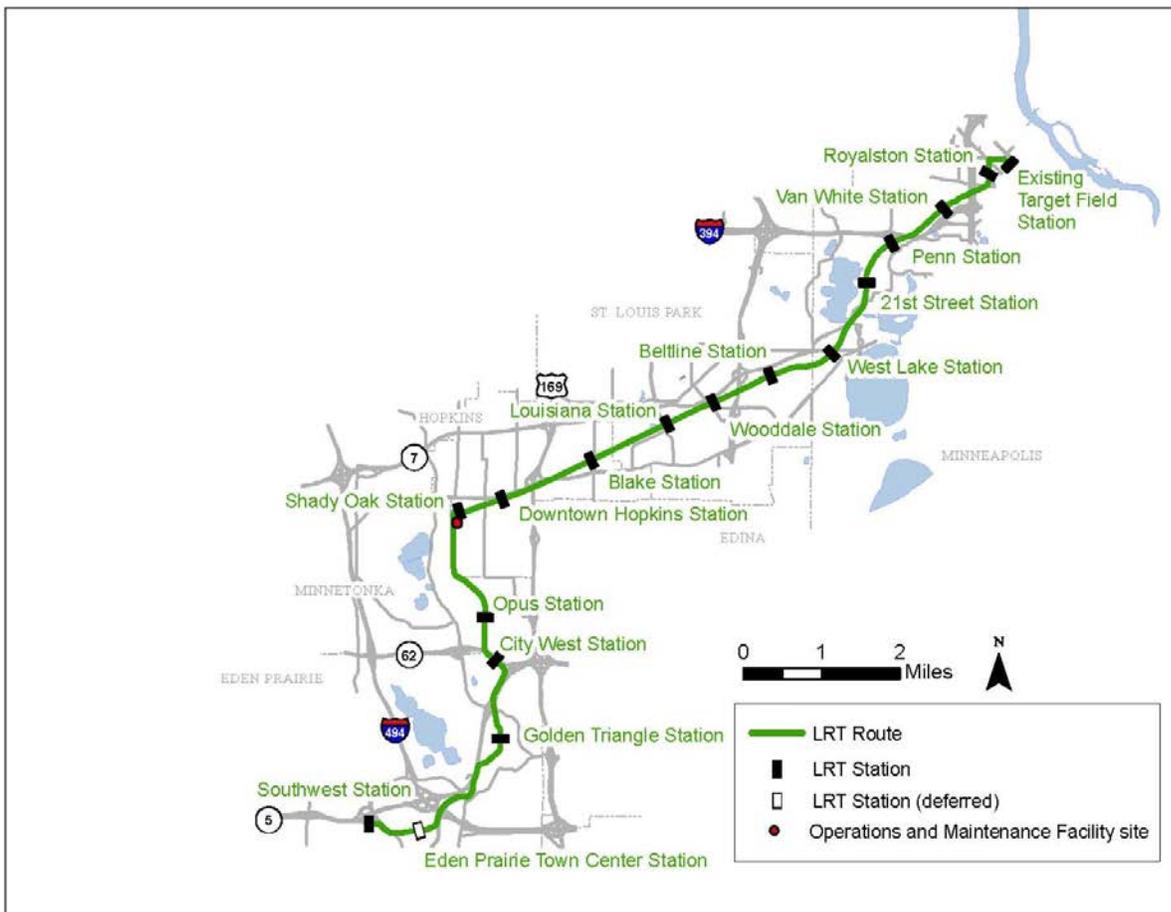


## SOUTHWEST LRT (METRO GREEN LINE EXTENSION)

### 2 Alternatives Considered

This chapter describes the alternatives evaluated in the Southwest Light Rail Transit (LRT) Project Final Environmental Impact Statement (EIS). The Southwest LRT (METRO Green Line Extension) is approximately 14.5-miles of new double-track proposed as an extension of the METRO Green Line (Central Corridor LRT), which will operate from downtown Minneapolis through the communities of St. Louis Park, Hopkins, Minnetonka, and Eden Prairie, passing in close proximity to Edina (see Exhibit 2.1-1). The No Build Alternative includes all transportation projects included in the financially constrained Transportation Policy Plan (TPP), except for the Southwest LRT Project (the Project).

EXHIBIT 2.1-1  
Proposed Southwest LRT Alignment



This chapter includes the following sections:

- 2.1 Definition of Alternatives
- 2.2 Alternatives Previously Considered
- 2.3 Capital Cost Estimates
- 2.4 Operating and Maintenance Cost Estimates

This chapter first defines the alternatives that are evaluated within this Final EIS, focusing on the alternatives' proposed capital improvements and transit operating plans. This definition of alternatives (including Appendix E) forms the basis of the environmental and related analyses included in the remaining chapters of this Final EIS. Second, this chapter describes the steps that were used to identify the alternatives evaluated within this Final EIS, ranging from the Project's initial Alternatives Analysis, through selection of

the Locally Preferred Alternative, Scoping, and publication of the Draft EIS and Supplemental Draft EIS, concluding with design adjustments made by the Council in July 2015. Finally, this chapter summarizes the base year capital and operating costs of the Project. These base year costs, when escalated into year-of-expenditure costs and accounting for finance costs, are used within the Project's finance plan (see Chapter 7).

## 2.1 Definition of Alternatives

The alternatives considered in this Final EIS were developed through a National Environmental Policy Act of 1969 (NEPA)/Minnesota Environmental Policy Act (MEPA) environmental process that began with scoping in 2008. This Final EIS examines the impacts of the following:

- **The LRT Project**, which includes the **LPA** and **Locally Requested Capital Investments (LRCIs)** (see Sections 2.1.3, 2.1.1, and 2.1.2, respectively). The LPA is approximately 14.5 miles of new double track proposed as an extension of the METRO Green Line (Central Corridor LRT) that will allow for the co-location of freight rail and light rail in the Kenilworth Corridor (i.e., LRT 3A-1). Exhibit 2.1-1 includes a depiction of the proposed Southwest LRT Alignment. The proposed alignment includes 16 new light rail stations<sup>1</sup> (including the Eden Prairie Town Center Station that is deferred for construction at a later date), approximately 2,500 additional park-and-ride spaces, accommodations for passenger drop-off, bicycle and pedestrian access, as well as new or restructured local bus route connection stations to nearby residential, commercial, and education destinations. Major activity centers from Eden Prairie to St. Paul, including UnitedHealth Group campuses, the Opus/Golden Triangle employment area, Park Nicollet Methodist Hospital, the Minneapolis Chain of Lakes, downtown Minneapolis and St. Paul, the University of Minnesota, and the State Capitol area, will be accessible by a one-seat ride. Passengers will be able to connect to the greater METRO system, including METRO Blue Line (Hiawatha LRT), METRO Orange Line (I-35W BRT), Northstar Commuter Rail, METRO Red Line (Cedar Avenue Bus Rapid Transit [BRT]) via Blue Line, and the planned METRO Blue Line Extension (Bottineau LRT), as well as future commuter rail and planned Arterial BRT lines connecting at multiple locations on the METRO system. The LRCIs include proposed projects related to roadway, streetscape/landscape/aesthetic improvements, pedestrian/bicycle improvements, utilities, and guideway profile. Preliminary Engineering Plans of the Project and lists of transit, roadway and pedestrian/bicycle improvements and LRCIs can be found in Appendix E.
- **The No Build Alternative** represents future conditions without the Project. The No Build Alternative represents the existing transportation system with all planned transportation improvements included in the Current Revenue Scenarios (i.e., financially constrained) of the 2040 TPP (adopted January 2015), except for the SouthWest LRT Project LPA. The No Build Alternative represents both a possible outcome of this Final EIS process, as well as a reference point to gauge the benefits, costs, and impacts of the Project. NEPA/MEPA processes require consideration of the No Build Alternative.

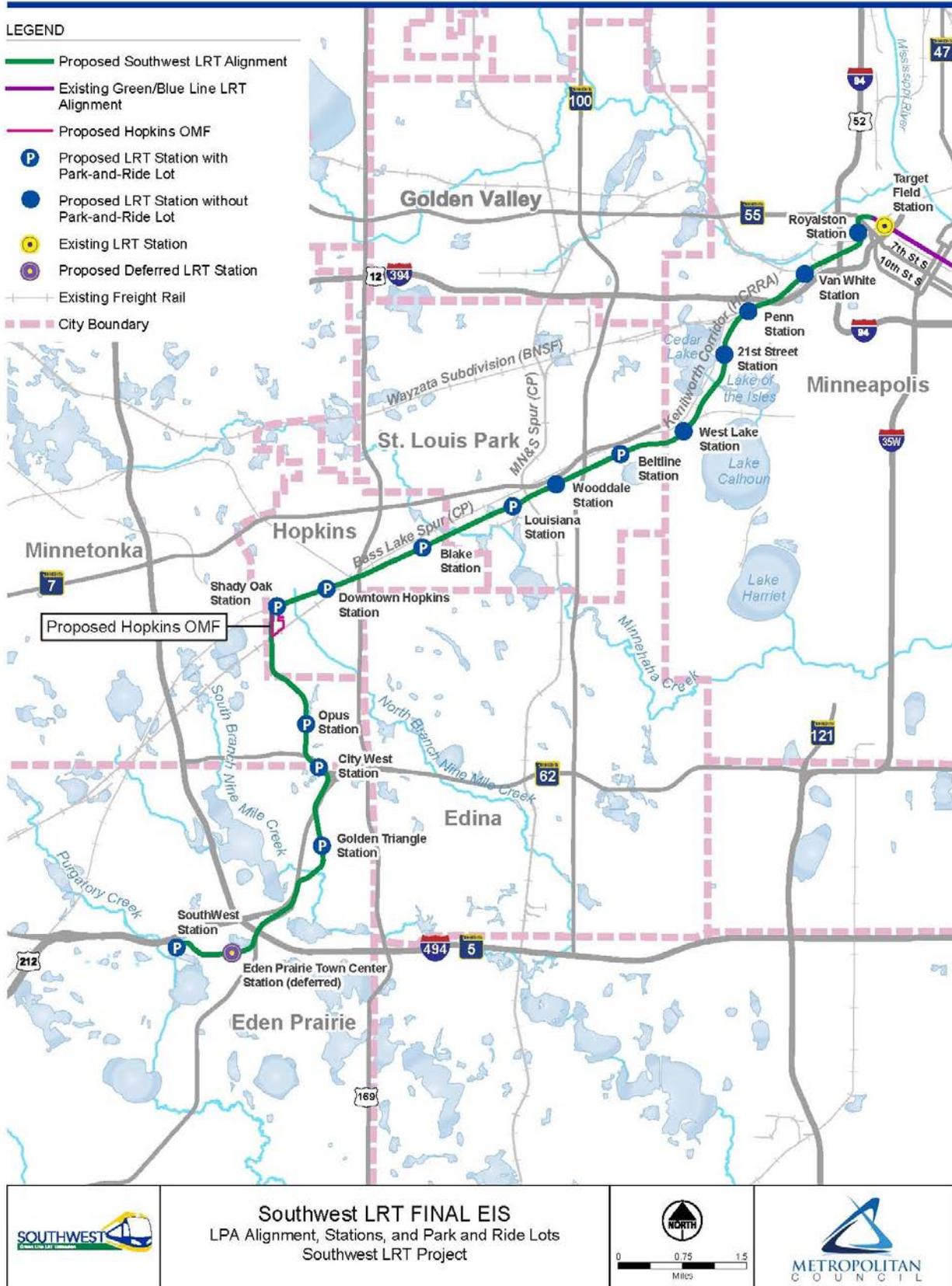
### 2.1.1 Locally Preferred Alternative

This section describes the major features of the LPA, including capital improvements, construction activities, and transit operations. Exhibit 2.1-2 depicts the proposed LPA alignment, stations, and park-and-ride lots. This section first describes the full range of light rail-related capital improvements included within the LPA, with the retention of freight rail in the Kenilworth Corridor (LRT 3A-1), followed by a description of transit operating characteristics under the LPA. Subsection 2.1.1.1 describes LPA capital improvements. Subsection 2.1.1.2 summarizes construction activities related to the LPA. Subsection 2.1.1.3 discusses transit operations to be included as part of the LPA.

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<sup>1</sup> See the Project Nomenclature for a listing of the station names used in this Final EIS, compared to the official station names adopted by the Council on February 24, 2016. In particular, following are four of the station names used in the Final EIS, compared to their official names, respectively: Royalston Station = Royalston Avenue/Farmers Market Station; Van White Station = Bassett Creek Valley Station; Penn Station = Bryn Mawr Station; and 21<sup>st</sup> Street Station = West 21<sup>st</sup> Street Station.

EXHIBIT 2.1-2  
LPA Alignment, Stations, and Park-And-Ride Lots



### 2.1.1.1 Capital Improvements

This section describes the capital improvements that will comprise the LPA. Capital improvements for the LPA will include:

- Light rail alignment
- Light rail stations, park-and-ride lots, and bus improvements
- Light rail operations and maintenance facility
- Light rail ancillary facilities
- Transit vehicles
- Roadway improvements
- Bicycle and pedestrian improvements
- Freight rail modifications

#### A. Light Rail Alignment

This subsection describes the light rail alignment to be included in the LPA (generally from southwest to northeast). Under the LPA, the new light rail extension of the existing METRO Green Line will have a western terminus in Eden Prairie at the proposed SouthWest Station, and move through Minnetonka, Hopkins, and St. Louis Park on its way to a connection with the existing METRO Green Line at the existing Target Field Station in Minneapolis. Exhibit 2.1-2 provides a general illustration of the light rail alignment described in this section, and Appendix E provides the more detailed Preliminary Engineering Plans of the light rail alignment.

#### Eden Prairie

The line's southwestern terminus will be the proposed SouthWest Station in Eden Prairie. The light rail station will be at-grade within SouthWest Transit's existing SouthWest Station. The light rail alignment will begin an ascent from the light rail station onto a new light rail bridge that will first run parallel to Prairie Center Drive and then cross over Technology Drive and Prairie Center Drive. After crossing Prairie Center Drive, the light rail alignment will continue east at-grade to the proposed at-grade Eden Prairie Town Center Station.<sup>2</sup>

After the proposed Eden Prairie Town Center Station, the light rail alignment will remain at-grade as it passes south of Lake Idlewild and meets up with Eden Road. The alignment will run parallel to and north of Eden Road, heading east and then turning north at Flying Cloud Drive to cross Technology Drive at-grade. The alignment will follow Flying Cloud Drive, crossing over I-494 on a new light rail bridge, parallel to and west of the existing Flying Cloud Drive bridge over I-494. After crossing I-494, the light rail alignment will continue northeast on the north side of Flying Cloud Drive. The light rail alignment will cross Valley View Road and a Highway 212 off-ramp and on-ramp on a new light rail bridge. After the bridge, the light rail alignment will continue north at-grade on the east side of Highway 212. After passing existing development between Highway 212 and Flying Cloud Drive, the alignment will cross Nine Mile Creek and Flying Cloud Drive on a new light rail bridge. After the bridge, the alignment will continue north at-grade, entering generally undeveloped land within a business park at-grade, crossing West 70th Street at-grade and connecting to the proposed at-grade Golden Triangle Station.

Upon leaving the Golden Triangle Station, the light rail alignment will be grade separated on a light rail bridge that will cross Flying Cloud Drive, Shady Oak Road, and Highway 212. The bridge will slowly drop to grade on the western side of the Shady Oak Road off-ramp from Highway 212 North. The light rail bridge will continue to follow Highway 212 to Highway 62 at-grade, where it will turn west to the proposed City West Station. The proposed City West Station will be at-grade along West 62nd Street.

<sup>2</sup> The Eden Prairie Town Center Station and associated roadway improvements are deferred and is not expected to be in place when the Project opens in 2020. The station and associated roadway improvements are planned to be in place by 2040. Appendix E illustrates the Project with and without the Eden Prairie Town Center Station and associated roadway improvements.

### Minnetonka

Leaving City West Station, the light rail alignment will extend north within a proposed cut-and-cover tunnel under Highway 62. The tunnel will end at the intersection of Red Circle Drive and Yellow Circle Drive, where the alignment will continue north at-grade, crossing Yellow Circle Drive and Bren Road East at grade and connecting to the proposed at-grade Opus Station. At the proposed Opus Station, the light rail alignment will continue north at-grade, crossing Bren Road West at grade and continuing through undeveloped land, and then passing between existing commercial and housing developments. The light rail alignment will turn northwest and cross under Feltri Road and Smetana Road within a grade-separated crossing. The light rail alignment will head directly north between undeveloped land and existing housing developments. The light rail alignment will be located on an approximately 3,000-foot long new bridge that will cross wetlands and an existing freight rail alignment. After crossing the freight rail alignment, the light rail alignment will descend to grade, with connections to the proposed Hopkins Operations and Maintenance Facility (OMF), which will be located immediately east of the light rail alignment. The light rail alignment will extend north, crossing 5th Street South/K-Tel Drive at-grade, before connecting to the proposed at-grade Shady Oak Station.

### Hopkins

After the proposed Shady Oak Station, the at-grade light rail alignment will turn to the east, where it will meet up with the junction of Minnesota River Bluffs Regional Trail and the Cedar Lake LRT Regional Trail. The at-grade light rail alignment will be located southeast of the trail and will follow the trail northeast, crossing 11th Avenue South at-grade and connecting to the proposed Downtown Hopkins Station at Excelsior Boulevard and 5th Avenue South. At the Downtown Hopkins Station, the light rail alignment will continue to follow Excelsior Boulevard at-grade until it reaches the alignment intersection with Excelsior Boulevard. The light rail alignment will then follow the trail at-grade to the proposed Blake Station on Blake Road North. A light rail bridge over Excelsior Boulevard will be constructed to allow for the light rail alignment to be located south of the Canadian Pacific (CP) Bass Lake Spur freight tracks (i.e., the freight rail tracks will be located north of the light rail tracks and the Cedar Lake LRT Regional Trail located north of the freight rail tracks).

### St. Louis Park

The light rail alignment will follow the Cedar Lake LRT Regional Trail and CP Bass Lake Spur for several miles at-grade, crossing Minnehaha Creek, Louisiana Avenue South, Xenwood Avenue South, and Highway 100 on new light rail bridges. The light rail alignment will pass through the following stations:

- Louisiana Station at Louisiana Avenue South and Oxford Street
- Wooddale Station at Wooddale Avenue South and West 36th Street
- Beltline Station at Beltline Boulevard and Park Glen Road

To reach the proposed Louisiana Station, the light rail alignment will curve slightly to the south, closer to Oxford Street and off the existing embankment. Immediately east of the station, the light rail alignment will continue east, under the proposed freight rail Southerly Connector, and back up onto the existing embankment.

### Minneapolis

Continuing west of and parallel to the Cedar Lake LRT Regional Trail, the light rail alignment and Kenilworth Corridor freight rail tracks will stay at-grade within the Kenilworth Corridor to the proposed at-grade West Lake Station at South Chowen Avenue, south of and below West Lake Street. Leaving West Lake Station, the light rail alignment will travel under West Lake Street, then begin a grade-separated descent into a shallow cut-and-cover tunnel. For just under one-half mile, the light rail alignment will be located in this shallow tunnel, from approximately 400 feet north of West Lake Station and returning to grade approximately 500 feet south of the Kenilworth Lagoon. The alignment will continue north at-grade and in the Kenilworth Corridor (crossing the Kenilworth Lagoon on a new light rail bridge), until it reaches the proposed at-grade 21st Street Station. Continuing north at-grade, the light rail alignment will cross West 21st Street and the

Cedar Lake Trail at-grade. Immediately north of the at-grade trail crossing, the light rail alignment will connect to the proposed Penn Station, which will be at-grade and located south of I-394 and South Penn Avenue.

Continuing north at-grade, the light rail alignment will cross under I-394, diverging slightly northwest from the trail alignment to run parallel to and east of existing BNSF Wayzata Subdivision freight rail tracks. The light rail alignment will connect to the proposed Van White Station at-grade immediately west of and under the existing Van White Memorial Boulevard bridge. The light rail alignment will continue to run parallel to and between the freight rail tracks and the Cedar Lake Trail. The light rail alignment will continue over a new light rail bridge for approximately 900 feet, crossing Glenwood Avenue at-grade. Continuing on that 900-foot long bridge, the light rail alignment will cross over the BNSF Wayzata Subdivision and then cross the intersection of Royalston Avenue North and Holden Street at-grade, after which the at-grade alignment will continue north, parallel to and east of Royalston to the proposed at-grade Royalston Station. After Royalston Station, the light rail alignment will extend north and then east, crossing over North 5th Avenue and North 7th Avenue on a new light rail bridge that will be generally located parallel to and south of north 5th Avenue. The light rail bridge will join the existing METRO Green Line light rail alignment immediately west of the existing Target Field Station.

### **B. Light Rail Stations, Park-and-Ride Lots, and Bus Improvements**

Under the LPA, the proposed light rail alignment from Eden Prairie to Target Field will have 16 light rail stations (including the Eden Prairie Town Center Station that is deferred for construction at a later date). The west terminus will include a light rail station at the existing SouthWest Station and will extend to the east terminus of the light rail alignment, connecting to the existing METRO Green Line immediately west of the existing Target Field. Major elements that will be incorporated onto the platforms include shelters, lighting, furniture, and fencing and railing. All stations will include accessible connections to local street networks and sidewalks. Table 2.1-1 lists the light rail stations by jurisdiction, including information on park-and-ride lots and bus improvements. Appendix E illustrates the stations, park-and-ride lots, and bus improvements described in the table. Chapter 4.3 includes detailed information regarding parking.

### **C. Light Rail Operations and Maintenance Facility**

The LPA will include an OMF within the City of Hopkins, referred to as the Hopkins OMF. Exhibit 2.1-3 provides illustrations of the OMF site. The proposed Hopkins OMF will be located approximately 1,000 feet south of the proposed Shady Oak Station. The Hopkins OMF will be located within existing office/warehouse and light manufacturing development land use. The proposed Hopkins OMF will occupy an approximately 15-acre site between the CP Bass Lake Spur to the south, 5th Street South/K-Tel Drive to the north, just east of 16th Avenue South on the east, and the proposed LRT mainline to the west.

The proposed Hopkins OMF will include the closure of 16th Avenue South, which is in the middle of the proposed site, between K-Tel Drive and 6th Street South. In addition, a cul-de-sac will be constructed on 6th Street South and at 5<sup>1/2</sup> Street, immediately east of the former 16th Avenue South alignment. Automobile and truck access to the OMF site will be provided on the existing roadway network via 5th Street South, K-Tel Drive, and 15th Avenue South. Light rail transit vehicles will access the proposed OMF site via the inbound tracks of the light rail alignment. Inbound light rail trains will access the site directly from the inbound tracks. Outbound light rail trains will access the OMF by crossing over to the inbound tracks south of 5th Street, and enter the OMF site via the inbound tracks.

In general, light maintenance activities and the storage of vehicles not in service will occur within enclosed structures, although some maintenance activities, including moving vehicles between functional areas within the OMF, will occur outside of buildings. Activities on the site will include washing, routine cleaning, routine maintenance, and inspections of the trains; parts storage; and maintenance-related office functions. The proposed OMF site will be in operation 24 hours a day, 365 days a year. The site will include a network of light rail switching track, an approximately 110-space surface parking lot for employees and visitors, storage and maintenance of nonrevenue vehicles, and office space for employees. The light rail vehicle (LRV) storage barn will include five storage bays (with six vehicles per bay) to accommodate a total of 30 vehicles. The storage barn will be designed to accommodate future expansion, which includes a sixth storage bay on the

TABLE 2.1-1

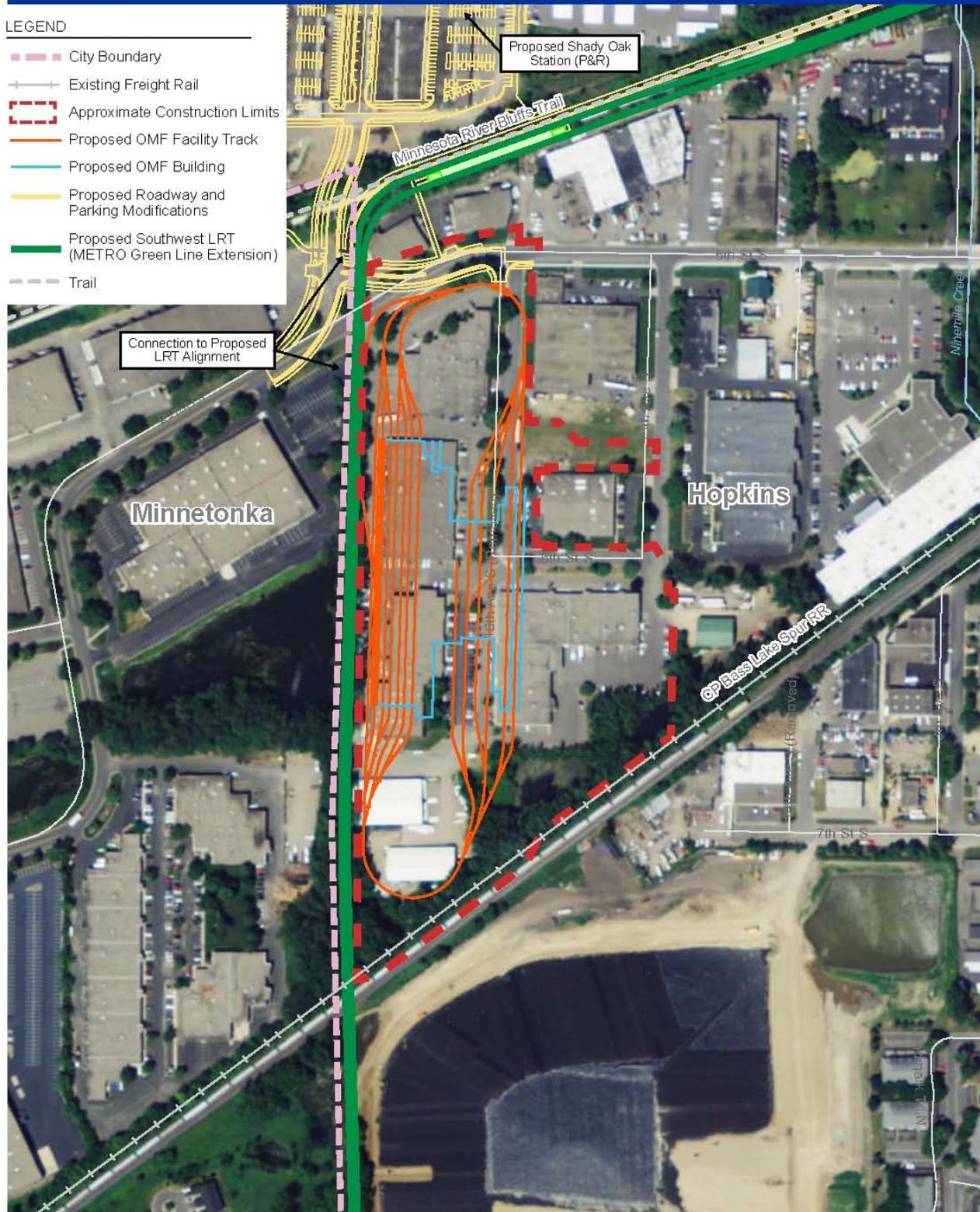
LPA: Proposed Light Rail Stations and Related Park-and-Ride Lots and Bus Improvements

Stations by City	Park-and-Ride Lots	Bus Improvements
<b>Eden Prairie</b>		
SouthWest	450 parking spaces – structured (shared vehicular connections with the existing SouthWest park-and-ride lot)	SouthWest Transit currently provides bus service in and out of the SouthWest Station. The Project's SouthWest Station will be located adjacent to the passenger waiting area, which will be moved to the west and there will be other modifications to existing bus facilities accommodating transfers between buses and light rail platforms at the SouthWest Station.
Eden Prairie Town Center <sup>a</sup>	None	None
Golden Triangle	200 spaces – surface (a portion leased)	New bus shelter, bus stop, and bus operator facility; SouthWest Transit has proposed to provide local circulator bus routes.
City West	160 spaces – surface	None
<b>Minnetonka</b>		
Opus	80 spaces – surface (leased)	Bus stops and related facilities
<b>Hopkins</b>		
Shady Oak	700 spaces – surface	None
Downtown Hopkins	190 spaces – structured	Bus stops and related facilities
Blake	89 spaces – surface	Bus stops and related facilities
<b>St. Louis Park</b>		
Louisiana	350 spaces – surface lot	Bus stops and related facilities
Wooddale	None	Bus stops and related facilities
Beltline	268 spaces – surface lot	Bus stops and related facilities
<b>Minneapolis</b>		
West Lake	None	Bus stops and related facilities: 1) improvements to South Chowen Avenue, West 31st Street, and Abbott Avenue South that will accommodate bus connections between Excelsior Boulevard and the station, and connections to bus stops on West Lake Street; 2) an additional bus stop and layover will be located on Abbott Avenue/Chowen Avenue east of the West Lake station platform; 3) new bus stops on West Lake Street bridge, with elevators connecting to the station below and improved sidewalks along West Lake Street
21st Street	None	Bus stops and related facilities
Penn	None	None (station will be served by Route 26)
Van White	None	Bus stops and related facilities
Royalston	None	Bus stops and related facilities

<sup>a</sup> The Eden Prairie Town Center Station has been deferred for construction until after initial construction of the Project.

Source: Appendix E.

EXHIBIT 2.1-3  
Proposed Hopkins OMF



	<p>Southwest LRT FINAL EIS Proposed Hopkins OMF Southwest LRT Project</p>		
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west side of the facility to accommodate total of 36 vehicles (adequate land exists for the expansion). Heavy maintenance of the Project's LRVs, which will include wheel truing and major body repair and painting, will occur at the Franklin Street OMF, which is outside of the project vicinity and will not need to be expanded to accommodate the Project's LRV fleet.

#### **D. Light Rail Traction Power Substations and Signal Bungalows**

The LPA will require facilities to provide signaling and power to the light rail alignment and LRVs. Active devices, such as traffic signals, railroad-type flashers, and bells, are proposed to control traffic at locations where the light rail alignment will cross public streets. Signal bungalows are small sheds that house the equipment to operate and monitor the signals that regulate train movement on the alignment. In addition to the signal bungalows will be traction power substations (TPSS) that will be located on parcels of property approximately 80-foot by 120-foot. TPSS provide power for the light rail vehicles through the overhead wire system and will be completely enclosed and perimeter fencing. The LPA includes 20 proposed TPSS sites and 25 proposed signal bungalow sites, which were determined through consultation with the applicable local jurisdictions. Appendix E lists and illustrates the proposed TPSS and signal bungalow sites along the proposed light rail alignment.

#### **E. Transit Vehicles**

The LRVs for Southwest LRT will be similar to those for the existing METRO Green Line (see example in Exhibit 2.1-4), which are Siemens S70 LRVs. The LRVs will be designed to operate independently or to be coupled and operated as multiple-unit train sets of up to three vehicles. The Southwest LRT Project includes purchase of 27 additional LRVs (adding 24 vehicles into service and three vehicles as spares). The cost per vehicle was approximately \$3.3 million. Existing METRO Green Line trains accommodate 230 passengers per car (i.e., 68 seated and 132 standing). A pantograph located on the roof of the LRV collects power from the overhead catenary wires. Each car is equipped with level boarding for Americans with Disability Act (ADA) accessibility and can accommodate bicycles. LRV speeds will generally range from approximately 20 miles per hour (mph) to 65 mph, except for entry and exit from station areas and inside the Hopkins OMF.

#### **F. Roadway Improvements**

The LPA will require long-term changes to the surrounding area by altering the geometry or operational function of roadways. These changes to roadways are needed under the LPA due to either: (1) accommodate the introduction of the light rail alignment and related facilities; or (2) increase roadway capacity to respond to anticipated demand to use of one or more roadways at a specific locations (e.g., in response to new park-and-ride demand at a new park-and-ride lot).<sup>3</sup> Appendix E illustrates and lists the roadway improvements that will occur under the LPA. Chapter 4.2 includes detailed information regarding changes to roadways and traffic.

#### **G. Bicycle and Pedestrian Improvements**

Under the LPA, there will be a variety of bicycle and pedestrian improvements, which are illustrated and listed in Appendix E. In general, those improvements will be made to provide safe bicycle and pedestrian crossings of the proposed light rail alignment, to accommodate the proposed light rail and roadway improvements, and/or to provide bicycle and pedestrian connections to the proposed light rail stations. These improvements will affect several trails and sidewalks within the vicinity of the Project. Section 4.5 includes additional information regarding the pedestrian and bicycle system.

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<sup>3</sup> The Project includes intersection modifications, new traffic signals, changes to existing traffic signals, and other traffic management techniques at intersections and at-grade light rail crossings of roadways within the roadways and traffic study area, so that the Project will not cause an unacceptable level of congestion, or worsen traffic operations at intersection that already experience an unacceptable level congestion compared to the 2040 No Build Alternative. Congestion is defined in terms of level of service (LOS). The Project will: (1) generally provide intersection operations of LOS D or better; or (2) when the 2040 No Build Alternative LOS would be E or F, provides intersection operations that will be the same as or better than the No Build Alternative. See Section 4.2 for additional information.

EXHIBIT 2.1-4  
Light Rail Vehicle Example



Source: Council

### 2.1.1.2 Construction Activities

The construction of the LPA will be a major undertaking that will require changes along the proposed light rail alignment for the duration of the construction period. Major construction is expected to span approximately three years. The description of construction activities for the LPA in this section is based on the Preliminary Engineering Plans (see Appendix E). Construction practices, staging, phasing, and approaches will continue to be refined as the Council advances the design and constructs the LPA. Chapters 3 and 4 describe the short-term (construction) impacts that will result from the construction activities described in this section.

Table 2.1-2 summarizes primary civil construction activities that will occur under the LPA. Construction activities are not limited to those identified in the table. The primary construction activities for this Project will be civil construction, OMF construction, systems build, and installation and integration and startup activities. In general, construction of the LPA will require a linear construction approach that will be sequenced into multiple segments. Each of the segments will have defined contractual durations and completion milestones that support the overall baseline project schedule. The segments may also include independent milestones related to specific activity completions requested by businesses and stakeholders. The civil construction will generally begin with the construction of the light rail tunnel in the Kenilworth Corridor, Kenilworth Channel bridges, and the TC&W freight rail modifications.

Detailed work-specific construction plans will be implemented to define the various segments, required contracts, schedules, and estimated cost. The generated information will be used to evaluate and manage the construction progress. It is anticipated that night work may be performed and in some cases 24-hour operations may be required to accommodate maintenance of traffic conditions or related stakeholder requirements. Construction through some of the intersections will require well thought out plans and may require night work to offset the demands of high traffic volumes. Periodic communication by means of the Council's outreach program will be important to keep the local public aware of progress and construction expectations.

TABLE 2.1-2  
Southwest LRT LPA Civil Construction Activities

Construction Activity	Elements of Activity
General demolition/removals	<ul style="list-style-type: none"> <li>• Demolition and/or removal of buildings/bridges/pavement</li> </ul>
Clearing and grubbing (i.e., soil preparation, such as root removal)	<ul style="list-style-type: none"> <li>• Removal of vegetation and waste from right of way</li> </ul>
Grading and fill operations	<ul style="list-style-type: none"> <li>• Earthwork</li> <li>• Excavation and embankment</li> </ul>
Public utilities	<ul style="list-style-type: none"> <li>• Relocation of existing public utilities</li> <li>• New installation public utilities</li> <li>• Encasing of utilities for protection</li> <li>• Abandoning existing public utilities</li> </ul>
Private utilities	<ul style="list-style-type: none"> <li>• Relocation of existing private utilities</li> <li>• New installation private utilities</li> <li>• Encasing of utilities for protection</li> <li>• Abandoning existing private utilities</li> </ul>
Bridges	<ul style="list-style-type: none"> <li>• Soil testing</li> <li>• Improve soil conditions as required</li> <li>• Construct operational and temporary infrastructure related to freight, light rail, roadway, and pedestrian bridges, including pier overhead structure placement</li> <li>• Address vibration considerations during construction, as appropriate</li> <li>• Address noise considerations</li> <li>• Air quality considerations, as appropriate</li> </ul>
Parking structures	<ul style="list-style-type: none"> <li>• Soil testing and excavation</li> <li>• Concrete foundation</li> <li>• Multistory concrete/steel frame</li> <li>• Multistory concrete/masonry construction</li> <li>• Restricted construction zone</li> <li>• Vibration and noise considerations during construction</li> <li>• Traffic maintenance</li> </ul>
Cut-and-cover tunnels	<ul style="list-style-type: none"> <li>• Sheet pile coffer dam construction</li> <li>• Vibration considerations during construction</li> <li>• Restricted construction zone</li> <li>• Support of excavation</li> </ul>
Retaining walls	<ul style="list-style-type: none"> <li>• Soil testing and excavation</li> <li>• Reinforcement</li> <li>• Drainage and runoff collection</li> <li>• Construction of concrete/masonry wall</li> <li>• Restricted construction zone</li> </ul>
Pavement – bituminous and concrete	<ul style="list-style-type: none"> <li>• Bituminous asphalt application by MnDOT specifications</li> <li>• Concrete mix by MnDOT specifications</li> <li>• Traffic maintenance requirement</li> <li>• Noise considerations during construction</li> <li>• Air quality considerations during construction</li> </ul>
Maintenance of traffic	<ul style="list-style-type: none"> <li>• Detours</li> <li>• Closures</li> <li>• Temporary roads</li> <li>• Temporary trails/sidewalks</li> <li>• Temporary parking</li> <li>• Intersection phasing</li> </ul>
Temporary, partial, limited access	<ul style="list-style-type: none"> <li>• Public access to construction sites limited</li> <li>• Limited or restricted access to sections of multimodal trails (with detours provided to maintain existing connections)</li> <li>• Effect but maintain access to businesses, residences, public roads, parks, waterways (with detours provided to maintain existing connections)</li> </ul>

Construction Activity	Elements of Activity
Delivery of materials and equipment	<ul style="list-style-type: none"> <li>• Staging area established for all sites</li> <li>• Increased congestion for intersections near construction</li> <li>• Address noise considerations during construction, as appropriate</li> <li>• Address air quality considerations during construction, as appropriate</li> </ul>
Erosion control – National Pollutant Discharge Elimination System/Stormwater Pollution Prevention Plan compliance	<ul style="list-style-type: none"> <li>• Application of best management practices</li> <li>• Stormwater control at construction sites</li> <li>• Permit required if discharge into waterbody</li> <li>• Minimization of clearing and grading</li> <li>• Limit soil exposure and stabilization of exposed soil</li> <li>• Cuts and slopes protected</li> <li>• Perimeter controls to filter sediments</li> <li>• Waste control to prevent trash and washout in runoff</li> </ul>
Water evacuation of sealed tunnel cells, stormwater retention ponds, and groundwater	<ul style="list-style-type: none"> <li>• Waterproofing of tunnels during excavation</li> <li>• Tunnel cells sealed to prevent runoff and erosion</li> <li>• Creation of retention pond according to NPDES</li> </ul>
Drying of the stockpiled tunnel saturated material	<ul style="list-style-type: none"> <li>• Tunnel soil and material stockpiled and dried</li> <li>• Reuse of material</li> </ul>
Stations	<ul style="list-style-type: none"> <li>• Rail, pedestrian and vehicle access</li> <li>• Soil testing and excavation/fill</li> <li>• Concrete foundation</li> <li>• Construction of steel/concrete frame</li> <li>• Construction of at-grade steel/concrete structure</li> <li>• Address noise considerations, as appropriate</li> <li>• Address air quality considerations, as appropriate</li> </ul>
Pile driving at stations, bridges, selected tracks, and retaining wall locations	<ul style="list-style-type: none"> <li>• Installation of foundational piles through pile driving</li> <li>• Address noise impacts in immediate area, as appropriate</li> <li>• Address vibration concerns during construction, as appropriate</li> <li>• Potential effect on structures in immediate vicinity</li> <li>• Preconstruction survey and vibration monitoring</li> </ul>
Vertical circulation	<ul style="list-style-type: none"> <li>• Construction of accessibility to stations</li> <li>• Addition of ramps, stairs, elevators</li> </ul>
Track	<ul style="list-style-type: none"> <li>• Direct fixation</li> <li>• Ballasted track</li> <li>• Embedded track</li> <li>• Temporary shoofly construction</li> </ul>
Overhead contact system/substations/systems	<ul style="list-style-type: none"> <li>• Construction of railway electrification system</li> <li>• Contact wire supported by messenger or catenary wire</li> <li>• Wires set in tension</li> <li>• Wires strung between support structures</li> <li>• Public access limited</li> </ul>

Source: *Southwest LRT East Construction Impacts Summary* (Council 2015v) and *Southwest LRT West Construction Impacts Summary* (Council 2014c)

MnDOT = Minnesota Department of Transportation

Staging will be further evaluated and updated as the construction process and phasing is better defined during Engineering. Areas where construction staging could occur within property under control of the Council, as well as other publicly owned properties, will be analyzed during advanced Engineering to accommodate additional potential staging areas. Staging areas will be required to store materials, equipment, and to provide laydown area during construction. The following factors have and will be considered for the identification and design of staging areas:

- Security of the staging area
- Ease of material and equipment delivery/storage
- Dual-use staging areas
- Opportunity for contractor labor parking

- Proper drainage
- Availability of power source
- Determination of several areas that will allow for rail welding operations and storage
- Limited impacts to existing trees/vegetation, residents, roads, and businesses

**2.1.1.3 Freight Rail Modifications**

With the LPA, freight rail service will continue to operate in its existing location in the Bass Lake Spur and Kenilworth Corridor with the following general areas of freight rail modifications in St. Louis Park and Minneapolis (see Exhibit 2.1-5). Chapter 4.4 includes additional information regarding freight rail facilities and operations.

**Bass Lake Spur**

Beginning east of Excelsior Boulevard and extending to east of Beltline Boulevard, the existing freight rail tracks (i.e., the Bass Lake Spur, owned by CP) will be shifted north approximately 45 feet, allowing the light rail alignment to be located south of the freight rail tracks thereby providing better station connections to local activity centers.<sup>4</sup> At the crossing of Highway 100, the freight bridge will be relocated from the southern portion of the corridor to the north of the planned LRT bridge to match with the overall freight rail shift.

To facilitate the shift of the existing freight rail tracks, the Council intends to purchase all of the 6.8-mile Bass Lake Spur from CP Railway. Approximately 3.8 miles of the existing track in the Bass Lake Spur is needed to accomplish the shift. Completion of an administrative process with the Surface Transportation Board (STB) would be required to accomplish this purchase. Completion of the STB process and purchase would not constitute an abandonment action with the STB. Instead, the process would consist of three filings with STB as summarized in Table 2.1-3.

TABLE 2.1-3  
Summary of STB Filings Required for Council's Purchase of Bass Lake Spur from Canadian Pacific Railway

STB Filing <sup>a</sup>	Party	Anticipated Timeframe: Filing	Anticipated Timeframe: STB Action
Notice of Exemption <sup>b</sup> (49 CFR §1150.31)	Council & CP Railway	At least 30 days prior to execution of Purchase Agreement for BLS	Effective 30 days after filing; dismissed when Motion to Dismiss is granted (49 CFR §1150.32(b))
Motion to Dismiss <sup>b</sup>	Council	Concurrent with Notice of Exemption	Decision issued 30-60 days after filing
Notice of Exemption (49 CFR §1150.31)	Twin Cities & Western	Concurrent with Council/CP Railway's Notice of Exemption	Effective 30 days after filing (49 CFR §1150.32(b))

<sup>a</sup> Applies to CP-owned Bass Lake Spur, the HCRRA owned Kenilworth Corridor will have separate STB filings. Removal of siding track in the Bass Lake Spur will not require an STB filing.

<sup>b</sup> Filed as a "State of Maine" transaction to purchase physical assets, but not acquire common carrier service (See State of Maine, Department of Transportation - Acquisition and Operation Exemption - Maine Central R.Co., 8 ICC 2d 835 (1991))

<sup>4</sup> The existing freight rail tracks are on existing right-of-way owned by CP. In general, the tracks will be relocated approximately 45 feet north onto right-of-way currently owned by Hennepin County Regional Railroad Authority (HCRRA). The existing siding track in the Bass Lake Spur will also be removed. The proposed light rail alignment will be on what is now the CP-owned right-of-way. To accommodate these proposed improvements, Council intends to purchase the CP-owned right-of-way for use by the Project and agreements would be developed for continuing operations for freight rail and light rail. The nature of the agreements has not been determined.

To accomplish this purchase, two agreements will be executed:<sup>5</sup>

- **Easement.** An easement retained by CP will provide for Twin Cities & Western (TC&W) to provide common carrier service on the segment of track to be acquired by the Council. This easement would take effect after publication of this Final EIS and Record of Decision and upon closing of the following purchase agreement.
- **Purchase Agreement.** A purchase agreement between the Council and CP Railways will provide for the transfer of ownership of the physical assets of Bass Lake Spur from CP Railways to the Council. This purchase agreement will be executed after STB approval of the Motion to Dismiss described in Table 2.1-3.

### Skunk Hollow Wye

A portion of the northern leg of the existing Skunk Hollow switching wye between the Bass Lake Spur and Oxford Street will be removed and replaced with the new Southerly Connector between the Bass Lake Spur and the Minneapolis, Northfield, & Southern Railway (MN&S) Spur (which is owned by CP) that will cross over the proposed light rail alignment on a structure (see Exhibit 2.1-5). This freight rail modification will allow freight trains traveling on the Bass Lake Spur tracks to continue to access the MN&S Spur tracks.<sup>6</sup>

### Kenilworth Corridor

Appendix E illustrates the following adjustments that will be made to the existing freight rail alignment, which is generally within the Kenilworth Corridor:

- There will be relatively minor adjustments to and reconstruction of the freight tracks between Beltline Boulevard and Cedar Lake Parkway
- The existing freight tracks will be moved up to approximately 40 feet north between Cedar Lake Parkway and the Burnham Road overpass
- There will be no adjustments or reconstruction of the existing freight alignment between the Burnham Road overpass and Cedar Lake Junction
- Installation of freight rail guardrail from north of West Lake Station to Cedar Lake Parkway
- Installation of freight guardrail from north of the Kenilworth Channel crossing to Burnham Road
- Installation of freight guardrail from West 21st Street to 1,000 feet north of West 21st Street

#### 2.1.1.4 Transit Operations

The LPA will include a number of changes to existing transit operations in the corridor, including the operations of the new light rail extension and changes to the operations of the existing and planned bus systems of Metro Transit and SouthWest Transit. Note that the transit operations described in this section are those that are anticipated at this time. The actual service plans will be revised prior to opening in 2020, and will be a result of a service planning process that complies with the Council's and SouthWest Transit's service planning policies, with federal requirements (e.g., Title VI), and a variety of external factors (e.g., transit demand, funding availability, public and agency comment). See the *Draft Travel Demand Methodology*

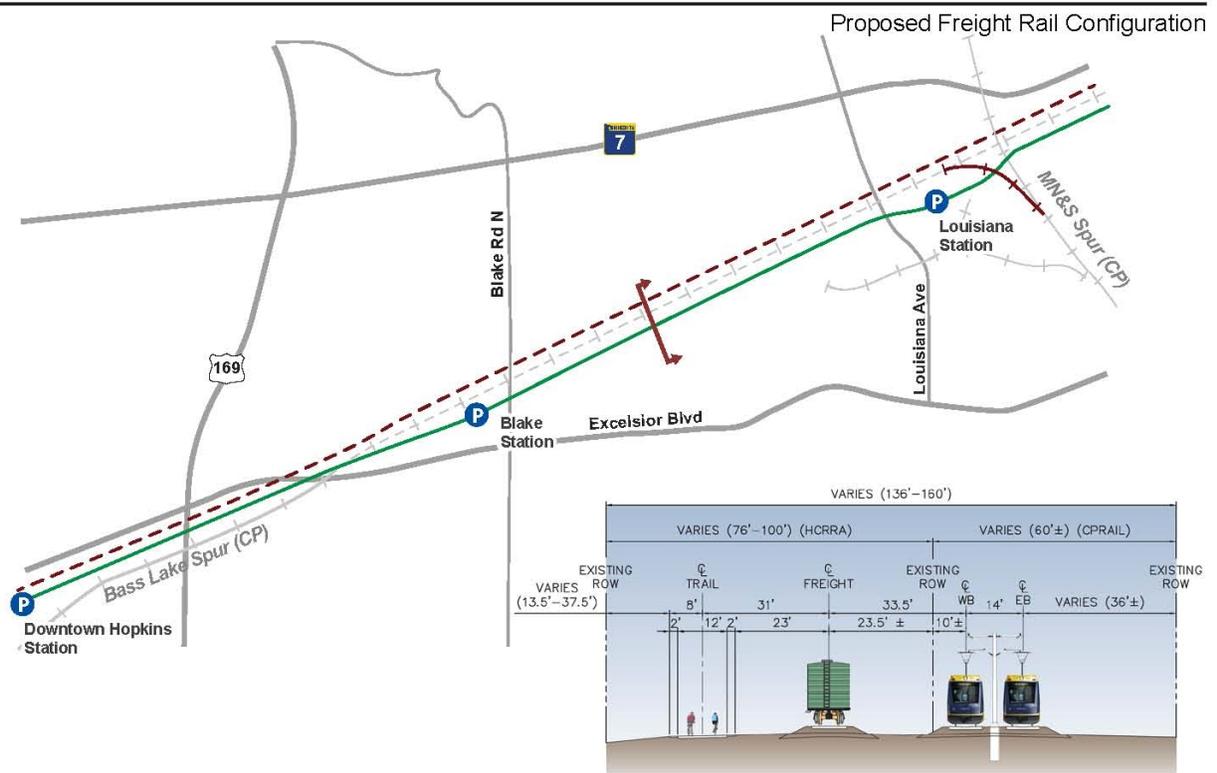
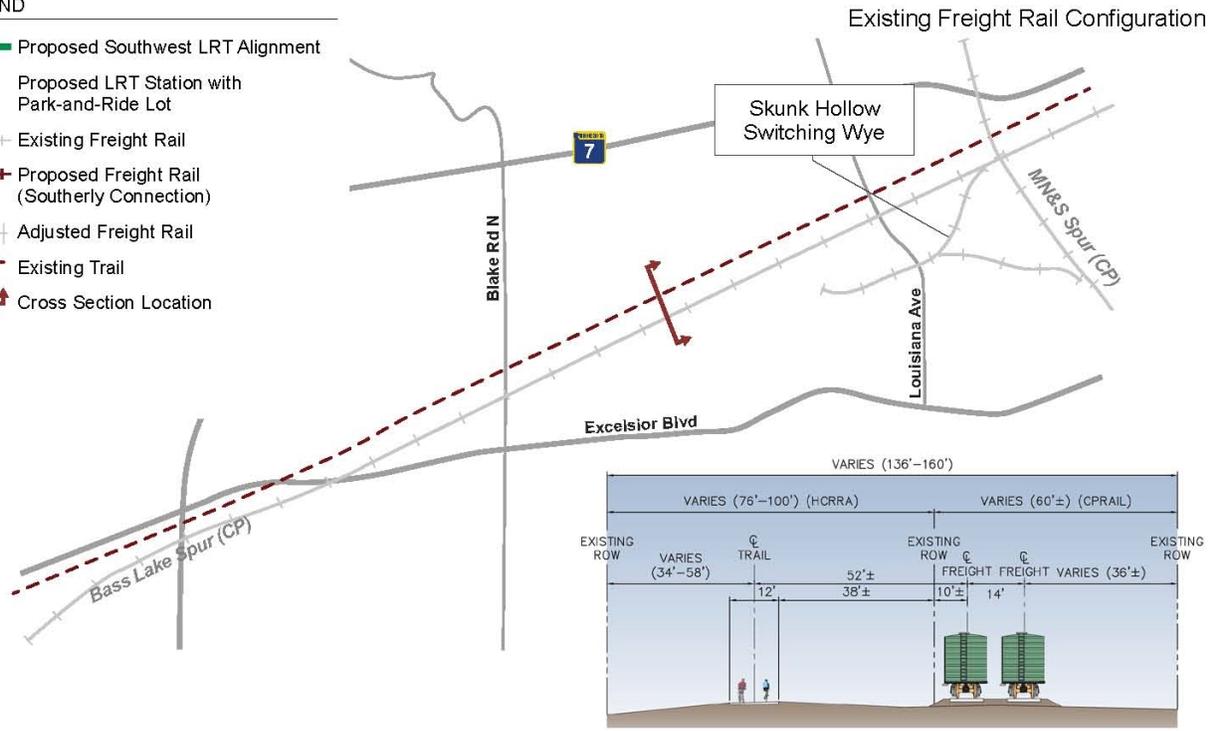
<sup>5</sup> Based on this approach, no additional federal environmental assessment is needed for these actions to be implemented, because there would be no new railroad created as a result of the action; there would be no expansion of freight rail service into new geographical areas; and there would be no alteration to the existing freight rail operations (i.e., no increase in the number of freight rail trains) (49 CFR 1105.6(b)). Further, these actions are categorically excluded from completion of the federal NEPA process because there would be no resulting freight rail operations changes that would require additional analysis (i.e., there would be no adverse effects on energy usage or air quality, diversion of rail traffic to trucks, or an increase in rail activity) (49 CFR §1105.6(b)(4)).

<sup>6</sup> Removal of a portion of the northern leg of the Skunk Hollow switching wye will be required to accommodate the placement of the light rail alignment south of the freight rail alignment on the existing northern switching wye alignment (see Exhibit 2.1-5). The southern leg of the Skunk Hollow switching wye will remain in place, providing the continuation of freight rail service to the Robert B. Hill Company salt facility at the west end of the switching wye.

EXHIBIT 2.1-5  
Freight Rail Modifications

LEGEND

-  Proposed Southwest LRT Alignment
-  Proposed LRT Station with Park-and-Ride Lot
-  Existing Freight Rail
-  Proposed Freight Rail (Southerly Connection)
-  Adjusted Freight Rail
-  Existing Trail
-  Cross Section Location



	<p><b>Southwest LRT FINAL EIS</b> Proposed Freight Rail Modifications Southwest LRT Project</p>		
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& Forecast, Revision 3, Southwest LRT Technical Report (Council, 2015) for additional information on transit operations under the LPA.

### A. Light Rail Operations

The light rail operating hours and headways<sup>7</sup> of the METRO Green Line Extension are planned to be as follows under the LPA (the LPA will not result in changes to the operations of the other light rail lines in the METRO system):

- Early morning hours (12:15 a.m. to 2:00 a.m.): 60-minute headways
- Morning hours (4:00 a.m. to 5:30 a.m.): 30-minute headways
- Prepeak morning operating hours (5:30 a.m. to 6:30 a.m.) 15-minute headways
- AM peak hours (6:30 a.m. to 8:30 a.m.): 10-minute headways
- Mid-day operating hours (8:30 a.m. to 3:30 p.m.) 10-minute headways
- PM peak operating hours (3:30 p.m. to 6:00 p.m.): 10-minute headways
- Post PM peak operating hours (6:00 p.m. to 9:00 p.m.): 10-minute headways
- Evening hours (9:00 p.m. to 10:15 p.m.): 20-minute headways
- Late evening hours (10:15 p.m. to 12:15 a.m.): 30-minute headways

Section 4.1.3 describes the operating characteristics of the light rail system under the LPA (e.g., vehicle miles traveled, revenue hours).

### B. Bus Operations

The Council, Metro Transit, and SouthWest Transit collaborated to develop the 2040 bus operations plan associated with the LPA. Bus routing in the corridor under the LPA are illustrated in Exhibit 4.1-5. The plan will increase levels of bus service in the corridor, resulting in additional bus vehicle miles traveled and revenue hours. Section 4.1.3 describes the operating characteristics of the bus system under the LPA (e.g., vehicle miles traveled, revenue hours).

#### 2.1.2 Locally Requested Capital Investments

LRCIs are improvements proposed by Eden Prairie, Minnetonka, Hopkins, St. Louis Park, and Hennepin County to be undertaken separate from, but contingent upon, implementation of the LPA. These proposed improvements are not needed to support the base function of the LPA, nor do they represent mitigation for any impact of the LPA. These proposed activities may be implemented independently by the stakeholder cities at a future date, and are not conditions of the Project, however in some cases implementing a LRCI separately would not be as efficient as constructing the LRCI with construction of the Project. The Final EIS includes LRCIs to show the full range of Project components and impacts and mitigation measures are provided for adverse impacts from LRCIs, where applicable.

The stakeholders identified LRCIs through jurisdiction-specific local planning and decision-making processes. The preliminary LRCI list was presented to the Corridor Management Committee (CMC) in October 2014 and an updated preliminary list was presented to the Executive Change Control Board in December 2014. The list of LRCIs was updated throughout 2015. There are 19 proposed LRCIs.

If constructed by the Council's contractor(s), the LRCIs will be included as part of the Southwest LRT Project construction bid packages and activities; the construction documents will clearly separate out the LRCI activities and costs from the LPA that is proposed to be funded through Federal Transit Administration's (FTA's) Capital Investment Grant Program.

The proposed LRCI actions may be within, adjacent to, or outside the LPA construction boundaries. The types of LRCI actions are defined in the following subsections. Table 2.1-4 includes a summary of the proposed LRCIs by category, and Exhibit 2.1-6 provides an illustration of the location of the proposed LRCIs (Appendix E also provides a more detailed description of each LRCI).

<sup>7</sup> Headways are the average time between transit vehicles operating in the same direction by a common point over a given period of time (e.g., four inbound light rail trains passing by a station within one hour would result in a 15-minute headway).

TABLE 2.1-4  
General Locally Requested Capital Investment Activities by Requestor and Identification Number

LRCI Category	LRCI Requestor and Identification Number <sup>a</sup>				
	Eden Prairie (LRCI ID #)	Minnetonka (LRCI ID #)	Hopkins (LRCI ID #)	St. Louis Park (LRCI ID #)	Hennepin County (LRCI ID #)
Local Roadway Improvements	X (1, 11)	X (12)		X (17, 32)	
Streetscape/Landscape/Aesthetic Improvements	X (4, 5, 6, 7, 8, 9, 10)				
Local Pedestrian/Bicycle Improvements	X (2, 3)			X (33)	X (26)
Utility Activities			X (14)		X (27)
Guideway Profile Adjustment		X (13)			

<sup>a</sup> See Exhibit 2.1-6 for an illustration of the location of the LRCIs by identification number.

**2.1.2.1 Local Roadway Improvements**

The Cities of Eden Prairie, Minnetonka, and St. Louis Park have identified local roadway improvements to enhance connectivity to the proposed Southwest LRT stations. While the LPA includes required improvements to access stations, the LRCI activities under this category go beyond the requirements of the LPA. Improvements under this category include new local roadway underpasses that will extend under the light rail line, roadway reconstruction, and new roadway extensions from station areas to the existing roadway network that will provide additional connections beyond the requirements for the Southwest LRT LPA. These improvements are not required for implementation of the LPA; however, if funded by the requesting city, they will be included as part of the construction of the Project.

**2.1.2.2 Streetscape/Landscape/Aesthetic Improvements**

In addition to the streetscaping, landscaping, and aesthetic treatments included as part of the proposed Southwest LRT LPA, the City of Eden Prairie requested additional improvements in conjunction with LPA construction. Improvements under this category include treatments such as decorative lighting along roadways, additional pedestrian lighting beyond requirements of the LPA, decorative catenary poles, decorative fencing and bridge railings, aesthetic treatments to bridge structures, planter boxes along roadways, and embedded track alongside a roadway. These improvements are not required for LPA implementation, however if funded by the requesting city, will be included as part of the construction of the Project.

**2.1.2.3 Local Pedestrian/Bicycle Improvements**

In addition to the pedestrian and bicycle connections proposed as part of the LPA, the Cities of Eden Prairie and St. Louis Park and Hennepin County identified additional pedestrian/bicycle trail projects. Improvements under this category include construction of new trail sections to improve connections to existing facilities beyond the requirements of the LPA. These improvements are not required for the Southwest LRT LPA, however if funded by the requesting city and/or county, will be included as part of the construction of the Project.

**2.1.2.4 Utility Activities**

Utility relocations and/or replacements are expected when existing utility facilities are in conflict with LRT improvements. These types of improvements will be part of the LPA. However, when improvements extend beyond the limits of the transitway and stations or include upgrading the size and/or capacity of utilities,

EXHIBIT 2.1-6  
Proposed Locally Requested Capital Investments



**Southwest LRT FINAL EIS**  
Locations of Locally Requested Capital Investments  
Southwest LRT Project



associated costs will be funded locally. The City of Hopkins and Hennepin County identified improvements within this category, including burying power lines along an existing trail, new water and sanitary sewer to serve future development, and providing fiber optic conduit along the length of the corridor. These improvements are not required for LPA implementation; however, if funded by the requesting city and/or county, the improvements will be included as part of the construction of the Project.

#### **2.1.2.5 Guideway Profile Adjustment**

The City of Minnetonka identified an adjustment to the guideway profile to not preclude a future potential infill station at Smetana Road. This includes additional excavation and retaining structures beyond that required for the LPA to accommodate a level area for a potential future station. This potential future infill station is not part of LPA implementation; however, if funded by the requesting city, the additional excavation and retaining structures to allow for a future infill station would be included as part of the construction of Project.

#### **2.1.3 Project**

The Project, as evaluated in this Final EIS, includes both the LPA and the LRCIs described in Sections 2.1.1 and 2.1.2, respectively. The capital components of the LPA and LRCIs are listed and illustrated in Appendix E.

In addition to the Project, there is a potential joint development project at the proposed Beltline Station. The Beltline Joint Development Project is evaluated separately from the Project because implementation of the potential joint development project will not be determined until after publication of this Final EIS. Chapter 10 includes the evaluation of the Beltline Station Joint Development Project.

#### **2.1.4 No Build Alternative**

The development and analysis of a no build or no action alternative is required under NEPA and MEPA. The No Build Alternative represents both a possible outcome of this Final EIS process, as well as a reference point to gauge the benefits, costs, and impacts of the Project. The No Build Alternative represents the existing transportation system with the planned transportation improvements included in the Current Revenue Scenarios (i.e., financially constrained) of the 2040 TPP (adopted January 2015), except for the Southwest Light Rail Project (LRT) Locally Preferred Alternative (LPA). The No Build Alternative will provide additional express and local bus service on existing facilities, including operation of bus shoulder lanes on the regional network.

##### **2.1.4.1 Capital Improvements**

The No Build Alternative is comprised of the following capital improvements: light rail, bus, roadway, and freight. The capital improvements are part of the fiscally constrained and federally approved 2040 TPP project list.

##### **A. Light Rail Improvements**

The light rail network and facilities (minus the Project) in the 2040 TPP are incorporated into the No Build Alternative. The No Build Alternative assumes the future transit service network will resemble the route structure and facilities of the existing system. Light rail improvements under the No Build Alternative include facilities for which funding has been committed. They include expanded existing facilities or interim improvements to future transitways that are incremental and identified on an as-needed basis. The TPP also includes an extension of the Blue Line (including 11 new light rail stations) from Minneapolis to Brooklyn Park, programmed for 2015-2024.

##### **B. Bus Improvements**

The bus network and facilities in the 2040 TPP are incorporated into the No Build Alternative. The No Build Alternative assumes the future bus service network will closely resemble the route structure and facilities of the existing local system, as well as plans for improvements and expansions to bus rapid transit lines.

These include:

- **METRO Gold Line.** 12-mile dedicated bus rapid transit line with plans to include 11 new stations from Saint Paul to Woodbury
- **METRO Red Line Extension.** Three-mile extension of the Red Line with plans to include three new stations from Apple Valley to Lakeville
- **A-Line, Snelling Avenue Arterial Bus Rapid Transit.** Bus rapid transit improvements in an arterial bus corridor running primarily along Snelling Avenue in Saint Paul from 46th Street Station on METRO Blue Line to Roseville
- **C-Line, Penn Avenue Arterial Bus Rapid Transit.** Bus rapid transit improvements in an arterial bus corridor running primarily along Penn Avenue and Highway 55 in Minneapolis from downtown Minneapolis to Brooklyn Center Transit Center
- **Chicago Emerson-Fremont Arterial Bus Rapid Transit.** Bus rapid transit improvements in an arterial bus corridor running primarily along Chicago/Portland Avenues, American Boulevard and Emerson and Fremont Avenues from Mall of America Transit Station in Bloomington to Brooklyn Center Transit Center

Noting that transit passenger facilities “provide convenient and attractive service,” the 2040 TPP identifies several existing transit facilities for expansion and proposes the construction of new facilities. Expansion of Bus Rapid Transit include facilities such as park-and-rides, transit centers, bus shoulders, and exclusive bus access ramps to major arterial roadways and highways. Improved passenger amenities are also mechanisms that help to attract future riders. These can include sheltered bus stops, heated waiting areas, ADA-accessible bus stops, technology improvements, and wayfinding systems.

### C. Roadway Improvements

The 2040 TPP provides a comprehensive inventory of the transportation infrastructure and needs for the seven-county Twin Cities metropolitan region. The regional highway and roadway system is composed of interstate and federal highways, state and county highways, price-managed lanes, arterial roadways, and has programmed improvements intended to expand the capacity of the regional highway and roadway systems. The TPP includes capital projects for Highway MnPASS, Strategic Capacity Enhancements, Regional Highway Access, and Transitways only. These projects include:

- **I-35W Southbound from I-94 to 46th Street.** Adding High Occupancy Toll/transit priority lane and Lake Street Interchange with Bus Rapid Transit Station.
- **Highway 100 from 36th Street to Cedar Lake Road.** Replace the Tier 1 bridges and ancillary improvements.
- **I-494 Capacity Enhancements.** In addition to pavement, bridge, and roadside infrastructure investments, construct one general purpose lane in each direction between Trunk Highway 55 and I-94/694, and operational improvements in other locations between I-394 and I-94/694.
- **Reconstruction of the I-494/Highway 169 Interchange**

### D. Freight Rail

Freight rail in 2040 is expected to be similar to existing facilities, noting that the owners of those facilities will change their facilities and/or operations as they deem appropriate. The 2040 TPP notes that “Many freight-related improvements will be the responsibility of private entities that own and operate the transportation modes and freight terminal facilities. Freight railroads are privately owned so each rail company makes its own plans for future infrastructure investments.”

The Minneapolis/St. Paul metropolitan area is a focal point of the freight railroad system in the North Central region of the United States. Four of North America’s Class I railroads, (1) BNSF Railway, (2) Union Pacific Railroad, (3) CP Railway and (4) Canadian National, provide service to the Twin Cities. TC&W and Progressive Rail also operate in the metropolitan area. The Minnesota Commercial Railroad facilitates

interchange among these carriers. Minnesota Commercial Railroad, based in St. Paul, is classified as a switching and terminal railroad.

There are currently four active freight rail lines within the corridor: the CP-owned Bass Lake Spur; the CP-owned MN&S Spur; the HCRRA-owned Kenilworth Corridor; and the BNSF-owned Wayzata Subdivision.

According to data obtained from Federal Railroad Administration (FRA) and from freight rail operators in 2014, the following number of trains currently operate in the study area:

- **MN&S Spur.** CP Railway currently operates 10 weekly trains with 10 to 25 cars per train, using one or two locomotives.
- **BNSF Wayzata Subdivision.** BNSF and TC&W currently operate eight to 20 trains per day, using one or two locomotives.
- **CP Railway Bass Lake Spur and HCRRA Kenilworth Corridor.** TC&W current operations include:
  - 14 weekly trains with two or more locomotives and 65 to 75 cars per train. These trains primarily deliver agricultural goods.
  - Five to six weekly trains with two to four locomotives and 80 to 125 cars per train. These trains primarily deliver ethanol, grain, and coal.

#### 2.1.4.2 Transit Operations

The No Build Alternative reflects a “likely growth” scenario for Metro Transit and SouthWest Transit bus service that is based on near-term and long-range service plans. See the *Draft Travel Demand Methodology & Forecast, Revision 3, Southwest LRT Technical Report* (Council, 2015) for additional information on transit operations under the No Build Alternative. Exhibit 2.1-7 shows the major transit projects included in the 2040 No-Build Alternative. In particular, the 2040 service plan for the No Build Alternative includes the following features:<sup>8</sup>

- **Existing Transitways.** METRO Blue (Hiawatha LRT), METRO Green (Central Corridor LRT), METRO Red (Cedar BRT) Lines; and North Star Commuter Rail
- **Future Major Transit Projects.** METRO Blue Line Extension (Bottineau LRT), Orange (I-35W BRT), Gold (Gateway BRT), and Red (extension to 181st Street) Lines
- **Arterial BRT Lines.** A (Snelling Avenue), C (Penn Avenue), and Chicago-Emerson/Fremont

#### A. Light Rail Operations

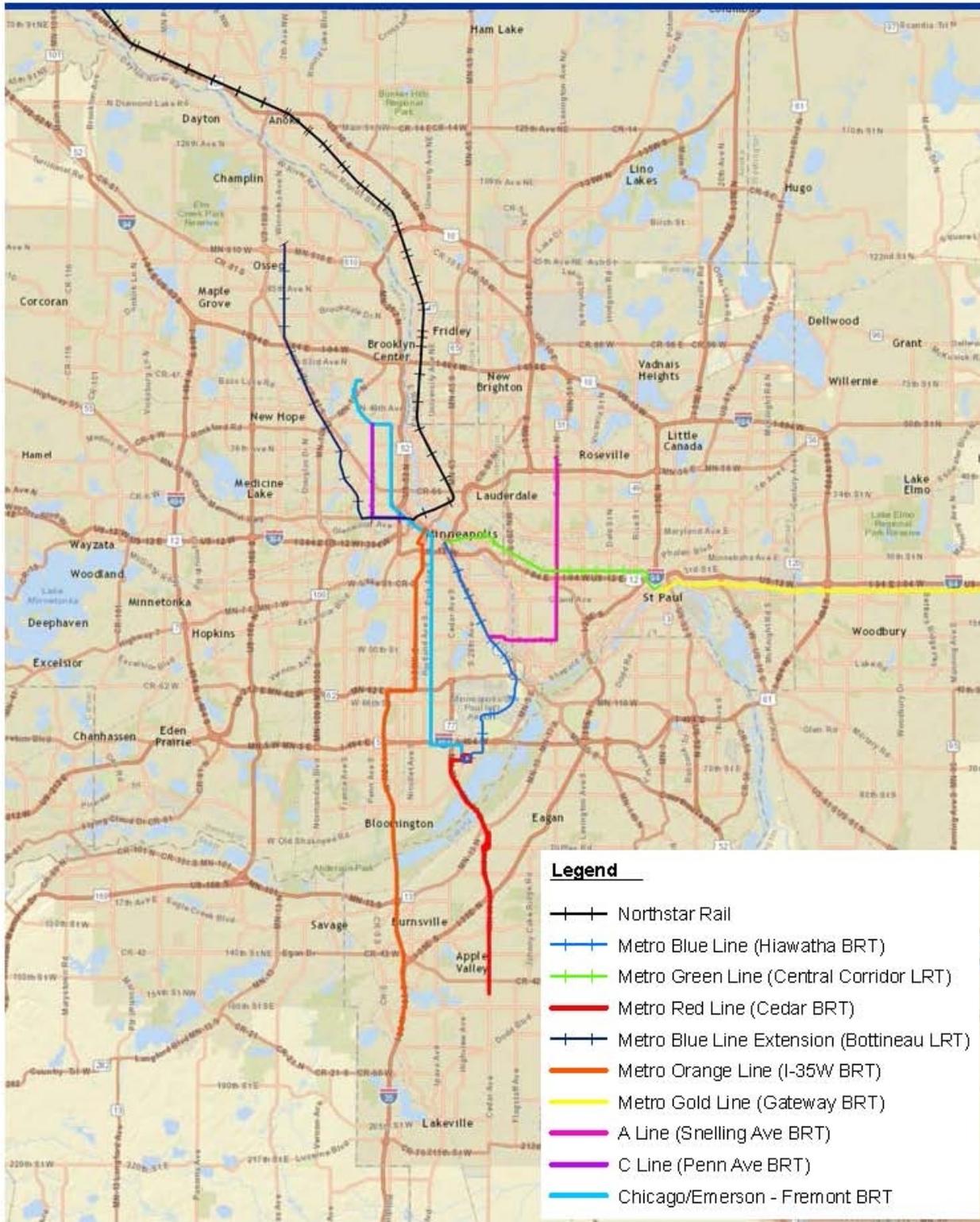
Under the No Build Alternative, the light rail system will experience an incremental growth in vehicle miles traveled and revenue hours that will respond to anticipated growth in demand, as well as implementation of the METRO Blue Line Extension. Section 4.1.3 describes the operating characteristics of the light rail system under the No Build Alternative (e.g., vehicle miles traveled, revenue hours). Section 4.1.3 describes the operating characteristics of the light rail system under the LPA (e.g., vehicle miles traveled, revenue hours).

#### B. Bus Operations

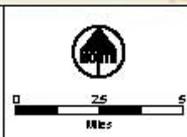
Under the No Build Alternative, the bus network will experience a relatively minor change in miles traveled and revenue hours. While many routes in the corridor will see no change, Routes 12, 17 and 604 will see substantial changes to increase frequency or extend service span in response to anticipated increased demand. Additionally, a new crosstown Route 620 will be added to connect Hopkins and Eden Prairie. Some existing routes will be altered to account for the addition of three new bus rapid transit routes. Exhibit 4.1-4 illustrates the bus network under the No Build Alternative in 2040. Section 4.1.3 describes the operating characteristics of the bus system under the LPA (e.g., vehicle miles traveled, revenue hours).

<sup>8</sup> Source: 2040 Transportation Policy Plan, Metropolitan Council, January 2015.

EXHIBIT 2.1-7  
Major Transit Projects in the 2040 No Build Alternative



Southwest LRT FINAL EIS  
Major Transit Projects in the 2040 No Build Alternative  
Southwest LRT Project

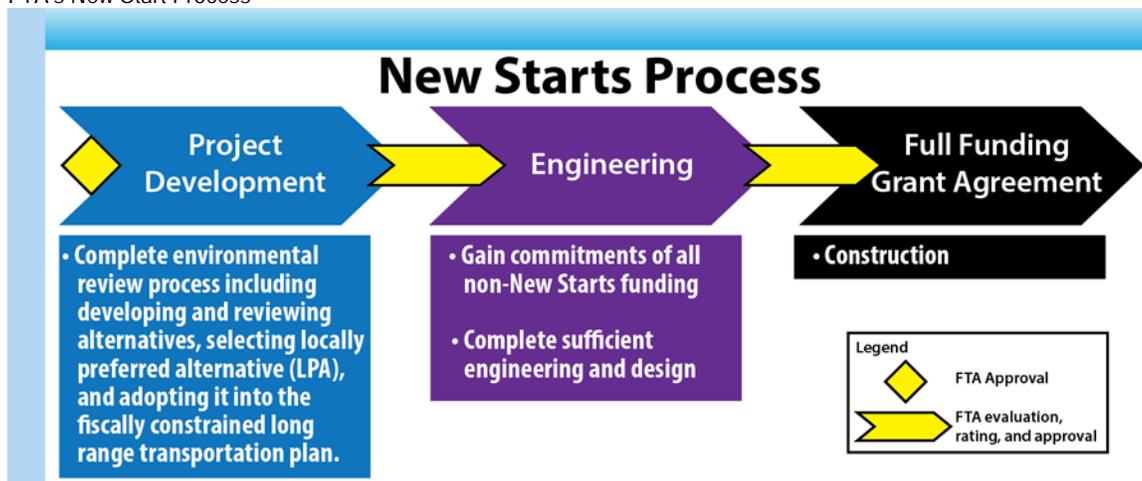


## 2.2 Alternatives Previously Considered

This section describes the decision-making process leading to the Final EIS. The LPA and the Project are a product of the following key environmental and planning efforts for high-capacity transit in the Southwest LRT Corridor. Following an overview of the Project’s participating agencies, this section addresses the following alternative development, evaluation, and screening process: Southwest Transitway Alternatives Analysis; Draft EIS; Supplemental Draft EIS; and Engineering adjustments since publication of the Supplemental Draft EIS.

The Southwest LRT Project has been and will continue to be developed and constructed as part of the FTA’s New Starts process, which is required for the Council to receive a federal Capital Investment Grant to help fund a portion of the Project’s capital costs (see Chapter 7 for additional information on the Council’s finance plan). Since the Project’s inception, FTA’s New Starts process has been modified to help streamline the process. The current New Starts process is illustrated in Exhibit 2.2-1. As illustrated in the exhibit, there are three overall steps within the current New Starts process: (1) Project Development; (2) Engineering; and (3) the Full Funding Grant Agreement. Each step in the process is initiated with an FTA approval and the final two steps require FTA’s evaluation and rating of the proposed Project. The Southwest LRT Project is currently within the Project Development step. Following publication of this Final EIS and Record of Decision, the Project will seek approval from FTA to advance into the Engineering step and then it will seek the execution of a Full Funding Grant Agreement.

EXHIBIT 2.2-1  
FTA’s New Start Process



### 2.2.1 Overview and Project Participating Agencies

The following subsections provide a high-level overview of the environmental analysis and documentation process, as well as a description of the agency coordination for the Project.

#### 2.2.1.1 Overview

Mobility issues and high-capacity transit improvements in the corridor extending southwest from downtown Minneapolis have been evaluated by the Council and HCRRA since the mid-1980s. In 2005, building on prior planning efforts (see Section 2.1.1 of the Draft EIS), HCRRA initiated the Southwest Transitway Alternatives Analysis (AA) process, which compared the benefits, costs, and impacts of a range of transit alternatives (modes and routes) to identify which alternative(s) would best meet the needs of the communities as expressed in the AA’s Purpose and Need Statement. Section 2.1.1 of the Draft EIS provides a description of the alternatives that were developed, the results of the analysis, and the alternatives that were dismissed and carried forward for further study. The range of alternatives considered included enhanced bus, bus rapid transit, and light rail, including a range of potential alignments for bus rapid transit and light rail.

The results of the AA laid the foundation for the Project's development and evaluation of alternatives under NEPA, which was initiated in September 2008 when FTA and HCRRA issued their notice of intent to publish an EIS for the Southwest Transitway Project. The Project's scoping process began with FTA and HCRRA's proposal to study the alternatives resulting from the AA within a federal and state EIS. During the scoping process, HCRRA solicited public and agency comments on the range of alternatives to be studied in the EIS. As a result of comments received and additional design development and analysis, HCRRA and FTA modified the range of alternatives to be studied further in the Project's Draft EIS. A description of the Project's scoping process and results is provided in Section 2.1.2 of the Draft EIS.

In May 2010, the Project's AA process was completed with the identification of the LPA and incorporation of the LPA into the 2030 Transportation Policy Plan by the Council. Section 2.1.3 of the Draft EIS provides an overview of the alternatives that were considered within the LPA selection process, how they were evaluated, and the rationale for the identification of the LPA. LRT 3A was identified as the LPA based on the AA's assessment of four evaluation categories: planning compatibility; performance; implementation factors; and critical environmental resources. In summary, HCRRA and the Council found that LRT 3A would best meet the AA's Purpose and Need Statement, as expressed by the goals of improving mobility, providing a cost-effective and efficient travel option, preserving the environment, protecting quality of life and supporting economic development.

The LPA was incorporated within two of the seven alternatives evaluated in the Draft EIS. After publication of the Draft EIS, the Council undertook a process to develop and evaluate potential adjustments to LRT 3A and LRT 3A-1 based on comments received on the Draft EIS. The range of adjustments considered and the measures used by the Council to evaluate them were summarized in a Supplemental Draft EIS.

#### **2.2.1.2 Agency Coordination**

The Council is working closely with the following state and local agencies and jurisdictions as part of the development process for the Project: FTA, the Minnesota Department of Transportation (MnDOT); Minnesota State Historic Preservation Office; Hennepin County; HCRRA; Minneapolis Park and Recreation Board; and the cities of Eden Prairie, Minnetonka, Hopkins, St. Louis Park, Edina, and Minneapolis. The Council has several advisory committees providing input from policymakers, government entities, community groups, businesses, and residents.

FTA, as the Project's lead federal agency, has ensured that the Project completes its federal environmental review process and documentation in compliance with NEPA and related laws. FTA invited the federal STB<sup>9</sup> and the United States Army Corps of Engineers<sup>10</sup> (USACE) to become Cooperating Agencies, in accordance with Title 40 of the Code of Federal Regulations (40 CFR 1508.5).

As documented in the Draft EIS, the STB agreed to become a Cooperating Agency in August 2012 because several alternatives under evaluation at the time would have required STB approval to be implemented. Subsequent to the publication of the Draft EIS, the freight rail modifications to be incorporated into the proposed action can be implemented without the need for NEPA review by STB.<sup>11</sup> As such, FTA and the STB agreed that STB would participate in the Project's NEPA process as a Participating Agency.

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<sup>9</sup> The STB is responsible for ensuring compliance with NEPA and related laws for cases affecting freight rail commerce filed with the agency as per Ex Parte No. 55 [Sub-No. 22 A], (*Implementation of Environmental Laws*, 7 I.C.C 2nd 807, effective September 29, 1991).

<sup>10</sup> The USACE is responsible for implementing NEPA and related laws and Section 404 of the Clean Water Act (CWA).

<sup>11</sup> The Council proposes to purchase the Bass Lake Spur from CP Railway, which will require the completion of an administrative process with the STB. Completion of the STB process and subsequent purchase would not constitute an abandonment action with the STB. Instead, the administrative process with the STB would consist of three filings with STB as summarized in Section 2.1.1.1.H, and that process can be implemented without the need for NEPA review by STB.

The USACE agreed to become a Cooperating Agency in July 2013.<sup>12</sup> (See Appendix E, Agency Coordination Letters, of the Supplemental Draft EIS for documentation related to the two agencies' current status.) To streamline environmental permitting, FTA and USACE are implementing a merger process between the NEPA and Clean Water Act (CWA) Section 404 permitting processes (referred to as the "NEPA/404 merger process" or "merger process"). This merger process enables coordination between FTA and USACE during preparation of the EIS, which allows the USACE to satisfy the requirements of NEPA and the CWA concurrently. The NEPA/404 merger process is structured around four sequential concurrence points at key milestones during Project development: (1) Project Purpose and Need, (2) Array of Alternatives and Alternatives Carried Forward, (3) Identification of the Selected Alternative, and (4) Engineering Phase Impact Mitigation. FTA and USACE agreement at these milestones will facilitate the issuance of a CWA Section 404 permit. Within the third milestone of the merger process, the USACE identifies the Least Environmentally Damaging and Practicable Alternative (LEDPA) from among those that meet the USACE's overall project purpose to determine whether the preferred alternative is likely to be permissible under the CWA.

The USACE must determine whether the Southwest LRT Project complies with the Clean Water Act Section 404(b)(1) Guidelines (Guidelines) (40 CFR Part 320). The Guidelines specifically require that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences" (40 CFR § 230.10(a)). Per the Guidelines, a practicable alternative is defined as available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall Project purpose.

On December 20, 2012, the USACE commented on the Project's Draft EIS (see Appendix L). Within those comments, the USACE noted the following: (1) a suggested overall Project purpose for the 404 permit process of "to provide high-capacity transit service in the Southwest Transitway study area," which is reflected in Chapter 1 of the Supplemental Draft EIS; (2) "the Corps concurs with the array of alternatives considered for this Project as well as the alternatives that were carried forward in the DEIS;" and (3) "as proposed [in the Draft EIS] the chosen LPA, alternative LRT 3A, would not qualify as the LEDPA..., which as proposed would be alternative LRT 3A-1 (co-location)." In response to the USACE's comment on the LEDPA, and in compliance with CWA requirements for the analysis of practicable alternatives that would avoid or minimize wetland impacts, the Council included both relocation and co-location designs as it developed and evaluated potential design adjustments for the LPA, utilizing the process described in Sections 2.3 and 2.4 of the Supplemental Draft EIS. The results of those design adjustments are documented in the NEPA/404 Merger Process – Southwest LRT Concurrence Points Package, which was submitted to the USACE by the Council on May 5, 2014 (Council, 2014). The Concurrence Points Package addressed Concurrence Points 1-3. The Concurrence Points Package notes the following: "The project scope as identified by the Council on April 9, 2014, which would retain existing freight rail service in the Kenilworth Corridor, is consistent with USACE's comment letter from December 20, 2012, stating that LRT 3A-1, which would also have retained existing freight rail service in the Kenilworth Corridor, meets the USACE project purpose and has the least amount of impact to aquatic resources ..." (page 5). LRT 3A-1 was advanced based on USACE's identification of LRT 3A-1 as the LEDPA. As previously noted, the USACE, based on its review of the May 2014 Concurrence Package, again made the preliminary determination that LRT 3A-1 remains the Project's LEDPA.

Concurrence Point 4 was submitted to the USACE on August 26, 2015. The fourth Concurrence Point milestone included a comprehensive description of the design minimization efforts for each aquatic resource

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<sup>12</sup> The roles and responsibilities of cooperating and participating agencies are similar, but cooperating agencies have a higher degree of authority, responsibility, and involvement in the environmental review process. A distinguishing feature of a cooperating agency is that the CEQ regulations (40 CFR § 1506.3) permit a cooperating agency to "adopt without recirculation of the environmental impact statement of a lead agency when, after an independent review of the statement, the cooperating agency concludes that its comments and suggestions have been satisfied." This provision is particularly important to permitting agencies, such as the U.S. Army Corps of Engineers, who, as cooperating agencies, routinely adopt USDOT environmental documents.

located within the wetland study area. The USACE provided concurrence to the fourth and final milestone on October 14, 2015. Documentation of USACE concurrence with each milestone can be found in Appendix N.

Upon receiving concurrence to the fourth milestone, the Council submitted the Section 404 CWA permit application to the USACE on November 13, 2015. This application included the following items: (1) applicant and site location information; (2) a detailed summary of impacted aquatic resources; (3) supporting information for activities not requiring mitigation; (4) a detailed description of the Council's avoidance and minimization efforts; and (5) a summary of the replacement/compensatory mitigation that will be provided for this Project. The public notice period for this permit application is complete and the USACE is currently in the process of completing their review of the application. The Section 404 CWA permit will be issued prior to construction of the Project. Instructions on how to access this permit application can be found in Appendix D.

For the Project's Alternatives Analysis, scoping and Draft EIS, HCRRA served as the Project's local lead agency; upon the close of the Draft EIS comment period on December 31, 2012, the Council assumed responsibility from HCRRA as the local lead agency for continuation of the environmental process. At that time, the Project's name was changed from the Southwest Transitway Project to the Southwest Light Rail Transit (METRO Green Line Extension) Project (Southwest LRT). The Council also continued activities related to FTA's Project Development process (formerly referred to as Preliminary Engineering), including the development, evaluation, and identification of design adjustments to LRT 3A and LRT 3A-1 based on comments received on the Draft EIS. The Council was also responsible for expanding the level of engineering needed on the LPA to prepare the Final EIS and to complete the Project Development process.

The design adjustment process implemented since completion of the Draft EIS was supported by the Project's Technical Project Advisory Committee (TPAC), which is composed of staff from MnDOT, the Council's Metro Transit Operations Division and affected local jurisdictions. Elected officials of the corridor cities and Hennepin County, MnDOT, and the Council, and a representative from the Project's Community Advisory Committee (CAC) serve on the Project's CMC, which advises the Council on project-related issues.

The Project's ongoing engagement and communication with the affected public has been a fundamental element of planning for the Southwest LRT Project, including the design adjustment process implemented since completion of the Draft EIS public comment period. Community representatives serve on the Project's Business Advisory Committee (BAC) and CAC, which provide input and recommendations to the CMC, including design adjustments developed and evaluated since publication of the Draft EIS. Meetings with the public have been tailored to present information and solicit feedback on specific project issues. Chapter 9 provides additional detail on the Project's public involvement process and activities and it provides additional information on the makeup of the CAC and BAC.

On March 31, 2014, Council staff released a draft recommendation of the design adjustments to be incorporated into the proposed Project. Following receipt of public comment on those recommendations at its meeting on April 2, 2014, the CMC adopted a resolution recommending the design adjustments to be incorporated into the proposed Project's scope and budget. On April 9, 2014, the Council identified the adjustments to be incorporated into the proposed Project. The Council's action was based on its consideration of the technical analysis of the range of potential design adjustments to the proposed Project, as summarized in Section 2.3 of the Supplemental Draft EIS. The Council also considered comments received from the public, agencies, jurisdictions, and committees within the Project's public involvement and agency coordination activities since the close of the Draft EIS public comment period, as summarized in Chapter 4 of the Supplemental Draft EIS, including public testimony received at its meeting on April 9, 2014. On July 9, 2014, the CMC considered additional design adjustments within the City of Minneapolis that were proposed in a memorandum of understanding between the Council and the City of Minneapolis. The CMC endorsed the additional proposed design adjustments, which the Council subsequently approved on July 9, 2014 (Council and City, 2014b) (see Section 2.2.4 for additional detail).

On July 1, 2015 the CMC adopted a resolution recommending additional design modifications to the Council. On July 8, 2015 adopted additional design modifications that reduced project costs by approximately \$205 million (see Section 2.2.5 for additional detail).

The proposed action is included in the *2040 Transportation Policy Plan*, the region's long-range transportation plan; Hennepin County's *2030 Transportation System Plan*, which is part of the Hennepin County *2030 Comprehensive Plan*; and the comprehensive and transportation plans of the local municipalities in the project vicinity.

Additional detail on agency coordination for specific environmental categories is provided within Chapter 3 and Chapter 6, as applicable. Chapter 9 provides a detailed project-wide description of the Council's public involvement and agency coordination activities from the Project's scoping process through to publication of this Final EIS.

### 2.2.2 Alternatives Analysis

This section provides a brief summary of the Southwest LRT Project's Alternatives Analysis (AA) phase. Additional detail on the AA can be found in Section 2.1 of both the Draft EIS and the Supplemental Draft EIS. The Southwest Transitway Alternatives Analysis compared the benefits, costs, and impacts of a range of transit alternatives (different modes and routes) and resulted in the identification of the LPA (known at the time as Alternative 3A). The identified LPA was light rail constructed and operating on the Kenilworth-Opus-Golden Triangle alignment.

#### 2.2.2.1 Alternatives Analysis Study and Report

HCRRA initiated an AA of the Southwest Corridor in 2005 and completed the *Southwest Transitway Alternatives Analysis Report* in 2007. In that study, multiple transportation modes and alignments were evaluated against detailed performance criteria, including ridership, community impacts, environmental impacts, and cost. Table 2.2-1 lists the goals and evaluation measures used to screen alternatives during the AA. Appendix F of this Final EIS provides a copy of Chapter 7, Evaluation, of the AA report, which provides documentation of the detailed measures (including methodologies) used at that time to prepare summary findings for the performance of each alternative relative to each goal. For example, estimates of vehicle miles of travel, emissions, potentially affected natural environment, potentially affected residences, inventory of compact land use at stations for each alternative were prepared and the results were used to characterize the performance of the alternatives relative to the goal of preserving the quality of life. Some of the measures were quantitative, such as ridership estimates, and some were qualitative, such as consistency with regional growth plans. The AA report used the following summary categories for each goal: (1) strongly supports goal; (2) supports goal; and (3) does not support goal. Breakpoints or other methods used to reach those summary findings are also documented in Appendix F of this Final EIS.

Exhibit 2.2-2 presents summary findings from the AA for the build alternatives. Exhibits 2.2-3 to 2.2-5 illustrate the build alternatives evaluated in the AA. In summary, the Southwest Transitway AA included the evaluation of ten Build Alternatives and a conventional bus alternative referred to as the Enhanced Bus Alternative. The eight light rail transit (LRT) alternatives were labeled LRT 1A, 2A, 3A, 4A, 1C, 2C, 3C, and 4C. The bus rapid transit (BRT) alternatives were labeled BRT 1 and 2. The New Starts baseline alternative used for comparison with the Southwest LRT build alternative is a transportation system management (TSM) alternative. For New Starts comparison purposes, the TSM alternative was the Enhanced Bus option.<sup>13</sup> The Enhanced Bus Alternative included two new limited-stop bus routes that would provide bi-directional service between Eden Prairie, Minnetonka, Hopkins, St. Louis Park and downtown Minneapolis. It also would include minor modifications to the existing express bus service, increased service frequencies, and restructured local bus service to provide better access along the limited-stop routes to key areas, including Golden Triangle and downtown Minneapolis.

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<sup>13</sup> Based on the Final Interim Policy Guidance: Federal Transit Administration Capital Investment Grant Program (FTA; August 2015), FTA's New Starts requirements no longer include the development and analysis of a baseline alternative. The baseline alternative has been replaced by FTA with the No Build Alternative for comparative purposes within the New Starts rating process. For additional information on the FTA New Starts program, see <http://www.fta.dot.gov/12304.html>.

TABLE 2.2-1  
SOUTHWEST TRANSITWAY ALTERNATIVES ANALYSIS GOALS AND EVALUATION MEASURES

Goal	Evaluation Measure
Goal 1: Improve Mobility	<ul style="list-style-type: none"> <li>• Project Ridership (2030)</li> <li>• New Transit Riders (2030)</li> <li>• Travel Time Savings (2030)</li> <li>• Transportation Capacity</li> <li>• Travel Time Competitiveness</li> <li>• System Integration</li> <li>• Transit Dependent Populations Served</li> <li>• Jobs and Population Served</li> </ul>
Goal 2: Provide a Cost-Effective and Efficient Travel Option	<ul style="list-style-type: none"> <li>• Capital Cost (2015)</li> <li>• Operating Cost (2015)</li> <li>• Preliminary Cost-Effectiveness Index</li> <li>• Peer City Comparisons</li> <li>• Potential Impact to Street Network</li> </ul>
Goal 3: Protect the Environment	<ul style="list-style-type: none"> <li>• Vehicle Miles of Travel</li> <li>• Emissions</li> <li>• Potentially Affected Natural Environment</li> <li>• Potentially Affected Residences</li> <li>• Inventory of Compact Land Use at Stations</li> </ul>
Goal 4: Preserve the Quality of Life	<ul style="list-style-type: none"> <li>• Anticipated Impact of Vehicle Technology on Property Values</li> <li>• Access to Community Amenities (libraries, parks, trails)</li> <li>• Access to Employment Opportunities for Low-income Households (2030)</li> <li>• Intermodal Connections</li> <li>• Integration and Documentation of Transit-oriented Development (TOD) Opportunities/Plans in Local Comprehensive Plans</li> <li>• Transit Ridership Forecast (2030)</li> <li>• Potential for Intensification of Land Use around Stations</li> <li>• Consistency with Regional Growth Plans</li> <li>• Impact of Park-and-Ride Lots on Existing and Planned Development at Stations</li> <li>• Access to and Accommodation of the Existing and Future Trail System</li> </ul>
Goal 5: Support Economic Development	<ul style="list-style-type: none"> <li>• TOD Potential at Station Locations</li> <li>• Jobs within 1/2-mile of Stations (2030)</li> <li>• Other Activity Generators (schools, medical facilities, entertainment venues, etc.) within 1/2-mile of Stations.</li> <li>• Consistency with Local Comprehensive Plan Goals Regarding Economic Development and Redevelopment at Stations, including Park-and-Ride Sites</li> </ul>

Source: Southwest Transitway Alternatives Analysis Report; HCRRRA, 2007.

EXHIBIT 2.2-2  
Evaluation Results of the Southwest Transitway Alternatives Analysis

Alternatives	Tier 1 Goals			Tier 2 Goals			Recommendation
	Goal 1: Improve Mobility	Goal 2: Provide a Cost-Effective, Efficient Travel Option	Results	Goal 3: Protect the Environment	Goal 4: Preserve and Protect the Quality of Life in the Study Area and Region	Goal 5: Support Economic Development	
<b>Enhanced Bus (Baseline)</b>	Carry forward as Baseline alternative (Required)			Carry forward as Baseline alternative (Required)			Carry forward as Baseline Alternative
<b>BRT 1</b> - Eden Prairie to Minneapolis, HCRRA	●	●	Does not meet Tier 1 Goals; Do not carry forward				
<b>BRT 2<sup>1</sup></b> - Eden Prairie to Minneapolis, Golden Triangle/Opus/TH 169/HCRRA	●	●	Does not meet Tier 1 Goals; Do not carry forward				
<b>LRT 1A</b> - Eden Prairie to Minneapolis, HCRRA/ Kenilworth/ Royalston	⦿	⦿	Meets Tier 1 Goals; Carry Forward to Tier 2	⦿	⦿	⦿	Carry forward for further analysis
<b>LRT 2A<sup>1</sup></b> - Eden Prairie to Minneapolis, I-494/HCRRA /Kenilworth/Royalston	⦿	⦿	Meets Tier 1 Goals; Carry Forward to Tier 2	⦿	⦿	⦿	Other alternatives better meet Tier 2 Goals. Do not carry
<b>LRT 3A<sup>1</sup></b> - Eden Prairie to Minneapolis, Golden Triangle/ Opus/ HCRRA/ Kenilworth/ Royalston	⦿	⦿	Meets Tier 1 Goals; Carry Forward to Tier 2	⦿	⦿	○	Carry forward for further analysis
<b>LRT 4A</b> - Hopkins to Minneapolis, HCRRA/ Kenilworth/ Royalston	●	⦿	Part of full alternative. Do not carry forward				
<b>LRT 1C</b> - Eden Prairie to Minneapolis, HCRRA/ Midtown/ Nicollet	⦿	●	Does not meet Tier 1 Goals; Do not carry forward				
<b>LRT 2C</b> - Eden Prairie to Minneapolis, I-494/ HCRRA/ Midtown/ Nicollet	⦿	●	Does not meet Tier 1 Goals; Do not carry forward				
<b>LRT 3C</b> - Eden Prairie to Minneapolis, Golden Triangle/ Opus/ HCRRA/ Midtown/ Nicollet	⦿	⦿	Meets Tier 1 Goals; Carry Forward to Tier 2	⦿	⦿	○	Carry forward for further analysis
<b>LRT 4C<sup>1</sup></b> - Hopkins to Minneapolis, HCRRA/ Midtown/ Nicollet	●	●	Part of full alternative. Do not carry forward				
<sup>1</sup> Estimated not modeled							
<b>Evaluation Breakpoints</b>							
● Does not support goal				Supports goal on fewer than 4 of 6 measures	Supports goal on fewer than 7 of 10 measures	Supports goal on fewer than 3 of 4 measures	
⦿ Supports goal				Supports goal on 4 of 6 measures	Supports goal on 7 of 10 measures	Supports goal on 3 of 4 measures	
○ Strongly supports goal				Supports goal on all measures	Supports goal on all measures	Supports goal on all measures	
<sup>1</sup> Estimated not Modeled							

Source: Southwest Transitway Alternatives Analysis Final Report, 2007.

The AA evaluation used a two-step evaluation and screening process, using Goals 1 and 2 for the first step and Goals 3, 4, and 5 for the second step. The first step started with ten alternatives that were screened down to four and the second step went from four to three alternatives.

The Enhanced Bus Alternative was also identified during the AA, but it was not evaluated based on the goals because it would be carried forward into the Draft EIS process to serve as the federal New Starts baseline alternative, which was a federal requirement at the time. The two-step evaluation and screening process was based on the evaluation metrics previously described and documented in Appendix F of this Final EIS.

After evaluation and screening within that two-step process, three LRT alternatives, LRT 1A, LRT 3A, and LRT 3C, were recommended to be carried forward for consideration as the LPA. The LRT alternatives satisfied the goals and were deemed at that time to best fit the purpose and need of the Project. All three LRT alternatives would provide a dual LRT guideway with exclusive and semi-exclusive right-of-way (ROW). The LRT alternatives would primarily run at grade (ground level), with the exception of assumed grade separations with state trunk highways and interstate freeways and along LRT 3A and LRT 3C and a shallow cut-and-cover tunnel between the Midtown Corridor and Franklin Avenue in Minneapolis on the LRT 3C Alternative. The Southwest Transitway Project considered potential impacts to critical environmental resources prior to selecting the LPA. The intent of proceeding in that fashion was to ensure consideration of potential impacts to critical environmental resources and allow the public and resource agencies the opportunity to officially comment on the purpose and need for the Project and the proposed alternatives prior to selection of the LPA.

EXHIBIT 2.2-3

"A" Alternatives – 2005 Alternatives Analysis

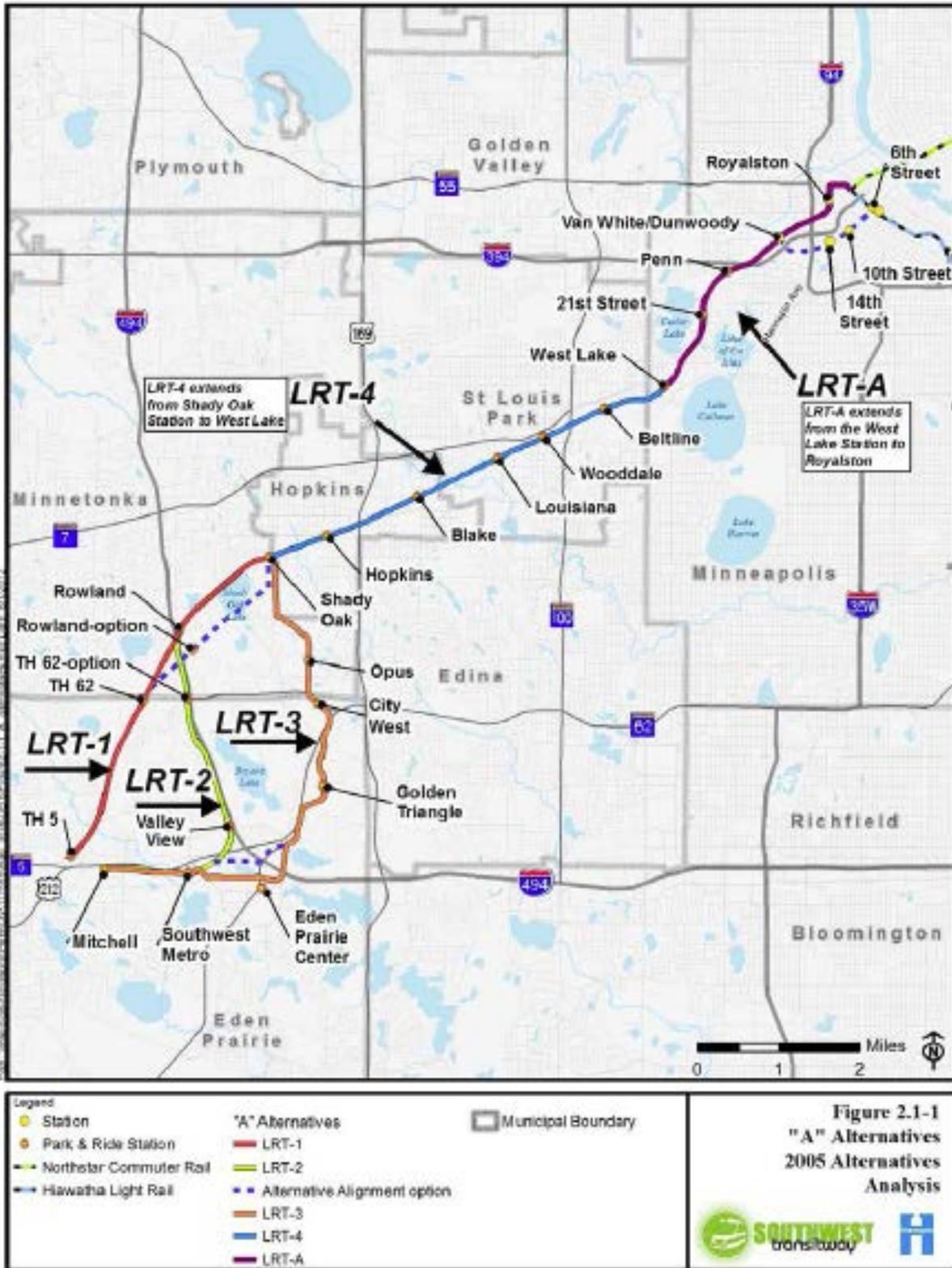
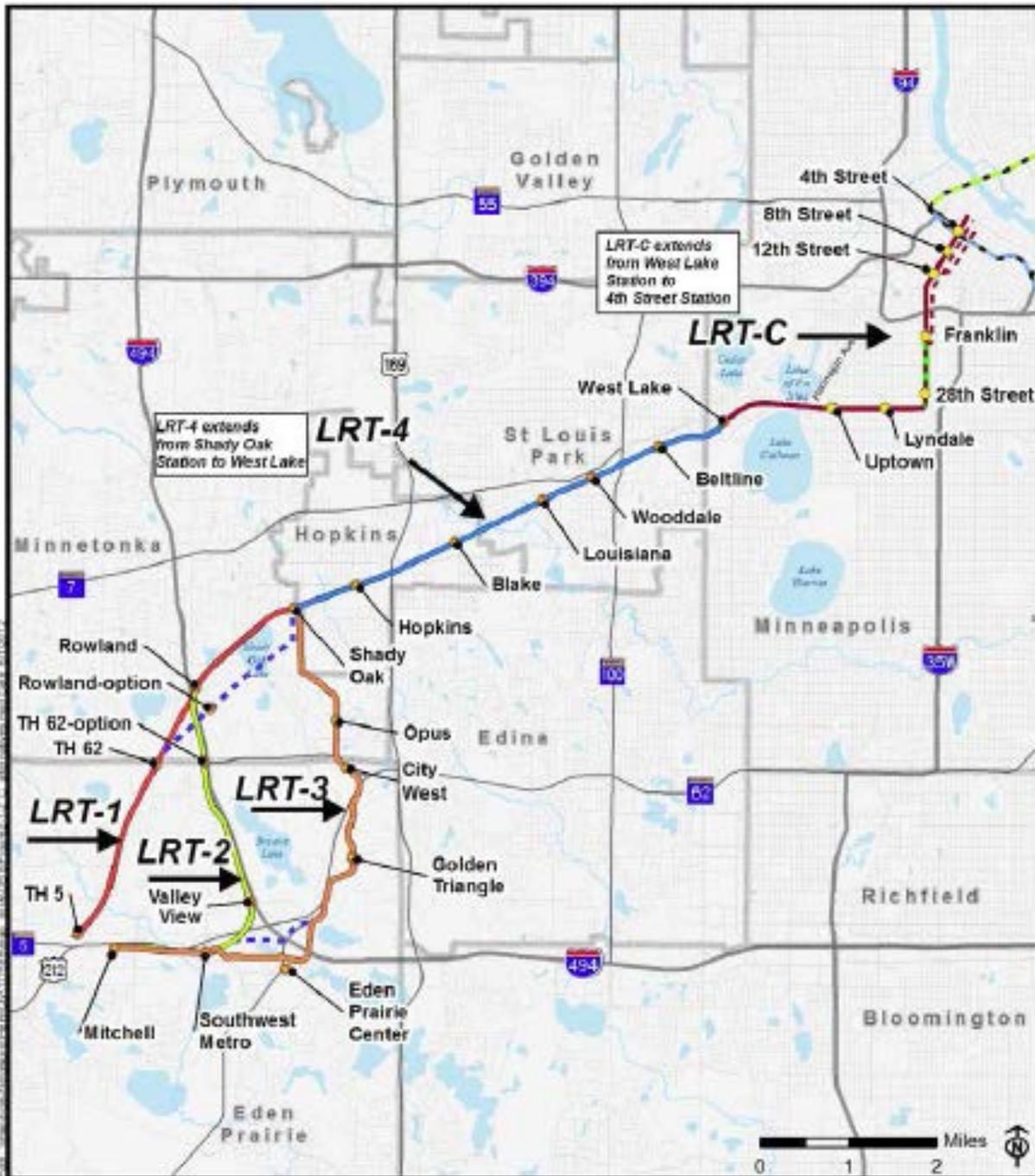


EXHIBIT 2.2-4

"C" Alternatives – 2005 Alternatives Analysis



<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="color: yellow;">●</span> Station</li> <li><span style="color: orange;">●</span> Park &amp; Ride Station</li> <li><span style="color: blue;">—</span> Hiawatha Light Rail</li> <li><span style="color: green;">—</span> Northstar Commuter Rail</li> </ul>	<p><b>"C" Alternatives</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">—</span> LRT-1</li> <li><span style="color: green;">—</span> LRT-2</li> <li><span style="color: orange;">—</span> LRT-3</li> <li><span style="color: blue;">—</span> LRT-4</li> <li><span style="color: blue;">- - -</span> Alternative Alignment option</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: red;">- - -</span> LRT-C</li> <li><span style="color: red;">- - -</span> Downtown alignment options</li> <li><span style="color: green;">—</span> TUNNEL</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Municipal Boundary</li> </ul>	<p><b>Figure 2.1-2</b>  <b>"C" Alternatives</b>  <b>2005 Alternatives</b>  <b>Analysis</b></p>
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EXHIBIT 2.2-5  
 Bus Rapid Transit Alternatives – 2005 Alternatives Analysis

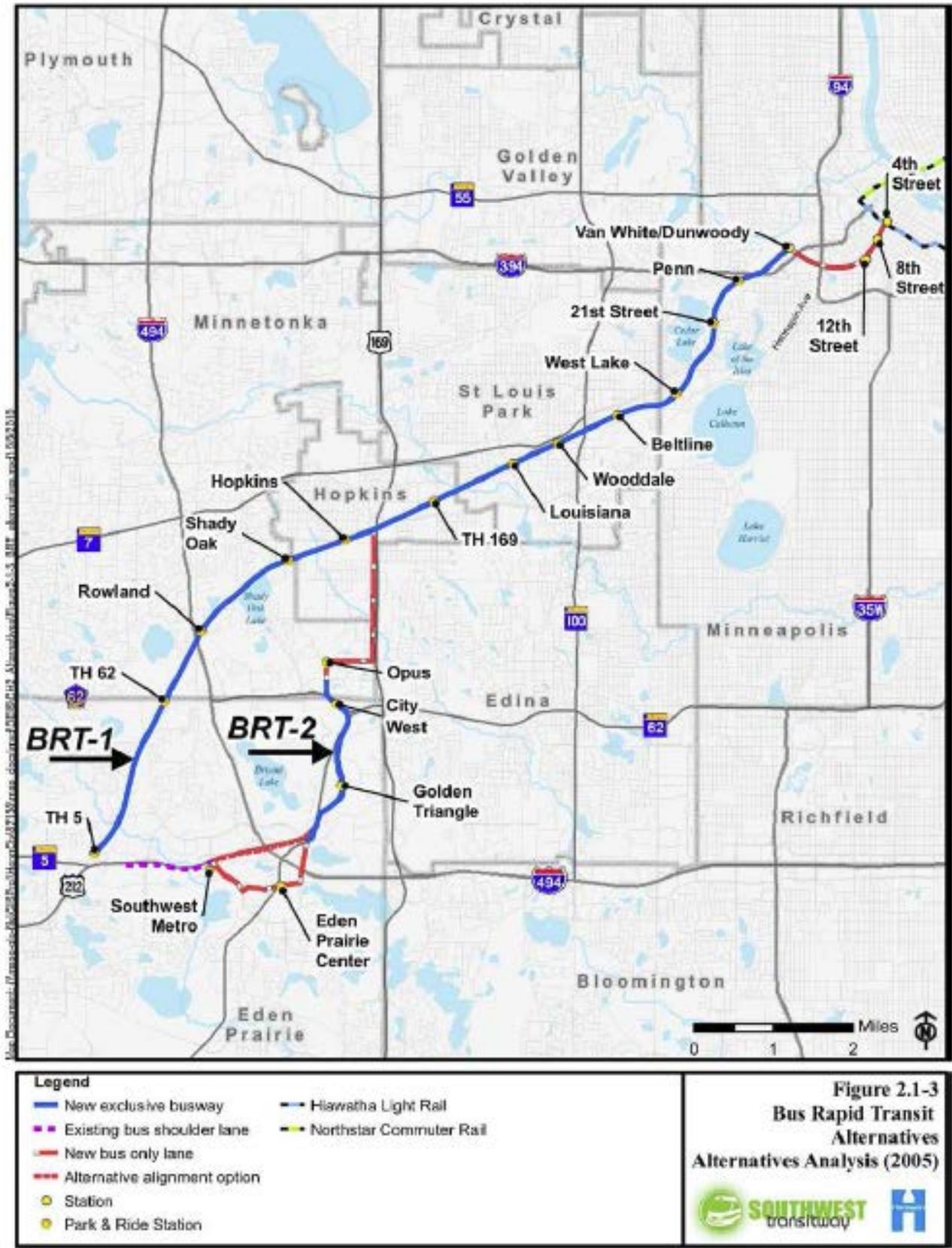


Figure 2.1-3  
 Bus Rapid Transit  
 Alternatives  
 Alternatives Analysis (2005)

**SOUTHWEST** transitway

### 2.2.2.2 Notice of Intent to Publish an Environmental Impact Statement

After completion of the AA process and before identification of the LPA, the Project proceeded under HCRRA in September 2008 with publication of the federal Notice of Intent to Prepare an EIS (FTA, 2008b) and the state Notice of EIS Preparation (Minnesota Environmental Quality Board, 2008). HCRRA began development of NEPA and MEPA documentation with a scoping process, including publication of the *Southwest Transitway Scoping Summary Report* in January 2009 (HCRRA, 2009).<sup>14</sup> The NEPA and MEPA scoping process resulted in the refinement of alternatives for consideration, concluding that five LRT alternatives would be examined in the Draft EIS, along with the Enhanced Bus and No Build alternatives (see 2.2.3 for a description of the Draft EIS process).

### 2.2.2.3 Identification of the Locally Preferred Alternative

This section describes the evaluation and identification of the LPA from the set of alternatives recommended for further study as a result of the AA. The LPA screening evaluation methodology built on information generated during the Southwest Transitway AA process, refining it to reflect updated local comprehensive and transportation plans, refined conceptual engineering plans, and an inventory of potentially affected environmental resources. The screening evaluation included the following four categories:

1. Planning compatibility – defined as the compatibility of the Southwest Transitway LRT alternatives with local and regional plans
2. Performance – defined as ridership, cost effectiveness, and efficiency
3. Implementation Factors – defined as ROW impacts, constructability, impacts to the existing transportation system, and permitting requirements
4. Critical Environment Resources – defined as the presence of cultural, natural, water, and geologic resources; hazardous/regulated materials; and potential noise and vibration impacts.

Exhibit 2.2-6 summarizes the evaluation. These results indicated that the ability of LRT 3A to serve and enhance the planned commercial and mixed use development in the Golden Triangle/Opus area is a significant differentiator. Therefore, LRT 3A was recommended for selection as the LPA because, based on the information at that time, it best met the Southwest Transitway Project's Purpose and Need Statement as expressed by the goals of improving mobility, providing a cost-effective and efficient travel option, preserving the environment, protecting quality of life, and supporting economic development.

#### Planning Compatibility

LRT 1A was determined to be compatible with land use and transportation plans of Minneapolis, St. Louis Park, and Hopkins but was incompatible with comprehensive plans of Minnetonka and Eden Prairie. The LRT 3A Alternative was determined to be compatible with land use and transportation plans in all communities, Hennepin County, and Metropolitan Council transportation plans along their eastern segments. LRT 3C-1 and LRT 3C-2 were determined to be compatible with all local plans except those of Minneapolis.

<sup>16</sup> On September 25, 2012, the HCRRA amended the Southwest Transitway Southwest Scoping Summary Report (which serves as the Scoping Decision Document under MEPA) to include the impacts of relocating freight rail for the four build alternatives and including a collocation alternative where freight rail, light rail and the commuter bike trail collocate, share a common corridor, between Louisiana Avenue and Penn Avenue. The amendment was authorized with approval of Board Action Request 12-HCRRA-0049. Notice of the amendment to the scoping report was issued in the Environmental Quality Board Monitor on October 15, 2012.

EXHIBIT 2.2-6  
Locally Preferred Alternative Summary Evaluation

	Planning Compatibility	Transit System	Ridership	Cost	Implementation Factors	Critical Environmental Resources	Summary
LRT 1A	○	○	○	○	○	○	○
LRT 3A	○	○	○	○	○	○	○
LRT 3C-1 (Nicollet Mall)	●	●	○	●	●	●	●
LRT 3C-2 (11th/12th St.)	●	○	○	●	●	●	●

Source: Southwest Transitway Draft EIS; 2012.

**Performance**

Based on preliminary travel demand modeling, all four LRT alternatives had strong ridership projections and showed travel time benefits over the Enhanced Bus Alternative. Therefore, the selection of the LPA focused primarily on criteria other than ridership. Differences in capital cost was a key differentiator among the alternatives. In 2017 dollars (based on the conceptual designs at that time), LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street) would cost approximately \$500 million more than LRT 3A, and approximately \$800 million more than LRT 1A. The differences in ridership and travel time benefits between the “C” alternatives and the “A” alternatives were determined to be insufficient to offset the greater capital cost and it was determined that the “C” alternatives would be unlikely to qualify for federal funding without major revisions.

The alternatives’ projected performance relative to the existing and future transit service indicated that each would have different benefits and drawbacks. The LRT 1A, LRT 3A, and the LRT 3C-2 (11th/12th Street) alternatives would be capable of fully integrating with both the Hiawatha and Central Corridor LRT lines, while the LRT 3C-1 (Nicollet Mall) Alternative would not. The LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street) alternatives would both provide duplicate transit service to saturated transit markets in the Uptown Minneapolis area. Service duplication has several consequences, including higher operating costs and sub-optimal resource allocation and utilization and reduced transit ridership increases. LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street) could not replace the existing bus service operating in Midtown Corridor because this would be detrimental to the existing service levels and disenfranchise current transit riders. Although LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street) would increase the span and frequency of service in other sections of the corridor, they would operate at a lower service frequency than the current bus service in the Midtown area. The LRT 3C-1 (Nicollet Mall) Alternative would displace all local bus service from Nicollet Mall and disrupt bus operations on alternate streets. Further, it was determined that the LRT 3C-2 (11th/12th Street) alignment in downtown Minneapolis would likely result in efficiency impacts to the Marquette and 2nd Avenue South Transit Project (MARQ2), which was built and opened for operations in late 2009 using funding from the Federal Highway Administration Urban Partnership Agreement (UPA).

Outside of Minneapolis, along the western alignment of the LRT 1A Alternative in Minnetonka and Eden Prairie, the existing service characteristics, land use patterns, and socioeconomic characteristics the analysis indicated that this area would not be a high transit trip generator, and would be unlikely to generate more transit trips in the future. Of the four LRT alternatives, the numbers of people, households, and jobs within a one-half mile radius of the proposed stations was determined to be highest along the LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street) alternatives. Generally, accessibility was determined to be greatest along the three LRT 3 alternatives, aided by connectivity to the major employers and denser residential areas in Minnetonka and Eden Prairie. To summarize, it was determined at that time that may that the “A” alternatives have less interaction with the current transit network, but would be less disruptive to the

current transit network and provide enhanced transit service to areas currently underserved by the network.

### Implementation Factors

The factors, including costs of acquiring ROW, construction complexity, and permitting, were found to favor LRT 1A and LRT 3A over LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street). Simpler construction, fewer ROW acquisitions, and generally simpler permitting requirements would reduce approval and construction schedule risks for LRT 1A and LRT 3A.

### Presence of Critical Environmental Resources

Preliminary review of environmental resources performed at that time indicated that fewer resources would be present along LRT 1A and LRT 3A; therefore, these alternatives would pose less environmental risk than LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street). It was further determined that the “C” alternatives would have a greater number of known historic resources, contaminated properties, and potential noise and vibration receptors than the “A” alternatives.

### Recommendation

The evaluation of alternatives resulted in a recommendation of LRT 3A as the LPA. On October 20, 2009, a public hearing on the recommended LPA was held before the HCRRA. Approximately 30 people testified. On November 3, 2009, the HCRRA Board recommended alternative LRT 3A be selected as the LPA for the Southwest Transitway for inclusion in the Metropolitan Council’s 2030 TPP. This action came as a result of the AA led by HCRRA, as well as the cities along the alignment. A 45-day public comment period for the proposed amendment to the Council’s 2030 Transportation Policy Plan (TPP) selecting LRT on the Kenilworth-Opus-Golden Triangle alignment (Alternative 3A) as the locally preferred alternative (LPA) for the Southwest Transitway was held between March 8th, 2010 and April 22, 2010. A public hearing on the proposed TPP amendment was held before the Metropolitan Council’s Transportation Committee on April 12, 2010. On May 26, 2010, the Metropolitan Council accepted the summary of public comment and adopted the amendment to the 2030 TPP, thereby concluding the AA phase.

#### 2.2.3 Draft Environmental Impact Statement

This section provides a summary of the Southwest LRT Project’s preparation and publication of its Draft EIS. Additional detail on the Draft EIS scoping phases can be found in Section 2.1 of both the Draft EIS and the Supplemental Draft EIS. Section 2.3 of the Draft EIS provides a description of the alternatives evaluated within the Draft EIS. The Draft EIS evaluated five light rail alternatives, as well as the Enhanced Bus Alternative and the No Build Alternative. The Project’s LPA was incorporated into two of the alternatives considered: LRT 3A (Relocation); and LRT 3A-1 (Co-location). The Draft EIS documents the anticipated environmental impacts, costs, and benefits of the alternatives considered. It also includes a draft Section 4(f) Evaluation (addressing the potential use of and impacts to publicly owned parklands, recreation areas, open spaces, and historic and archaeological resources). FTA, Hennepin County and the Council published the Draft EIS in October 2012 and it was the subject of a public comment period that concluded on December 31, 2012.

After completion of scoping and identification of the LPA, the Federal Transit Administration (FTA) determined that the Project’s Draft EIS should address whether to: (1) relocate Twin Cities & Western (TC&W) freight trains currently operating along the Canadian Pacific (CP)-owned Bass Lake Spur and the HCRRA-owned Cedar Lake Junction (locally referred to as the Kenilworth Corridor and referred to as such throughout this Supplemental Draft EIS) to the CP-owned MN&S Spur and BNSF-owned Wayzata Subdivision (included in LRT 1A, LRT 3A, LRT 3C-1, and LRT 3C-2, and referred to as “relocation”); or (2) continue to operate the TC&W freight trains along the Bass Lake Spur and Kenilworth Corridor alongside the proposed light rail alignment and stations (included in No Build Alternative, Enhanced Bus Alternative, and LRT 3A-1, and referred to as “co-location”).

The Draft EIS was subsequently published on October 12, 2012, and the public comment period concluded on December 31, 2012. The Draft EIS examined seven alternatives, including the No Build Alternative, the Enhanced Bus Alternative, and five light rail transit (LRT) alternatives (LRT 1A, LRT 3A, LRT 3A-1, LRT 3C-1,

and LRT 3C-2). These seven alternatives are described in Section 2.3 of the Draft EIS and briefly described below. The LRT build alternatives are illustrated on Exhibit 2.2-7 of this Final EIS, and Section 2.3 of the Draft EIS provides additional detail, in particular, the LRT Build Alternatives are described in Section 2.3.3 of the Draft EIS:

- **The No Build Alternative**, required under the NEPA and MEPA processes, would provide planned and programmed transit facilities and operations identified in the region's fiscally constrained transportation plan (see Section 2.3.1 of the Draft EIS). In summary, the No Build Alternative would provide additional express and local bus service on existing facilities, including operation on the regional network of bus shoulder lanes.
- **The Enhanced Bus Alternative** would provide additional express routes, new limited-stop service, and enhanced bus facilities in Hopkins. Under the Enhanced Bus Alternative, combined bus stops and park-and-ride lots would be located in the vicinity of the intersection of Mitchell Road and Highway 212 and at the existing SouthWest Transit Center. These facilities would be connected to downtown Minneapolis via two new limited-stop bus lines and two existing SouthWest Transit express bus lines. The Enhanced Bus Alternative is described in Section 2.3.2 of the Draft EIS, which includes a description of the alternative's bus service plan and routes.
- **LRT 1A** would include a double-tracked light rail line between Minneapolis and Eden Prairie, generally within HCRRA-owned right-of-way. This alternative would require relocation of existing freight rail operations from a portion of the Bass Lake Spur and the entire Kenilworth Corridor to the MN&S Spur and Wayzata Subdivision. New right-of-way would be required near Penn Avenue to serve the Van White and Royalston stations in Minneapolis before connecting into the METRO Blue Line corridor in downtown Minneapolis and interlining with other LRT service. This alternative would include 14 new light rail stations.
- **LRT 3A**, which included the LPA, would result in a double-tracked light rail line between Minneapolis and Eden Prairie. This alternative would require relocation of existing freight rail operations from a portion of the Bass Lake Spur and the entire Kenilworth Corridor to the MN&S Spur and Wayzata Subdivision. Seventeen light rail stations were included as part of this alternative. Under this alternative, the proposed light rail alignment would run through the Golden Triangle and Opus employment areas in Eden Prairie. In St. Louis Park and Hopkins, the alignment would use HCRRA's Southwest LRT Trail. In Minneapolis, the alignment would use space within the Kenilworth Corridor. Near Penn Avenue, the alternative would require new light rail right-of-way to serve the Van White and Royalston stations in Minneapolis before connecting with the METRO Blue Line in downtown Minneapolis.
- **LRT 3A-1**, which included the same light rail service improvements as LRT 3A, was developed to examine the implications of co-locating the existing freight rail service and multiple-use path with the proposed light rail alignment and stations. LRT 3A-1 includes the same light rail alignment and stations that comprise LRT 3A; however, freight rail service currently operating in the Bass Lake Spur and Kenilworth Corridor would not be relocated.
- **LRT 3C-1** would include a double-tracked LRT line between Minneapolis and Eden Prairie, connecting 20 proposed light rail stations. This alternative would run through the Golden Triangle and Opus employment areas in Eden Prairie. In St. Louis Park and Hopkins, the alignment would use HCRRA's right-of-way. In Minneapolis, the light rail alignment would use space within the Midtown Corridor. The proposed light rail alignment would provide connections to the METRO Blue Line at 5th Street in downtown Minneapolis but would not interline with another LRT line. This alternative would require relocation of existing freight rail operations from a portion of the Bass Lake Spur and the entire Kenilworth Corridor to the MN&S Spur and Wayzata Subdivision.



EXHIBIT 2.2-8

Summary of Evaluation of Alternatives within the Draft Environmental Impact Statement

	No Build	Enhanced Bus	LRT 1A	LRT 3A (LPA)	LRT 3A-1 (Co-location)	LRT 3C-1 (Nicollet Mall)	LRT 3C-2 (11th/12th Street)
<b>Goal 1: Improve Mobility</b>							
	●	●	○	○	○	○	○
<b>Goal 2: Provide a cost-effective, efficient travel option</b>							
	●	○	○	○	○	●	●
<b>Goal 3: Protect the environment</b>							
	○	○	○	○	●	●	●
<b>Goal 4: Preserve and protect the quality of life in the study area and the region</b>							
	○	●	○	○	●	●	●
<b>Goal 5: Support economic development</b>							
	●	●	○	○	○	○	○
<b>Goal 6: Support economically competitive freight rail system</b>							
	●	●	○	○	●	○	○
<b>Overall Performance</b>							
	●	●	○	○	●	●	●

 does not support goal    
  somewhat supports goal    
  supports goal

Source: Southwest Transitway Draft EIS.

In summary, the evaluation in the Draft EIS found that at that time, based on the definition and environmental analysis of the alternatives included in the Draft EIS, that LRT 3A (LPA) would best meet the Southwest Transitway Project’s Purpose and Need Statement (as expressed by the goals of improving mobility, providing a cost-effective and efficient travel option, preserving the environment, protecting quality of life, supporting economic development, and developing and maintaining a balanced and economically competitive multimodal freight system). In addition, LRT 3A (LPA) would minimize construction-related impacts. The implementation of LRT 3A (LPA) would introduce new elements to the Southwest Transitway study area resulting in environmental impacts as presented in the Draft EIS. Further, the evaluation in the Draft EIS found that LRT 3A (LPA) would result in benefits that could not be achieved under the No Build or Enhanced Bus Alternatives (e.g., the introduction of an exclusive transit right-of-way throughout the corridor to reduce transit travel times and increase transit reliability). However, the evaluation in the Draft EIS also found that the benefits associated with those new elements associated with LRT 3A (LPA) could not be achieved without some adverse environmental impacts. Specific effects associated with the freight rail relocation portion of the Southwest Transitway Project are included in Exhibit 2.2-7 and applied at the time not only to LRT 3A (LPA) but also to LRT 1A, LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street). These effects include:

- A slight increase in freight rail traffic along the MN&S Spur resulting in sporadic traffic queues at roadway and freight rail track at-grade crossings
- A slight increase in freight rail traffic along the MN&S Spur resulting in noise impacts of which all severe noise impacts would be mitigated through the institution of a quiet zone

- Potential for additional water resource impacts along the MN&S Spur and the BNSF Wayzata Subdivision
- Potential to encounter more hazardous and regulated materials sites along the MN&S Spur and the BNSF Wayzata Subdivision

The evaluation of alternatives in the Draft EIS found at that time and based on the definition of alternatives and environmental analysis in the Draft EIS that the overall benefits derived from LRT 3A (LPA)—including increased transit ridership and enhanced mobility— would outweigh the potential adverse environmental impacts. Specifically, the Draft EIS evaluation preliminarily found that LRT 3A (LPA) would:

- Improve access and mobility to the jobs and activity centers in the Minneapolis central business district (CBD), as well as along the length of the corridor for reverse-commute trips to the expanding suburban employment centers.
- Provide a competitive, cost-effective travel option that will attract choice riders to the transit system. The competitive travel time for LRT 3A (LPA) is attributed to the diagonal nature of the line compared to the north-south/east-west orientation of the roadway network and to the increasing levels of congestion of the roadway network.
- Provide a travel option that contributes to the quality of life and economic health of the study area and region, enhances access to public service and recreational facilities, and ensures fair distribution of benefits and adverse effects of the Project for the region, communities, and neighborhoods adjacent to the project area.
- Provide a travel option that supports economic development and redevelopment with improved access to transit stations, local sustainable development/redevelopment goals, facilitates more efficient land development patterns and saves infrastructure costs, and accommodates future regional growth in locations consistent with local plans and the potential for increased transit ridership.

#### 2.2.4 Supplemental Draft Environmental Impact Statement

This section describes the Supplemental Draft EIS process and its components. The Supplemental Draft EIS was published on May 22, 2015. The FTA and the Council determined that design adjustments made to the LPA following publication of the Draft EIS had the potential to result in new adverse impacts as described below and needed to be evaluated in a Supplemental Draft EIS.

These design adjustments to LRT 3A and LRT 3A-1 were screened by FTA and the Council to determine whether they individually or collectively warranted evaluation in terms of social, environmental, economic, and transportation impacts under NEPA. The Project team, in coordination with FTA staff, reviewed each of the design adjustments to identify any substantive changes to LRT 3A and LRT 3A-1 not addressed in the Draft EIS. The review was based on NEPA and MEPA environmental review procedures to determine whether Project adjustments were substantial enough to warrant detailed study in the Supplemental Draft EIS (40 CFR 1502.9(c) and Minn. R. 4410.3000, subparts 3 and 5, respectively). During this process, the design adjustments were reviewed and screened based on the following questions:

- Do the design adjustments under evaluation introduce new alternatives not identified in the Draft EIS that meet the Project's purpose and need?
- Would the design adjustments likely cause new significant adverse impacts not disclosed in the Draft EIS?

Based on this assessment of adjustments made to LRT 3A and LRT 3A-1 since publication of the Draft EIS, FTA and the Council determined that there were no new reasonable alternatives identified through the design adjustment process that would meet the Project's Purpose and Need (see Chapter 1 of the Supplemental Draft EIS); however, because of the potential for new significant adverse impacts in the Eden Prairie Segment, the Hopkins OMF, and the St. Louis Park/Minneapolis Segment that were not addressed in the Draft EIS, FTA and the Council also determined that the proposed adjustments in these areas should be evaluated in a Supplemental Draft EIS. The design changes are shown in Exhibit 2.2-9 and include:

- **Eden Prairie Segment** - In general, the proposed light rail alignment and western and eastern stations in the Eden Prairie Segment were adjusted south to provide better connections to local activity centers, while avoiding or minimizing adverse impacts. The Eden Prairie Segment generally extends between just west of the intersection of Technology Drive and Mitchell Road, and just east of the intersection of Flying Cloud Drive and Valley View Road, as illustrated on Exhibit 2.2-10.
- **Proposed Hopkins Operations and Maintenance Facility (OMF) in Hopkins** - The Project includes a proposed OMF in the City of Hopkins, which was not one of the four potential OMF sites identified in the Draft EIS. The proposed Hopkins OMF would be within an existing office warehouse and light manufacturing development. It would occupy an approximately 15-acre site southwest of the intersection of 5th Street South and 15th Avenue South. In general, light maintenance activities and the storage of vehicles not in service would occur within enclosed structures, although some maintenance activities (such as moving vehicles) would occur outside of buildings. In general, the OMF site would be in operation 24 hours a day, 365 days a year.
- **St. Louis Park/Minneapolis Segment** - In the St. Louis Park/Minneapolis Segment, the LPA was adjusted to include the following:
  - A proposed light rail tunnel in the Kenilworth Corridor (generally between West Lake Street and the Kenilworth Lagoon)
  - Retention of existing freight rail service in the Kenilworth Corridor, with some modification to freight rail tracks to accommodate light rail
  - Adjustments to the location and capacity of proposed park-and-ride lots

These two segments and the OMF site are illustrated on Exhibit 2.2-11. Appendix F provides a detailed description of the design adjustment process, including descriptions of the design adjustments developed, evaluated, and screened.

New environmental impacts were detailed in Chapter 3 of the Supplemental Draft EIS for the following three areas: the Eden Prairie Segment, the Hopkins OMF, and the St. Louis Park/Minneapolis Segment. As noted in Section 2.5 of the Supplemental Draft EIS, the findings reached in the design adjustment process that occurred after publication of the Draft EIS led to adjustments to the Locally Preferred Alternative that would retain freight rail in the Kenilworth Corridor (LRT 3A-1). The Supplemental Draft EIS noted that, compared to the relocation of freight rail (LRT 3A), the co-location of freight rail and light rail in the Kenilworth Corridor (LRT 3A-1) would:

- Result in less harm to Section 4(f)-protected properties (compared to the displacement of the Park Spanish Immersion School playground with freight rail relocation)
- Permanently displace approximately six fewer acres of wetland
- Avoid the displacement of residents and businesses in St. Louis Park and Minneapolis (compared to the full acquisition of approximately 32 residential, commercial, and institutional parcels under freight rail relocation)
- Minimize the reconstruction of freight rail tracks and related adverse impacts
- Include the Southerly Connector replacing the Skunk Hollow switching wye that will facilitate freight rail movements
- Include design refinements that will help avoid diminishing the potential for TOD around light rail stations in close proximity of freight rail tracks
- Provide safe and convenient pedestrian crossings of freight rail tracks at the proposed Wooddale, Beltline, and 21st Street stations

Include bicycle and pedestrian improvements and the study of potential traffic-related improvements that will improve access to light rail stations and across the light rail and freight rail alignment in the Kenilworth



EXHIBIT 2.2-10  
Project Overview Eden Prairie Segment





Corridor (compared to the construction of a berm for the freight rail alignment in St. Louis Park that would tend to divide a residential and commercial neighborhood)

Following is a summary of the design adjustments evaluated within the Supplemental Draft EIS (see also Appendix F for additional detail).

#### **2.2.4.1 Eden Prairie Segment**

The Supplemental Draft EIS considered a wide range of design adjustments to respond to comments and concerns submitted by the City of Eden Prairie and others to minimize impacts, increase transit ridership, and reduce Project costs (see Exhibit 2.2-10 and Appendix F). The Project team undertook a three-step evaluation process to consider engineering and design adjustments.

Post-evaluation, the Council approved the following adjustments to be incorporated into the LPA:

- Combine the Comprehensive Plan and Singletree Lane alignments. Retain the Technology Drive alignment in the West subsegment, which moves the western terminus station from immediately south of Highway 212 west of Mitchell Road to immediately south of Technology Drive west of Mitchell Road.
- Retain the Comprehensive Plan alignment adjustment in the East subsegment and dismiss the Singletree Lane alignment adjustment.
- In the West subsegment, the team concluded that the Technology Drive alignment would provide better placement of the Mitchell Station relative to existing and planned development. In the East subsegment, relative to the Singletree alignment, the team concluded that the Comprehensive Plan alignment adjustment would result in fewer potential traffic conflicts and fewer property acquisitions and business displacements.

#### **2.2.4.2 Operations and Maintenance Facility**

The Draft EIS noted that the light rail alternatives would need an OMF for light vehicle maintenance, running repairs for the LRVs, and storage of vehicles not in service. The Draft EIS listed the preferred characteristics for an OMF site, and identified 14 sites that met the Project's requirements. Four of the sites were carried forward and fully evaluated in the Draft EIS. Following the publication of the Draft EIS, the Council determined that additional sites should be identified and evaluated.

The Supplemental Draft EIS detailed the process of identifying approximately 30 additional sites in an initial evaluation phase, and narrowing the list based on criteria to seven OMF sites (see Appendix F for an illustration of those sites). The remaining seven underwent an operational analysis and public and jurisdictional review, narrowing the site to two prospects.

A fourth step evaluation identified the Hopkins OMF 9A as the OMF to be incorporated into the Project (see Exhibit 2.2-9). It was determined that the incorporation of the Hopkins OMF should result in improved out-of-service operations and operating cost savings due to its relatively central location on the proposed light rail line.

#### **2.2.4.3 St. Louis Park/ Minneapolis Segment**

Design adjustments to the St. Louis Park/Minneapolis Segment in the Supplemental Draft EIS (see Exhibit 2.2-11) dealt with two adjustments, the first regarding freight operations and the second regarding light rail alignments.

The freight-focused design adjustments focused on whether the Project should include the relocation of TC&W freight trains currently operating along the Bass Lake Spur and Kenilworth Corridor to sections of the MN&S Spur and Wayzata Subdivision (LRT 3A); or the continued operation of TC&W freight trains along the Bass Lake Spur and Kenilworth Corridor (LRT 3A-1). The four-step evaluation concluded with the Council identifying the Shallow LRT Tunnels – Over Kenilworth Lagoon as the preferred design change. The Council found that, relative to the other options considered, the Shallow LRT Tunnels – Over Kenilworth Lagoon adjustment provided the best balance of costs, benefits, and environmental impacts, and in doing so found that it best met the Project's Purpose and Need.

As described in Appendix F, the fourth step of the design adjustment process for the St. Louis Park/Minneapolis Segment was initiated by responding to a request from the Governor of Minnesota. This first component of the fourth step involved the preparation of the independently-prepared *SWLRT Engineering Evaluation of Freight Rail Relocation Alternatives* (TranSystems, 2014).<sup>16</sup> As requested by the Governor, the purpose of the independent study commissioned by the Council was to provide a comprehensive analysis of prior freight rail relocation designs that would provide for the rerouting of TC&W freight rail trains out of the Kenilworth Corridor and identification of new design adjustments or concepts. In particular, the study consisted of an analysis of the technical, safety, and operational considerations of eight options that would allow for the rerouting of TC&W freight trains that were developed in prior freight rail studies and two additional concepts developed by the Southwest LRT Project Office (SPO) during the first step of the four-step evaluation process. The scope of the analysis generally covered the following: identification of operational cost drivers; identification of community and other impacts; and assessment of possible operational adjustments.

In summary, the independent report includes the following (see Appendix F for illustrations of the referenced freight rail alignments):

1. The study finds that five of the freight rail relocation options evaluated are “fatally flawed” for a variety of reasons, primarily related to an assessment showing that the affected freight rail operators would not find them acceptable due to economic, operations, or safety concerns. As such, the report does not recommend any additional study of those five options.
2. In addition, the independent report does not recommend further study of two other freight rail options that it evaluated, primarily due to significant impediments to their implementation. The final report finds that, while the Brunswick Central alignment was acceptable to the affected freight rail operator from an operational, economic, and safety perspective, it was dismissed from further study (in step three of the evaluation) due to its wide range of adverse impacts. The final report also finds that an option termed the MN&S South, which would connect the Bass Lake Spur south to the MN&S Spur, might be able to be designed to meet engineering standards, but that it “would face severe obstacles with respect to property acquisition and permitting...” (TranSystems, 2014; page 34). Finally, due to several identified implementation challenges, the report does not recommend further study of the Midtown Corridor. The identified challenges include: likely “significant” capital costs; the corridor is listed on the National Register of Historic Places and two bridges on the alignment are on park land; and it may “complicate or thwart plans for a streetcar in the corridor.”

The independent study by TranSystems also resulted in the identification of an additional freight rail relocation alignment in the vicinity of St. Louis Park High School that could potentially accommodate the relocation of freight rail from the Kenilworth Corridor to the MN&S Spur and the Wayzata Subdivision. The report recommends that this design adjustment receive further consideration by the Council. This freight rail modification design adjustment, which has many similarities to other options previously developed and considered by the Council, was termed the MN&S North design adjustment.

In considering the MN&S North design adjustment described within the independent report, the Council dismissed MN&S North adjustments from further study based on the following findings. First, the MN&S North adjustments were opposed by the affected freight rail operator (TC&W), primarily based on safety and operational concerns, including three reversing curves in the proposed freight rail alignment that would be especially problematic (the operator did not express similar concerns about the Shallow LRT Tunnels – Over Kenilworth Lagoon adjustment). Second, the advantage of the Shallow LRT Tunnels – Over Kenilworth Lagoon, relative to the MN&S North adjustment, is that it would avoid the following: the potential displacement of approximately six residences and seven businesses; the acquisition of some St. Louis Park

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<sup>16</sup> The report was funded by the Council and the Council submitted comments on the draft report during its public comment period. However, the report was independently prepared by TranSystems and the Council did not have editorial control over the report. See Appendix D for details on how to access the final report.

High School property; additional cost increases due to project delay of approximately \$45 to \$50 million; closure of local streets; and extension of the project's construction schedule by up to two years.<sup>17</sup>

In July 2014, the Council and the City of Minneapolis proposed a set of additional adjustments to the design of the Shallow LRT Tunnels – Over Kenilworth Lagoon option. The proposed additional design adjustments were outlined in a memorandum of understanding between the Council and the City, and approved by the Council. The additional design elements reduce Project capital costs by eliminating the northern of the two proposed light rail tunnels in the Kenilworth Corridor, and incorporate a variety of bicycle and pedestrian improvements associated with proposed light rail stations in the City of Minneapolis.

### 2.2.5 Design Adjustments After Publication of the Supplemental Draft EIS

Since the completion of the Supplemental Draft EIS in 2015, the Council advanced the level of design detail for the Project. This additional level of design detail resulted in better understanding of the Project design, impacts, and avoidance, minimization, and mitigation measures. Changes to the design were made to better avoid impacts, integrate mitigation measures, and allow for cost reductions associated with the Project. On April 27, 2015, the Council released a revised Project cost estimate of approximately \$1.994 billion – an approximately \$341 million increase over the year-of-expenditure budget. The additional costs were primarily related to poor ground conditions along the proposed Southwest light rail line, soil contamination in St. Louis Park and Hopkins, Project delays due to additional studies, and property acquisitions and relocations.

To address the revised Project cost estimate, the Council's CMC and Project staff developed and evaluated a variety of options, in consultation with the Project's local participating jurisdictions. The evaluation of options focused on three key criteria: cost savings incurred; Project ridership; local jurisdiction consensus. CMC meetings held on May 20, June 3, June 24, and July 1, 2015, included review, discussion, and evaluation of the various options developed, which resulted in a recommendation by the CMC to the Council on July 1, 2015.<sup>18</sup> Related recommendations to the Council were also adopted by the BAC and CAC on June 17 and June 30, 2015, respectively.

On July 8, 2015, the Metropolitan Council adopted design adjustments to address the increased cost estimates. In doing so, the Council considered recommendations from the CMC, BAC, and CAC. In summary, the Council identified \$250 million in reductions to the Project's scope and budget. The reductions in the Project's scope included: the elimination of the Mitchell Station (which was identified as an option in the Supplemental Draft EIS) and deferral of the Eden Prairie Town Center Station (until after 2020 and before 2040); the reduction of five new light rail vehicles; the reduction of park-and-ride capacity from 3,834 spaces to 2,487 spaces; the reduction in the size of the proposed Hopkins OMF (with future expansion capacity on-site); elimination of station artwork; and reductions in landscaping and off-platform station furnishings. The identified cost savings measures were identified, developed, and analyzed in consultation with the Project's local participating agencies. In addition to the reductions in scope and budget, the Council committed to seek approximately \$90 million in additional funds to cover the remaining short-fall. Section 2.3 includes the current base-year capital cost estimates for the LPA, LRCIs, and the Project – similar year-of-expenditure capital costs are summarized in Chapter 7, including the Project's revised capital finance plan.

## 2.3 Capital Cost Estimates

This section provides capital cost estimates for the Project, including the LPA and LRCIs. Capital costs for operations and maintenance associated with the Project are included in Section 2.4. This chapter uses 2016

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<sup>17</sup> Approximately one year of the anticipated delay is for the pursuit of an adverse abandonment with the STB for existing freight rail service on the CP-owned Bass Lake Spur, east of the MN&S Spur, and the HCRRA-owned Kenilworth Corridor. The outcome and actual duration of this process would remain uncertain until conclusion of the process. Approval by STB could require TC&W and CP to cease freight rail operations in the Kenilworth Corridor and relocate those operations from the current location.

<sup>18</sup> For a record of the CMC's meeting agendas, minutes, and presentation material see <http://www.metrocouncil.org/Transportation/Projects/Current-Projects/Southwest-LRT/SWLRT-Committees/Corridor-Management-Committee.aspx>.

dollars. Chapter 7 of this Final EIS provides capital cost estimates in year-of-expenditure dollars, which include escalation of costs due to inflation and financing costs.

The capital cost estimate (using 2016 dollars and excluding finance charges) for the LPA is approximately \$1.711 billion. This estimate includes the full cost of capital improvements based on the Project's operating plan for 2040. Capital cost estimates are based on preliminary engineering plans for the Project (see Appendix E), including the purchase of 27 additional LRVs (adding 24 vehicles into service and three vehicles as spares). Table 2.3-1 includes LPA cost estimate details.

TABLE 2.3-1

Base-Year Capital Cost Estimates of the LPA, by FTA Standard Cost Category (Base Year in 2016 Dollars, in Millions)<sup>a</sup>

FTA Standard Cost Category	Base Year Costs (millions)
Guideway and Track Elements	\$365.504
Stations, Stops, Terminals, Intermodal	\$66.192
Support Facilities: Yards, Shops, Administration Buildings	\$84.647
Sitework and Special Conditions	\$165.712
Systems	\$220.898
Right-of-Way, Land, Existing Improvements	\$206.580
Vehicles	\$117.219
Professional Services	\$273.009
Unallocated Contingency	\$159.834
Finance	\$51.634
<b>Total</b>	<b>\$1,711.229</b>

<sup>a</sup> Does not include LRCIs.  
Council (2016).

The cost estimate (using 2016 dollars) for the LRCIs is \$28.61 million. This estimate includes LRCIs in Eden Prairie, Minnetonka, Hopkins, St. Louis Park, and Hennepin County. Table 2.3-2 includes LRCI cost estimate details.

TABLE 2.3-2

Base-Year Capital Cost Estimates for Locally Requested Capital Investments (Base Year in 2016 Dollars, in Thousands)

Jurisdiction / Locally Requested Capital Investments	Base Year Costs (thousands)
<b>Eden Prairie</b>	
LRCI #1 N-S Roadway	\$1,984
LRCI #2 Trail from Golden Triangle Station	\$1,021
LRCI #3 SouthWest Station Trail	\$1,223
LRCI #4 Catenary Poles	\$793
LRCI #5 Decorative Street Lighting	\$136
LRCI #6 Decorative Fencing and Bridge Railing	\$1,708
LRCI #7 Planter Boxes	\$415
LRCI #8 Bridge Aesthetics Upgrade	\$1,947
LRCI #9 Embedded Track	\$611
LRCI #10 Public Plaza at Stations	\$1,278
LRCI #11 Technology Drive Extension	\$128
<b>Minnetonka</b>	
LRCI #12 Extension of 17th Avenue	\$477
LRCI #13 Guideway Profile Adjustment	\$1,552
<b>Hopkins</b>	
LRCI #14 17th Avenue Water Main and Sewer	\$142
<b>St. Louis Park</b>	
LRCI #17 Xenwood Avenue Underpass	\$4,837

Jurisdiction / Locally Requested Capital Investments	Base Year Costs (thousands)
LRCI #32 Beltline Blvd/CSAH 25 Improvements	\$1,301
<b>Hennepin County</b>	
LRCI #26 New Trail between LRT Tracks and CSAH 61	\$1,655
LRCI #27 Fiber Optic Cable	\$7,404
<b>Total</b>	<b>\$28,613<sup>a</sup></b>

Source: Council, LRCI cost estimates, September 2015.

## 2.4 Operations and Maintenance Cost Estimates

This section provides annual systemwide operation and maintenance cost estimates for the Project, including Metro Transit light rail, bus, paratransit, and Northstar; and SouthWest Transit bus, operations and maintenance. Chapter 7 of this Final EIS provides operating and maintenance cost estimates in year-of-expenditure dollars.

The cost estimate (using 2016 dollars) for annual systemwide operations and maintenance costs for the Project in year 2040 is \$700.10 million. This is \$39.45 million more than the No Build Alternative cost estimate in year 2040. The operations and maintenance cost estimates are based on the transit system described in Section 2.1, Definition of Alternatives, and are based on the proposed purchase of 27 additional LRVs (adding 24 LRVs into service and three LRVs as spares). Table 2.4-1 includes annual systemwide operations and maintenance cost estimate details.

TABLE 2.4-1

Annual Systemwide Operations and Maintenance Costs in 2040: No-Build Alternative and LPA (2016 dollars, in millions)<sup>a</sup>

Operator/Operating and Maintenance Cost Category	No-Build Alternative	LPA
<b>Metro Transit/MTS<sup>19</sup></b>		
Light Rail	\$89.370	\$116.861
Bus	\$465.459	\$467.762
Northstar	\$18.935	\$18.935
Paratransit (Metro Mobility & Transit Link)	\$69.985	\$69.985
Subtotal	\$643.749	\$673.543
<b>SouthWest Transit</b>		
Bus	\$17.796	\$27.454
Subtotal	\$17.796	\$27.454
<b>Systemwide</b>		
Total (all modes)	\$661.545	\$700.997

<sup>a</sup> Including the METRO Blue Line extension and the METRO Orange Line (bus rapid transit).

Source: Southwest LRT Technical Report, Financial Analysis in Support of the Final EIS, August 2015.

<sup>19</sup> Includes all other Twin Cities opt-out providers.