

Potential Mitigation Measures – MN&S Route

Measure	Description	Estimated Cost Range	Comments
Track improvements	Replace and upgrade the MN&S track with 136# seamless tracks reducing noise and vibrations	Included in EAW base cost	Included in the MN&S study concept plan
	Install rail lubricators	3 each @ \$15,000	
	Concrete ties to reduce the vibration	\$30,000 premium over wood crossties ties	Concrete ties on MN&S main track only.
Mandatory environmental requirements met	wetland, floodplain, hazardous materials handling, wildlife habitat, etc.	Included in EAW base cost	Included in the MN&S study concept plans
Whistle Quiet Zone	Upgrade of at grade rail crossings safety measures to eliminate the need to blow whistles or horns as trains approach intersections	Included in EAW base cost	Horns are the most significant noise impact associated with freight trains using the MN&S route. The WQZ eliminates this issue. Trains would still have the right to sound horns if needed.
Better fencing and signing of the RR ROW	Ensure fencing is in place where appropriate to discourage people intruding unsafely on the MN&S tracks	Included in EAW base cost	Some fencing exists today and needs replacing. MN&S concept plan incorporates at least some fencing.
Create grade separated frontage road on north side of Hwy 7	Lengthen the MN&S bridge over Hwy 7 to provide space to create a frontage road on the north side of Hwy 7	\$600,000 - \$800,000	This would provide a grade separated connection between the east and west side of the MN&S tracks north of Hwy 7. This would make it possible for school buses to move between the Spanish Immersion and High School even when a train is on MN&S
Create pedestrian and non-vehicle access under MN&S tracks at Dakota Park	Build an under pass at 27 th St.	\$100,000	This connection would give pedestrians and bicyclists access to Dakota Park, Hobart School and the N.Cedar Lake regional trail from the east side of the MN&S tracks north of Minnetonka Blvd

Potential Mitigation Measures MN&S Route (Cont)			
Expansion of MN&S ROW in residential area	Acquire homes immediately east of MN&S tracks north of approximately the intersection of MN&S tracks with Brunswick avenue. Realign and center the MN&S tracks to the east of the current alignment. Includes shifting bridge over Minnetonka Blvd to east.	\$15,000,000-\$18,000,000	Approximately 40 homes would need to be acquired, and removed. Resulting ROW could be almost 200 ft. If a 100 ft RR ROW was used, remaining land could be used for north-south trail and single family home lots.
Pedestrian over pass near High School and Dakota Avenue	Create a pedestrian bridge over the MNS tracks that connects the High School to the Lake street area and football field.	\$1,500,000 to \$2,500,000	A more detailed look at where best to locate the overpass would be needed. The goal would be to connect the schools facilities and the high school to the Lake St. commercial area.
Reroute coal trains west of metro area	Rehabilitation of tracks in Appleton MN area to accommodate coal trains	\$1,500,000 to \$2,500,000	This improvement could eliminate the need for coal trains to pass through SLP
Elimination of CP tracks east of Wooddale Avenue	Sidings as well as through tracks east of Wooddale would be removed	This action appears to be already anticipated in the SWLRT design.	This would eliminate the possibility of cars being stored in this area or trains blocking Wooddale or Beltline.
Removal of north arm of the switching wye	With new connection from CP to MN&S tracks, the north arm of the existing switching wye is not absolutely needed. Trains CP trains could serve the existing customer by using the south arm of the switching wye.		This would also mean TC&W trains that wished to go south on the MN&S would need to connect to the MN&S first by using the new connection heading north on MN&S and then proceed south. Removal of the north wye arm would free up the ROW for other purposes and eliminate an at grade crossing at Oxford.
Complete removal of Oxford industrial area switching wye	Requires working with the existing freight rail customer on Oxford St. to ensure their needs continue to be met before south arm of the switching wye could be removed	\$5,000,000 to \$7,000,000	This would eliminate crossing at Louisiana Avenue and Oxford,, make significant ROW available to other purposes and eliminate an impediment to future combining or re-alignment of parcels in the area.
Funding and construction	Construct new grade separated Louisiana/Hwy	\$8,500,000	This project includes closing of the Lake St

of Louisiana & Hwy 7 Interchange	7 interchange		access to Hwy 7, thereby eliminating any concern about rail generated queues extending back onto Hwy 7.
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Potential Mitigation Measures MN&S Route (Cont)
Other Potential Measures

Housing Buyout program	Create a program to purchase homes adjacent to MN&S tracks from willing sellers	Anyone who wanted to sell, could sell their home for fair market price. Homes purchased could be evaluated as to whether they should be removed, remodeled or resold.
Structure Improvement Program	Create a loan and/or grant program to provide technical assistance and financial help for property owners to make noise and/or vibration mitigation improvements	New tighter windows, insulation, central air conditioning and other improvements could be made to further reduce noise and vibration problems.
Sound and vibration mitigation improvements at the High School	Replacement or upgrading of equipment, and/or physical improvements at the school.	The intent would be to reduce and minimize train generated disruptions at the School
Pedestrian over pass near High School and Dakota Avenue	Create a pedestrian bridge over the MNS tracks that connects the High School to the Lake street area and football field.	A more detailed look at where best to locate the overpass would be needed. The goal would be to connect the schools facilities and the high school to the Lake St. commercial area.
Pedestrian bridge over Hwy 7	Create bridge close to the MN&S bridge over Hwy 7 which would provide access for pedestrians to the neighborhoods south of Hwy 7 and the LRT regional trail.	Goal would be to provide students especially with an alternative to using the RR bridge as a pedestrian bridge
Grade separated RR intersections Walker to Brunswick	Place MN&S tracks on overhead structure from prior to Walker St. to past Dakota Ave.	This would entail building approximately 3,100 ft of additional RR bridge structure and would result in elimination of at grade crossings at Walker, Lake, Library Lane and Dakota avenue.

Potential Mitigation Measures – Kenilworth Route

Measure	Description	Estimated Cost Range	Comments
Track improvements	Replace and upgrade the Kenilworth track with 136# seamless tracks reducing noise and vibrations	Included in base cost	Included in the SEH Estimate
Mandatory environmental requirements met	wetland, floodplain, hazardous materials handling, wildlife habitat, etc.	Included in base cost	Included in the SEH estimate
Whistle Quiet Zone	Upgrade of at grade rail crossings safety measures to eliminate the need to blow whistles or horns as trains approach intersections	Included in base cost	Horns are the most significant noise impact associated with freight trains using the MN&S route. The WQZ eliminates this issue. Trains would still have the right to sound horns if needed. WQZ is included in the SEH estimate
Reroute coal trains west of metro area	Rehabilitation of tracks in Appleton MN area to accommodate coal trains	\$1,500,000 to \$2,500,000	This improvement could eliminate the need for coal trains to pass through SLP
Elimination of CP tracks east of Wooddale Avenue	Sidings as well as through tracks east of Wooddale would be removed	Included in SWLRT budget	This would eliminate the possibility of cars being stored in this area or trains blocking Wooddale or Beltline. This action appears to be already anticipated in the SWLRT design
Complete removal of Oxford industrial area switching wye	Requires working with the existing freight rail customer on Oxford St. to ensure their needs continue to be met before south arm of the switching wye could be removed	\$5,000,000 to \$7,000,000	This would eliminate crossing at Louisiana Avenue and Oxford,, make significant ROW available to other purposes and eliminate an impediment to future combining or re-alignment of parcels in the area

Draft 2 - Technical Memo #4 Table 5
Freight Rail Route Options – Comparison Table
Entire Route

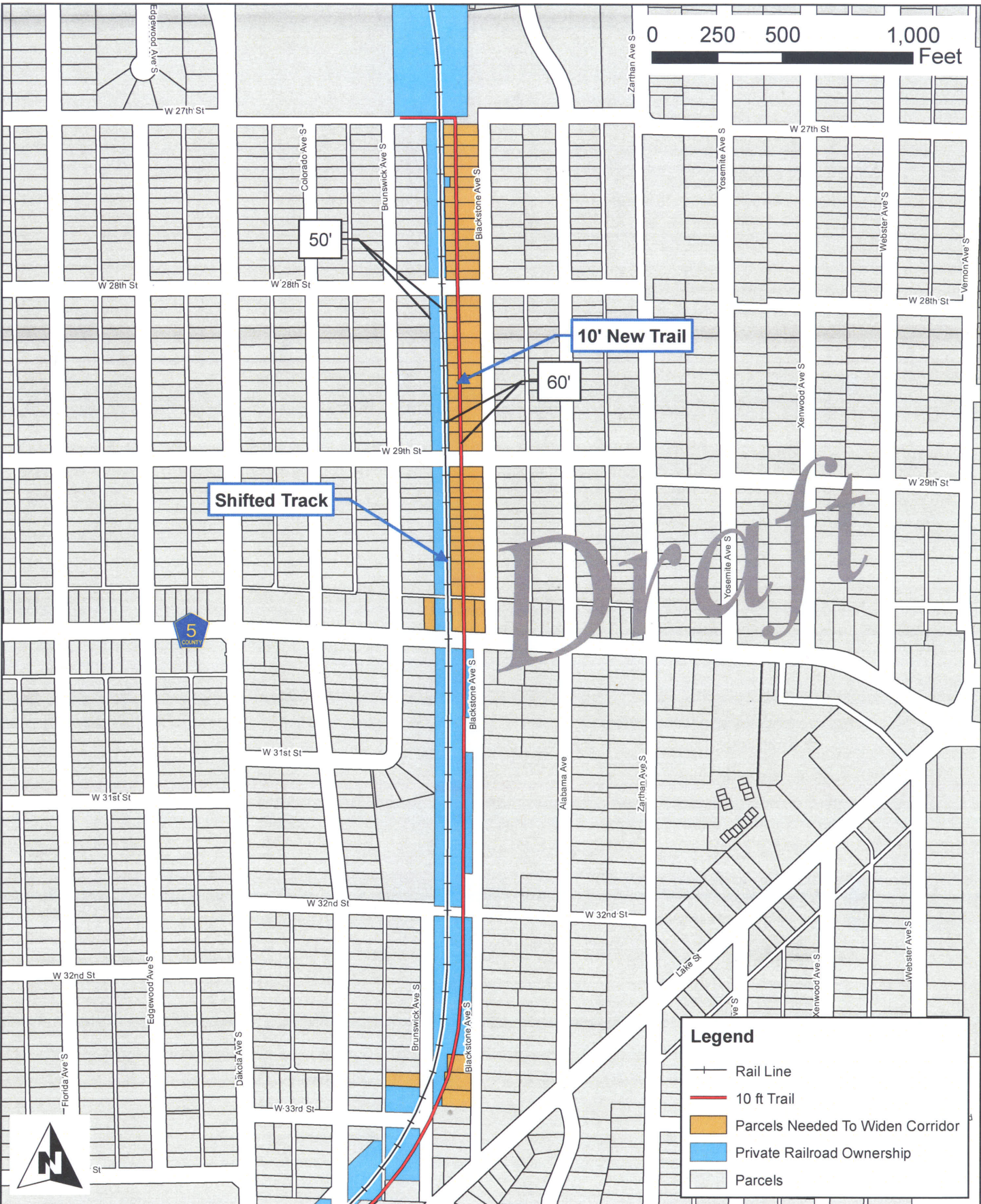
	Existing Conditions		Conditions if Kenilworth is chosen		Conditions if MN&S is chosen	
	Kenilworth Corridor	MN&S Corridor	Kenilworth Corridor	MN&S Corridor	Kenilworth Corridor	MN&S Corridor
Train Operations						
# of trains/day - now	4-5	2	4-5	2	0	6-7
# of trains/day - future (2030)	5-6	2-4	5-6	2-4	0	8-10
Train Speed (mph)	10-25	10	10-25	10	10-25	10-25
Track						
Route Length (FT)	24,600	N/A	24,600	N/A	N/A	26,400
Minnehaha Creek to Cedar Lake Jct						
Track new & upgraded (FT)	0	0	18,800	0	0	27,610
Track Removed (FT)	N/A	N/A	0	0	18,800	0
RR Bridge constructed (FT)	N/A	N/A	240	0	0	3490
RR Bridge rebuilt (FT)	N/A	N/A	280	0	0	245
Track Grade Maximum	0.77%	1.90%	0.77%	1.90%	N/A	1.50%
Track Curvature Maximum (degree)	4	6	4	6	N/A	8
Turnouts (No)	1	5	1	0	0	5
Road Crossings						
# of At-grade Crossings	4	6	4	6	0	5
# of Crossing with ADT < 2,500	1	3	1	3	0	2
# of Crossings with ADT 2,500-9,000	1	3	1	3	0	3
# of Crossing with ADT > 9,000	2	0	2	0	0	0
# of Crossings closed	N/A	N/A	0	0	0	1
# of Crossings with rr signals	3	4	2	4	0	5
# of Crossings s Quiet Zone	2	0	4	0	0	5
Residential Impacts						
Single Family						
# of homes < 25'	Home	0	0	0	0	0
	Parcel	0	16	0	16	16
# of homes 26'-50'	Home	0	2	0	2	0
	Parcel	0	69	1	69	69
# of homes 51'-100'	Home	13	53	11	53	0
	Parcel	20	30	11	30	7
# of homes 101'-200'	Home	35	127	35	127	35
	Parcel	57	148	57	148	148
Multi Family						
# of units < 25'	Units	3	0	3	0	0
# of units 26'-50'	Units	30	0	52	0	0
# of units 51'-100'	Units	154	4	135	4	0
# of units 101'-200'	Units	294	96	175	96	60
Total Housing Units Affected						
# of units < 25'	Units	3	0	3	0	0
# of units 26'-50'	Units	30	2	52	2	2
# of units 51'-100'	Units	167	57	63	57	7
# of units 101'-200'	Units	329	223	210	223	95
Institutional Impacts						
Schools within 1/8 mile (#)		0	5	0	5	0
Parks within 1/8 mile (#)		2	7	2	7	2
Business Impacts						
# of Industrial Building within 500'		58	66	58	66	58
# of Commercial Building within 500'		10	15	10	15	10
Right of Way						
# of Residential Property acquired		N/A	N/A	34	0	0
# of Business Property Acquired		N/A	N/A	0	0	0
# of partial parcel takes		N/A	N/A	0	0	0
# of Institutional Property Acquired		N/A	N/A	0	0	0
SW LRT Issues						
# of Stations next to frt rail		0	0	6	0	0
# of grade separation over frt rail		0	0	1	1	1
Costs						
Construction costs			\$30,000,000			\$73,372,000
Property acquisition			\$5 - \$40,000,000			\$5,500,000
Total			\$35 - \$70,000,000			\$78,872,000

Draft 2 - Technical Memo #4 Table 9
Freight Rail Route Options – Comparison Table
St. Louis Park Only!

	Existing Conditions		Conditions if Kenilworth is chosen		Conditions if MN&S is chosen	
	Kenilworth Corridor	MN&S Corridor	Kenilworth Corridor	MN&S Corridor	Kenilworth Corridor	MN&S Corridor
Train Operations						
# of trains/day - now	4-5	2	4-5	2	0	6-7
# of trains/day - future (2030)	5-6	2-4	5-6	2-4	0	8-10
Train Speed (mph)	10-25	10	10-25	10	10-25	10-25
Track						
Route Length (FT) Minnehaha Creek to Cedar Lake Jct	24,600	N/A	24,600	N/A	N/A	26,400
Track new & upgraded (FT)	0	0	18,800	0	0	27,610
Track Removed (FT)	N/A	N/A				
RR Bridge constructed (FT)	180	2450				
RR Bridge rebuilt (FT)	340	395				
Track Grade Maximum	0.77%	1.90%	0.77%	1.90%	N/A	1.50%
Track Curvature Maximum	4	6	4	6	N/A	8
Turnouts (No)	1	5	1	0	0	5
Road Crossings						
# of At-grade Crossings	2	6	2	6	0	5
# of Crossing with ADT < 2,500	0	3	0	3	0	2
# of Crossings with ADT 2,500-9,000	0	3	0	3	0	3
# of Crossing with ADT > 9,000	2	0	2	0	0	0
# of Crossings closed	N/A	N/A	0	0	0	1
# of Crossings with rr signals	2	4	2	4	0	5
# of Crossings s Quiet Zone	0	0	2	0	0	5
Residential Impacts						
Single Family						
# of homes < 25'	Home	0	0	0	0	0
	Parcel	0	16	0	16	0
# of homes 26'-50'	Home	0	2	0	2	0
	Parcel	0	69	0	69	0
# of homes 51-100'	Home	0	53	0	53	0
	Parcel	0	30	0	30	0
# of homes 101-200'	Home	11	127	11	127	0
	Parcel	11	148	11	148	0
Multi Family						
# of units < 25'	Units	0	0	0	0	0
# of units 26'-50'	Units	0	0	0	0	0
# of units 51'-100'	Units	0	4	0	4	0
# of units 101'-200'	Units	60	96	216	96	60
Total Housing Units Affected						
# of units < 25'	Units	0	0	0	0	0
# of units 26'-50'	Units	0	2	0	2	0
# of units 51'-100'	Units	0	57	0	57	0
# of units 101'-200'	Units	71	223	227	223	71
Institutional Impacts						
Schools within 1/8 mile (#)		0	5	0	5	0
Parks within 1/8 mile (#)		2	7	2	7	2
Business Impacts						
# of Industrial Building within 500'		50	66	50	66	50
# of Commercial Building within		10	15	10	15	10

Right of Way						
# of Residential Property acquired	0	0	0	0	0	2
# of Business Property Acquired	0	0	0	0	0	1
# of partial parcel takes	0	0	0	0	0	12
# of Institutional Property	0	0	0	0	0	0
SW LRT Issues						
# of Stations next to frt rail	0	0	3	1	1	1
# of grade separation over frt rail	0	0	1	1	1	1
Costs						
Construction costs			\$30,000,000			\$73,372,000
Property acquisition			\$5 - \$40,000,000			\$5,500,000
Total			\$35 - \$70,000,000			\$78,872,000

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Legend

- Rail Line
- 10 ft Trail
- Parcels Needed To Widen Corridor
- Private Railroad Ownership
- Parcels



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Project: STLOU 114331
 Print Date: 05/13/2011
 Map by: SRH
 Projection: Hennepin County NAD83 ft
 Source: Mn/DOT, Mn/DNR, LMIC,
 City of St. Louis Park, and SEH Inc.

Expanded RR ROW Concept
 Railroad Freight Relocation Study
 Saint Louis Park, Minnesota

Figure X

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.