment cost estimate. There are no units in sheet 'TAKE-OFF -Segment 1 - Guideway'. I can not find anything in my records where we agreed that this would be omitted from your estimate. The unit cost for ballasted curb is \$10/CY.	We have added cost to the Northern Alignment estimate "Northern Alignment 4-25-08.xls" (attached) under "Demo Roadway for Embedded Track" as appropriate. Since no access will be provided to the existing Northstar parking lot from 23rd Ave across the Northern Alignment, we were able to extend the amount of ballasted track (400LF) further southeast down to just north of 6th street. The associated costs have been modified in our estimate (which includes ballast curb for this portion of track	Yes	(\$232,289)	4/25/2008
46	4/25/2008	Our Design group has requested the following information. I know you intend to remove and replace the pedestrian bridge, but do you have plans for the following existing structures? SE University Ave & SE 14th Ave. Bridge SE 4th Street & SE 15th Ave Bridge SE 5th St Bridge over Northern Alignment.	Sent the three bridge plans. The bridge piers have been designed for freight rail loads and have a crash wall already.	No		

Comment Number	Date Received	CCPO Comment Received	SRF Response	Estimate Impact	Estimate Increase / (Decrease)	Estimate Date
47	4/25/2008	<p>These costs are calculated systemwide and then allocated to each of the nine segments.</p> <p>The Northern Alignment should carry a value of \$0 for 50.06.10 - 50.06.13. These are allowances that are based on the number of stations and the number of fare collection machines. As the number of stations and the number of fare collection machines do not increase with the Northern Alignment, no costs should be allocated to the Northern Alignment for these items.</p> <p>50.07 Central Control is for modification required at the Franklin Facility and the existing Hiawatha Fare Collection. Some may argue that the increased linear footage of alignment would necessitate additional mods to the central control, but this is accounted for in the 50.05.01 Systemwide Communications. No costs should be allocated to the Northern Alignment for 50.07.01 RCC Modifications or 50.07.02 Fare Collection Modifications.</p>	Updated	Yes	(\$713,372)	4/29/2008
		Northern Alignment Presentation at 4-30-08 CCMC Meeting				
			Base Construction Cost Impacts (\$2007)		\$3,372,056	
			Phasing Premium added to cost impacts described above	5%	\$168,603	
			Total Construction Cost Impact (\$2007)		\$3,540,659	
			Total R/W Cost		\$100,000	
			Total Cost Impact (\$2007) from comments thru 4-29-08		\$3,640,659	
			Original \$2007 estimate 3-28-2008 (Including Right of Way)		\$77,384,765	
			Northern Alignment \$2007 estimate 4-29-08 (Including Right of Way)		\$80,930,596	
			Difference between Original and Current		\$3,545,831	
			Difference is due to not all quantities are subject to the 5% phasing premium		(\$94,827)	
		The following is a summarization of comments presented as "Northern Alignment Outstanding Issues" by CCPO at the 4-30-08 CCMC meeting				
48	4/30/2008	Emergency Access and Snow removal will be an issue because of the length of the trench. Proximity to the Railroad a concern.	Replaced several walls with 1:3 slopes and tweaked the alignment to lessen the "tunnel effect" and impacts on emergency access and snow removal. The alignment was shifted south in order to achieve a 25' clearance(minimum) from the existing BNSF rail line	Yes	(\$2,313,695)	5/8/2008
49	4/30/2008	Impacts to COOP housing tot lot and BNSF right-of-way acquisition a concern	Due to comment 48 right of way was revised and \$50,000 was added to the right of way costs for the tot and ornamental fence near the coop	Yes	(\$507,110)	5/8/2008

Northern Alignment- CCPO Comment Tracker

Comment Number	Date Received	CCPO Comment Received	SRF Response	Estimate Impact	Estimate Increase / (Decrease)	Estimate Date
50	5/6/2008	The following comments are on revisions made to the Northern Alignment to address "additional concerns" presented at the 4-30-08 CCMC meeting I can not comment on all the design changes, but would think changes to the alignment particular geometry of the track on the West Bank would warrant a new run for travel time. I'll need to confirm this with CCPO and ACI staff. See other comments below.	I have raised this specific question with Connetics, but have not yet obtained a response. The west bank alignment revisions replace a [300' radius + 694LF tangent + 300' radius] segment with a [300' radius + 110LF tangent + 550' radius + 180LF tangent + 300' radius] segment. The time trial info provided assumes a max speed of 25 mph on the 300' radii and a max speed of 30 mph on the tangent portion. Elsewhere on the Northern Alignment time trial a 600' radius obtains a maximum speed of 30 mph, therefore we are assuming that the 550' radius described above is gradual enough to permit a max speed of 30mph as well. Based on this information, we do not believe that any additional revisions are required for the operating cost, running time, ridership, or user benefit analysis. These revisions will only impact capital costs	No		
51	5/6/2008	I have a hard time comprehending how you can start the wall on the east side of the trench at Sta 3041+00. There is nearly a 20 ft cut at this location and there do not appear to be any provisions for retaining the earth between the law school and the retaining wall on the Washington Ave side. The wall would either need to be extended to the original position or turn to retain this area. I don't think the final contours will work. Am I missing something?	You are correct. The CIP will be "turned" at its terminus adjacent to the Law School building. The 20' cut you mention would be in the immediate area of the LRT tracks. Existing Grade slopes down from 19 th Ave and the Law School building face towards Washington Ave. In addition, considering the 0.8H tieback length and 1:1.5 recovery slope up from the 5' "over excavation" for the wall, the excavation limits would be approximately 55' behind the wall face. Assuming a 1:3 slope for a 20' cut, excavation limits approximately 60' behind (where) the wall face (would have been). See the attached cross sections to better visualize what this would look like.	Yes	Value shown in response to # 48 above	
52	5/6/2008	Without revised profiles we can not confirm these assumptions. [comment in response to the following: revised alignment eliminates additional wall north of 2 nd street, thereby again reducing the impacts associated with the "tunnel effect" as described in number 1 above]	-see attached profile (NAlign_revised profile 5-6-08.pdf) and proposed cross sections ("WBTrench Sections_5-6-08.pdf" and "PlanView_5-6-08_sections.pdf")	Yes	Value shown in response to # 48 above	
53	5/6/2008	Appears you intend to provide access to 2 nd St through the Law School Entrance. Is this a valid assumption? [comment in response to the following: revised alignment eliminates the need for the 2nd street bridge over the trench]	Yes, this matches the existing configuration. 2 nd Street east of 19 th Ave is a private (U of MN) street	Yes	Value shown in response to # 48 above	
54	5/6/2008	Without revised profiles we can not confirm these assumptions. [comment in response to the following: revised alignment eliminates the need to construct 20th Ave S (Existing 19th Ave South to remain).]	19 th ave is assumed to be reconstructed (due to wall installation) but would remain in its current location/configuration	Yes	Value shown in response to # 48 above	
55	5/6/2008	Do we have confirmation of the limits of the contamination in this area? (comment in response to the following: revised alignment eliminates impacting existing contaminated soils in U of M property)	Yes, we obtained the soils report from the U of MN. See attached "WestBank-cotaminationlimits.pdf" graphic	Yes	(\$30,195)	5/8/2008
56	5/6/2008	Confirmed. [comment in response to the following: revised alignment provides a better intersection configuration at 1st street South and 20th Ave South. Existing 20th Ave south to remain a 26' wide roadway west of the LRT.]		No		
57	5/6/2008	ROW Estimate remains the same in this area with four units impacted and tot lot removed for driveway access.	Correct. Ultimate determination regarding the site restoration would occur during preliminary engineering and/or final design. As stated above, this configuration provides increased clearance from LRT to housing units and allocates space for relocation of the tot lot. The forthcoming updated Northern Alignment estimate will include costs to relocate the tot and provide for an ornamental fence to be installed between the LRT tracks and the Coop Access drive (see response to #48 above).	No		
58	5/6/2008	While the r/w are removed, the new alignment now splits the ballpark down the middle. Cut is over 10 feet at the trench entrance (Sta 3047+00) – same comment as item 1 above. This would take nearly 30 feet to lay this back to both sides of the trench. Could further impact development of ballpark property??	Increased development potential is obtained by splitting the area into two large parcels as opposed to 1 very large parcel.	No		

