

2.0 ALTERNATIVES CONSIDERED

This chapter describes the transit alternatives considered for providing **high-capacity transit** service in the Southwest Transitway study area and those alternatives advanced for further study.

This chapter provides a summary of the Southwest Transitway's project development process leading to the selection of the locally preferred alternative (LPA) for the purpose of state and local planning requirements and to advance the project in the federal New Starts process. The initial discussion in this chapter focuses on the general planning context used in the 2007 Southwest Transitway Alternatives Analysis (AA), the alternatives identified during the National Environmental Policy Act (NEPA) and /Minnesota Environmental Policy Act (MEPA) scoping process, and subsequent selection of an LPA for the Southwest Transitway project. The balance of this chapter presents a description of the alternatives included in this Draft EIS.

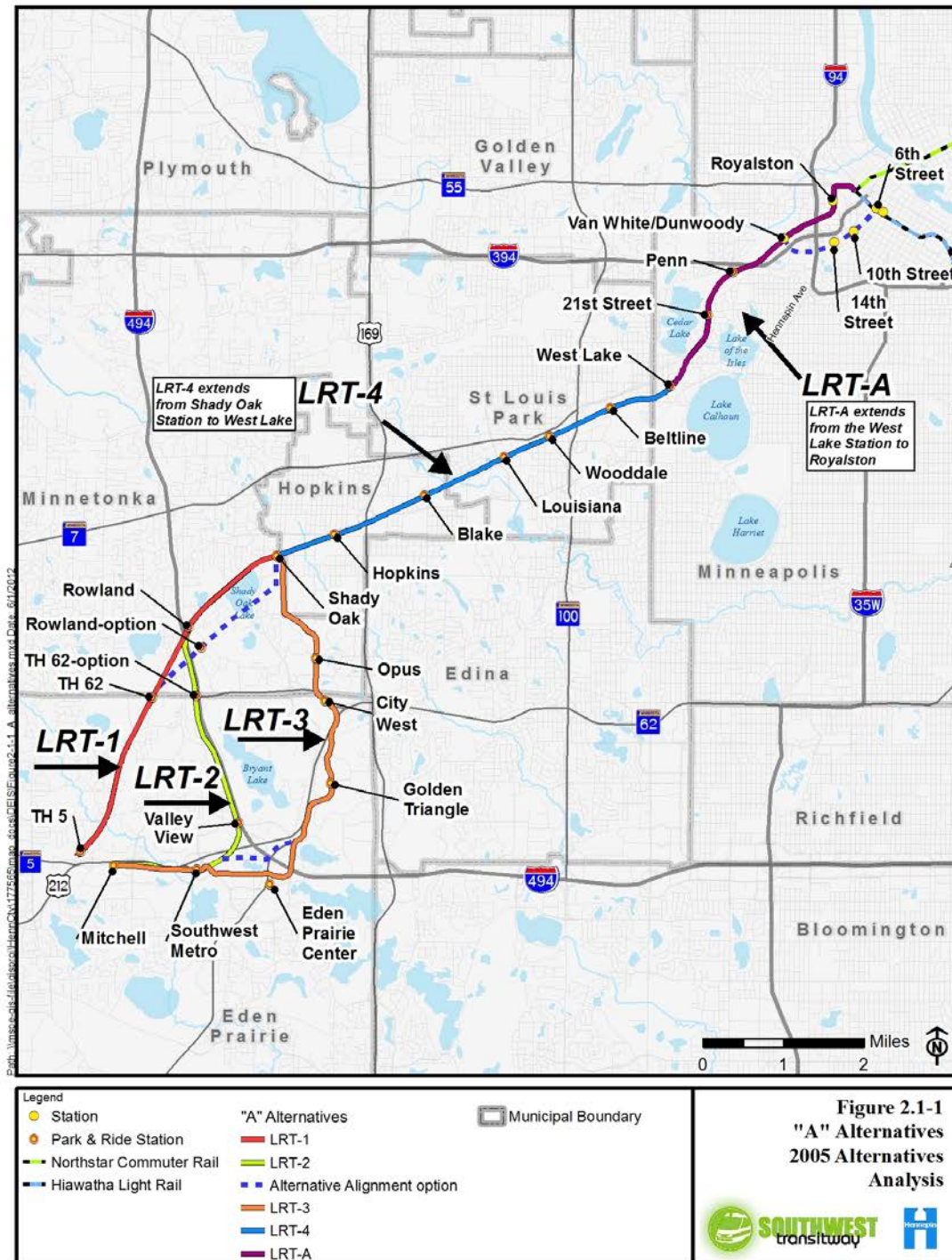
"High-capacity transit" includes any form of public transit that has an exclusive right of way, a non-exclusive right of way, or a combination of both. High-capacity transit vehicles make fewer stops, travel at higher speeds, have more frequent service, and carry more people than local transit. High capacity transit includes options such as light rail, commuter rail, and bus rapid transit.

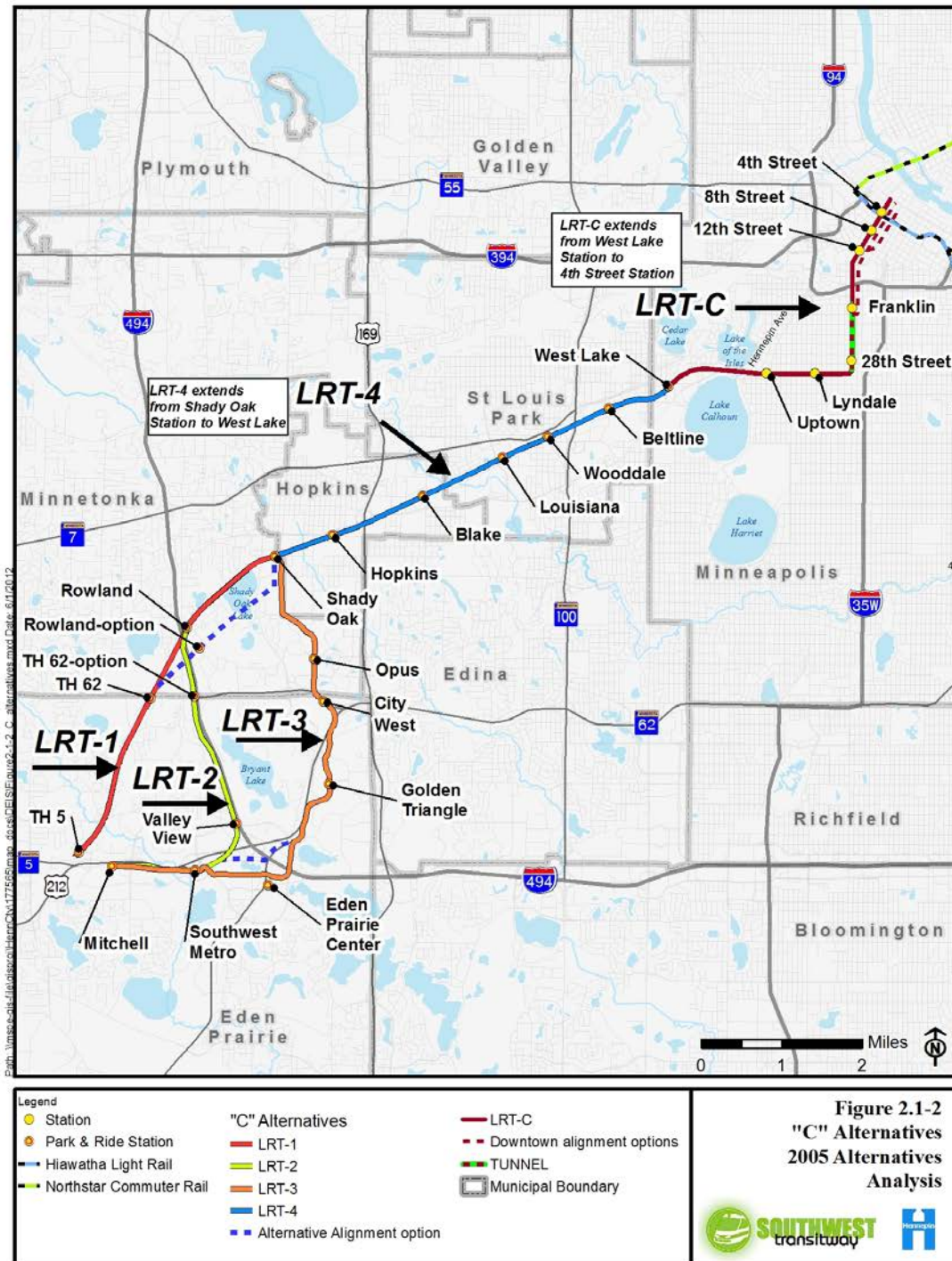
2.1 Alternatives Considered for Project Development Purposes

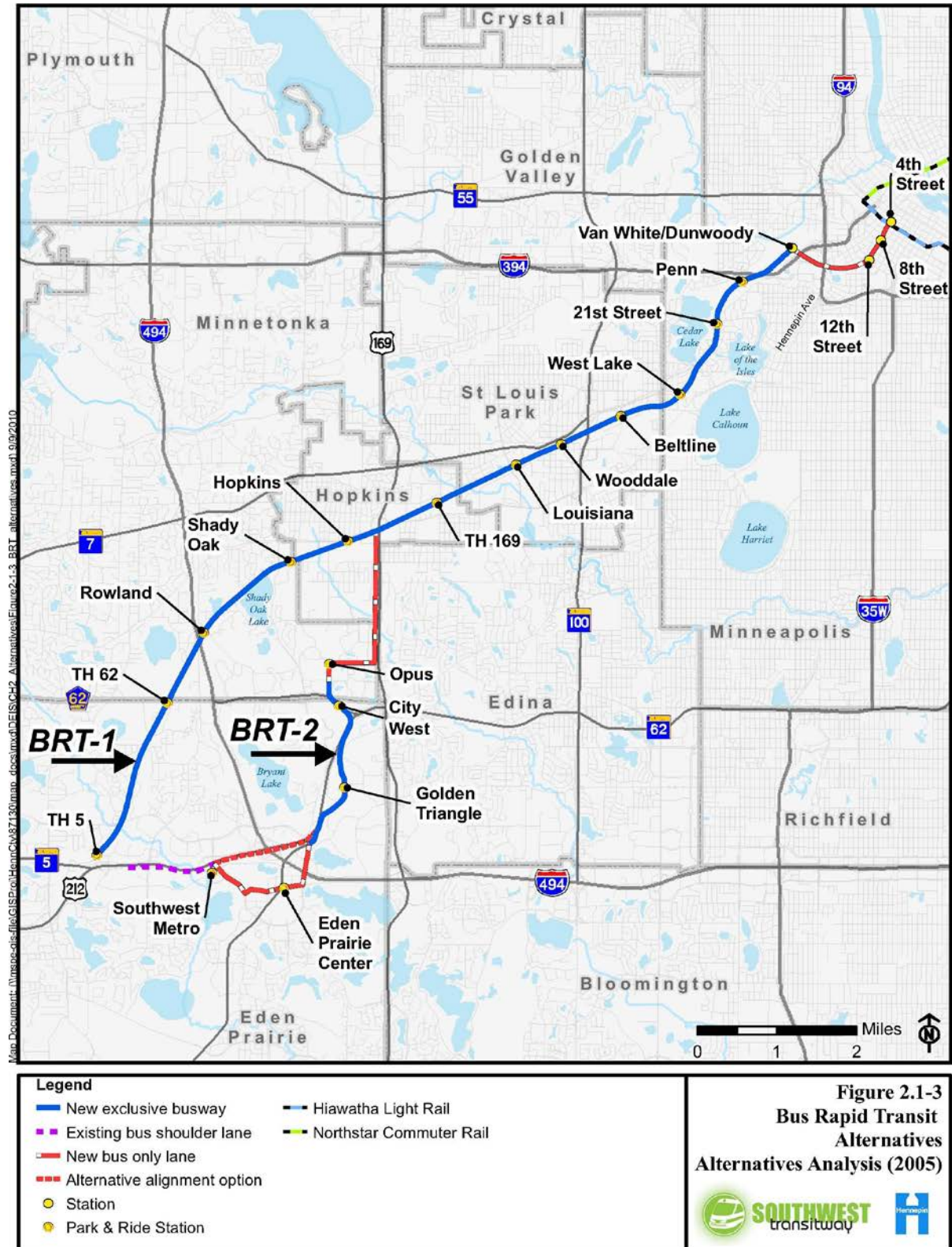
2.1.1 Alternatives Analysis

In 2005, the Hennepin County Regional Railroad Authority (HCRRRA) initiated the Southwest Transitway AA process, which compared the benefits, costs, and impacts of a range of transit alternatives (modes and routes) to identify which alternative(s) best meet the needs of the communities as expressed in the Purpose and Need Statement. The Southwest Transitway AA process builds on findings from prior planning efforts including the *Southwest Rail Transit Study, 2003*; the *29th Street and Southwest Busway Feasibility Study, 2002*; and the region's *Transit 2025 Master Plan for Transit, 2001* which may be viewed at www.southwesttransitway.org.

The Southwest Transitway AA included the evaluation of ten potential Build Alternatives and a conventional bus alternative referred to as the Enhanced Bus Alternative. (See Figure 2.1-1 through Figure 2.1-3) 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 is the Enhanced Bus option. The TSM includes 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 includes 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.







The TSM alternative was refined prior to entry into the preliminary engineering phase of the Federal Transit Administration (FTA) New Starts program.

Alternative Development Process

Alternatives were identified and evaluated through a two-phase process. The first phase identified the reasonable alternatives. The second phase evaluated the reasonable alternatives to determine which one or ones best meet the travel needs documented in the purpose and need statement and later expressed in a set of tiered goals.

Phase I: Identification of Alternatives

The alternative identification phase consisted of review of previous planning documents, development and adoption of transitway goals based on project purpose and need, identification and evaluation of appropriate transit technologies, and identification of **alignments**. Prior planning documents reviewed

“Alignment” is the horizontal location of a railroad or transit system as described by curved and tangent track

included the following: the *Comprehensive LRT System Plan for Hennepin County* (1988), the *Draft Environmental Impact Statement (Draft EIS) for the Light Rail Transit System* (also in 1988), the *Transit 2020 Master Plan* (2000), the *Southwest Rail Transit Study* (2003), and the regional *2030 Transportation Policy Plan* (2004) which may be viewed at www.southwesttransitway.org.

A broad range of technologies were considered including conventional buses, BRT, streetcar, LRT, heavy rail (subway), commuter rail, automated guideway transit (AGT)/monorail, and personal rapid transit (PRT). The technologies were assessed using the following four criteria:

- Compatibility with the study area’s transit travel demand,
- Proven technology,
- Compatibility with existing infrastructure, and
- Identified in the region’s long-range transportation plan and other studies.

The technical memorandum summarizing the technology assessment may be found at http://www.southwesttransitway.org/technical-documents/cat_view/4-alternatives-analysis-documents.html.

Alternatives were identified using previous studies and developed by identifying potential station locations and the routes linking them. Station location selection was based on several factors such as existing and proposed land uses, accessibility, community and environmental considerations, and station spacing for transit operations. The guidelines for selecting routes between stations were minimizing travel time, minimizing capital and operating costs, and avoiding or minimizing and mitigating adverse environmental and community impacts.

The alignments were then matched with complementary transit technologies that resulted in alternatives for evaluation. The alternatives were presented to the public, stakeholders and partner agencies for review and comment prior to evaluation and refinement in response as appropriate.

Phase 2: Evaluation of Alternatives

The second phase of the alternative development process consisted of evaluating the ten build alternatives using the tiered set of goals and identifying the alternative(s) that best met the project purpose and need. A set of evaluation criteria reflecting the adopted transitway goals, as well as the FTA's New Starts Project Justification Criteria, was developed. The technical memorandum summarizing the evaluation process may be found at http://www.southwesttransitway.org/technical-documents/cat_view/4-alternatives-analysis-documents.html.

Project goals and objectives were developed to summarize travel needs documented in the project purpose and need statement. (See Table 2.1-1) These goals were prioritized in two tiers, with Tier One goals being those that must be achieved for the project to be viable, and Tier Two goals being those beyond transportation that the region wants the project to achieve.

Table 2.1-1: Project Goals and Objectives

Tier	Goals and Objectives
Tier One	Improve Mobility
	Provide a Cost-Effective and Efficient Travel Option
Tier Two	Protect the Environment
	Preserve the Quality of Life
	Support Economic Development

Source: Southwest Transitway Alternatives Analysis Final Report, 2007.

The following rating system was used to express how any given alternative best met the five project goals:

- ☐ Strongly supports the goal
- ☒ Supports the goal
- ☐ Does not support the goal

Table 2.1-2 presents the summary findings from the Southwest Transitway AA for the ten Build Alternatives and the Enhanced Bus Alternative.

Table 2.1-2. Evaluation Results of the Southwest Transitway Alternatives

Alternatives	Tier 1 Goals		Results	Tier 2 Goals			Recommendation
	Goal 1: Improve Mobility	Goal 2: Provide a Cost-Effective, Efficient Travel Option		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	
Enhanced Bus (Baseline)	Carry forward as Baseline alternative (Required)			Carry forward as Baseline alternative (Required)			Carry forward as Baseline Alternative
BRT 1 - Eden Prairie to Minneapolis, HCRRRA	●	●	Does not meet Tier 1 Goals; Do not carry forward				
BRT 2 ¹ - Eden Prairie to Minneapolis, Golden Triangle/Opus/TH 169/HCRRRA	●	●	Does not meet Tier 1 Goals; Do not carry forward				
LRT 1A - Eden Prairie to Minneapolis, HCRRRA/ Kenilworth/ Royalston	◐	◐	Meets Tier 1 Goals; Carry Forward to Tier 2	◐	◐	◐	Carry forward for further analysis
LRT 2A ¹ - Eden Prairie to Minneapolis, I-494/HCRRRA /Kenilworth/Royalston	◐	◐	Meets Tier 1 Goals; Carry Forward to Tier 2	◐	◐	◐	Other alternatives better meet Tier 2 Goals. Do not carry
LRT 3A ¹ - Eden Prairie to Minneapolis, Golden Triangle/ Opus/ HCRRRA/ Kenilworth/ Royalston	◐	◐	Meets Tier 1 Goals; Carry Forward to Tier 2	◐	◐	○	Carry forward for further analysis
LRT 4A - Hopkins to Minneapolis, HCRRRA/ Kenilworth/ Royalston	●	◐	Part of full alternative. Do not carry forward				
LRT 1C - Eden Prairie to Minneapolis, HCRRRA/ Midtown/ Nicollet	◐	●	Does not meet Tier 1 Goals; Do not carry forward				
LRT 2C - Eden Prairie to Minneapolis, I-494/ HCRRRA/ Midtown/ Nicollet	◐	●	Does not meet Tier 1 Goals; Do not carry forward				
LRT 3C - Eden Prairie to Minneapolis, Golden Triangle/ Opus/ HCRRRA/ Midtown/ Nicollet	◐	◐	Meets Tier 1 Goals; Carry Forward to Tier 2	◐	◐	○	Carry forward for further analysis
LRT 4C ¹ - Hopkins to Minneapolis, HCRRRA/ Midtown/ Nicollet	●	●	Part of full alternative. Do not carry forward				
¹ Estimated not modeled							
Evaluation Breakpoints							
● 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	
¹ Estimated not Modeled							

Source: Southwest Transitway Alternatives Analysis Final Report, 2007.

2.1.1.1 Analysis

After thorough evaluation, three LRT alternatives, LRT 1A, LRT 3A, and LRT 3C, were recommended to be carried forward for consideration as the LPA. The alternatives satisfied the goals and were deemed to best fit the purpose and need of the project. All three alternatives would provide a dual LRT guideway with exclusive and semi-exclusive right-of-way (ROW). The 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. In addition to the LRT alternatives, an Enhanced Bus Alternative was carried forward for inclusion in the NEPA/MEPA process.

“Grade separation” is a bridge or tunnel that separates transportation facilities such as a highway or railroad so that they will not disrupt each other’s traffic flow when they cross.

The Southwest Transitway project considered potential impacts to critical environmental resources prior to selecting the LPA. In addition, the Southwest Transitway project did conduct the NEPA/MEPA Scoping process prior to selection of 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.

2.1.2 Alternatives Identified Through NEPA / MEPA Scoping

The Southwest Transitway AA formed the basis for the NEPA/MEPA scoping of alternatives, which was initiated by HCRRA and FTA on September 8, 2008. During the scoping process, the HCRRA and FTA shared with the public and agencies their proposal to include a no build alternative (which is required under the NEPA/MEPA process), the Enhanced Bus Alternative, and the three LRT alternatives (LRT 1A, LRT 3A, and LRT 3C) recommended during the Southwest Transitway AA process for inclusion in the NEPA/MEPA process.

The NEPA/MEPA scoping process provided the public and government agencies with an opportunity to review and comment on the alternatives to be considered, provide comment on the purpose and need of the project, identify significant environmental issues, and suggest appropriate planning alternatives that address the purpose and need for the project. The scoping process was announced with a notice published in Finance and Commerce on August 23, 2008, and the publication of the Notice of Intent (NOI) in the Minnesota Environmental Quality Board (EQB) Monitor on September 8, 2008, and the *Federal Register* on September 23, 2008. These notices announced the beginning of the scoping comment period, which extended from September 8, 2008, to November 7, 2008. The scoping process included three formal public meetings and one agency meeting where verbal comments were recorded and written comments received.

2.1.2.1 Alternatives Proposed During NEPA/MEPA Scoping Process

During the NEPA/MEPA scoping comment period, two modifications to the LRT 3C Alternative were proposed. Both of the modifications to the LRT 3C Alternative were within the Minneapolis city limits. These new, proposed alternatives were referred to as the LRT 3E Alternative and the LRT 3C-2 (11th/12th sub-alternative).

Co-Location Alternative

The AA process for the Southwest Transitway project was initiated in 2005 and concluded in May 2010 when the Metropolitan Council selected LRT 3A as the LPA for this project and amended the 2030 Transportation Policy Plan. The City of St. Louis Park participated in the AA process and unanimously passed a resolution in January 2010 supporting LRT 3A as the LPA with conditions including that agencies work cooperatively to identify impacts, mitigation requirements, and mitigation funding options to address the potential of rerouting freight rail in a parallel process with the Southwest LRT Draft EIS and to identify the freight rail issue and impacts as a part of the "secondary and cumulative impacts."

The scoping process for the Draft EIS was initiated in September 2008. During the scoping comment period, the City of St. Louis Park requested, in their October 14, 2008 letter, an additional alternative that co-locates in the Kenilworth Corridor freight rail, LRT, and the multi-use trail be included in the Draft EIS. At the time freight rail relocation was considered a separate, disconnected action from the Southwest Transitway project due to its history. When the freight rail connection across TH 55/Hiawatha Avenue was severed by the roadway project, the freight rail service

was temporarily relocated to the Kenilworth Corridor until provisions could be made to relocate the freight rail service to a permanent home. The preferred location for the permanent home was the Canadian Pacific (CP) MN&S line. The relocation of freight operations along MN&S required the environmental remediation of the Golden Auto superfund site, which delayed the freight rail relocation. As a result the City of St. Louis Park received a response to their 2008 letter that stated, "Impacts and proposed mitigation associated with the relocation of the freight rail line in St. Louis Park are an independent study being undertaken by Hennepin County". The Scoping Summary Report/Decision Document disclosed that the potential relocation of the freight line St. Louis Park was outside the scope of the Southwest Transitway Draft EIS.

As part of a separate process from the Southwest Transitway AA and Draft EIS, HCRRA and the Minnesota Department of Transportation (MnDOT) in cooperation with the City of St. Louis Park conducted an evaluation to determine the preferred permanent home for freight rail operations temporarily using the Kenilworth Corridor. In addition, HCRRA in cooperation with the MnDOT and the City of St. Louis Park also conducted an analysis of seven alternatives for co-location of freight rail and LRT operations in the Kenilworth Corridor¹. Based on this analysis, co-location was deemed not feasible.

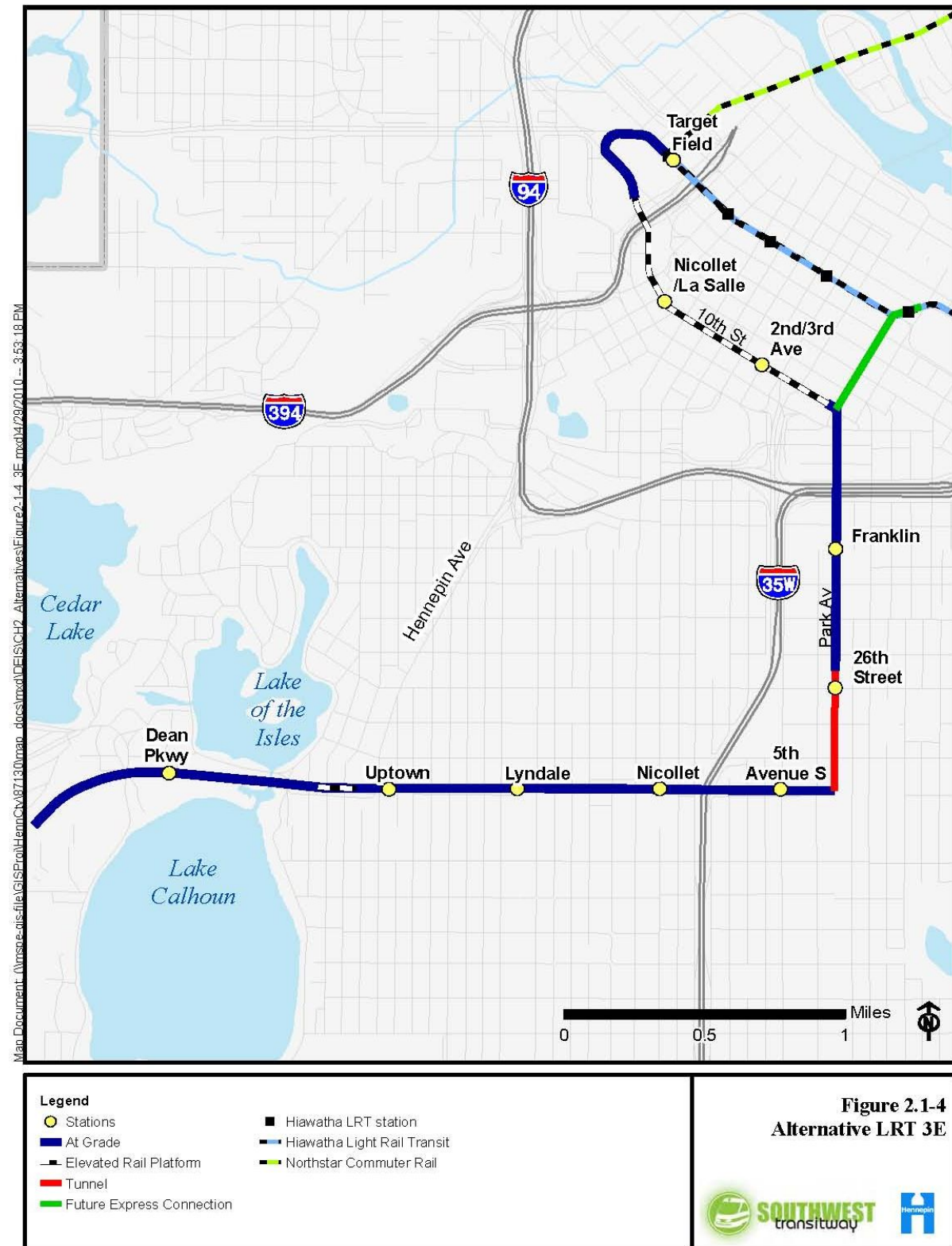
In their September 2, 2011 letter to the Metropolitan Council authorizing the Southwest Transitway project to enter Preliminary Engineering, FTA stated the freight rail relocation project should be considered as part of the Southwest Transitway project under NEPA to avoid any segmentation concerns.

Additionally, FTA, in response to the public comments received, requested the Metropolitan Council and HCRRA to include a discussion of an alternative that co-locates freight rail and LRT operations in the Kenilworth Corridor in the Draft EIS, in considering the "full range of alternatives" under NEPA (23 CFR 771.111(f)).

LRT 3E

Like the LRT 3C Alternative, the LRT 3E Alternative would travel between Mitchell Road in Eden Prairie and downtown Minneapolis, providing service to Eden Prairie, Minnetonka, Hopkins, Edina, St. Louis Park, and Minneapolis. (See Figure 2.1-4)

¹ *Kenilworth Corridor – Analysis of Freight Rail/Light Rail transit Co-Existence*, December 2010.



The LRT 3E Alternative was proposed to follow the same alignment as the LRT 3C Alternative from Mitchell Road in Eden Prairie to the Midtown Corridor and West Lake Street. At this point the LRT 3E Alternative proposed to continue operations of the LRT line in the Midtown Corridor to Park Avenue where the line would turn and head north to enter downtown Minneapolis. In Minneapolis, in contrast with LRT 3C Alternative, the proposed LRT 3E Alternative eliminated the West Lake Station and replaced it with a new station located in the vicinity of Dean Parkway with a park and ride assumed to be located near the station. East of Humboldt Avenue the alignment would enter the Midtown Corridor. From 5th Avenue, the alignment would continue east in the Midtown Corridor to Park Avenue. The alignment would continue on Park Avenue to 10th Street where it would split into two alignments using a "Y" junction that would allow trains to access the 10th Street Line or continue north to the Metrodome Station and interline (use the same tracks) with the Hiawatha Line. The second alignment would continue north on Park Avenue, transition to grade between 9th and 8th streets, and continue north on Park Avenue to 5th Street. At 5th Street, there would be a second "Y" junction so that northbound Southwest LRT trains could continue southeast on the Hiawatha LRT, westbound Hiawatha trains could interline with Southwest LRT and continue south, and both east and west bound Hiawatha trains could operate on 5th Street South.

Stations were proposed at Mitchell Road, Southwest Station, Eden Prairie Town Center, Golden Triangle, City West, Opus, Shady Oak Road, downtown Hopkins, Blake Road, Louisiana Avenue, Wooddale Avenue, Beltline Boulevard, Dean Parkway, Hennepin Avenue (Uptown), Lyndale Avenue, Nicollet Avenue, 5th Avenue, 26th Street, Franklin Avenue, and the Metrodome Station.

Proposed at-grade crossings included Mitchell Road, the bus-only ramps to/from Trunk Highway (TH) 5, Technology Drive, commercial property access along Technology Drive, Valley View Road, Flying Cloud Drive, West 70th Street, Bren Road East, Bren Road West, combined Feltl and Smetana Road intersection, K-Tel Drive, 16th Avenue (proposed extension), 11th Avenue, 8th Avenue (proposed extension), 5th Avenue, Blake Road, Wooddale Avenue, Beltline Boulevard, Irving Avenue, Humboldt Avenue, Franklin Avenue, Groveland Avenue, 18th Street, 15th Street, 14th Street, Grant Street, 13th Street, 12th Street, 11th Street, 10th Street, 9th Street, 8th Street, 7th Street, 6th Street, 5th Street, 4th Street, and 3rd Street.

LRT 3C-2

The LRT 3C-2 (11th/12th Sub-alternative) was proposed to follow the LRT 3C Alternative from Mitchell Road in Eden Prairie to the Midtown Corridor and Blaisdell Avenue. (See Figure 2.1-5) At this point, the LRT 3C (11th/12th Sub-Alternative) would operate under Blaisdell, Nicollet or 1st Avenues in a tunnel between the Midtown Corridor and Franklin Avenue. North of Franklin Avenue, it would operate at grade to the vicinity of 11th/12th Street where it would turn west onto 11th Street operating as a one-way pair between Nicollet Mall and Royalston Avenue. At Royalston, it would use the same routing as the LRT 1A and LRT 3A Alternatives, which interline with the Hiawatha and/or Central LRT lines on 5th Street.

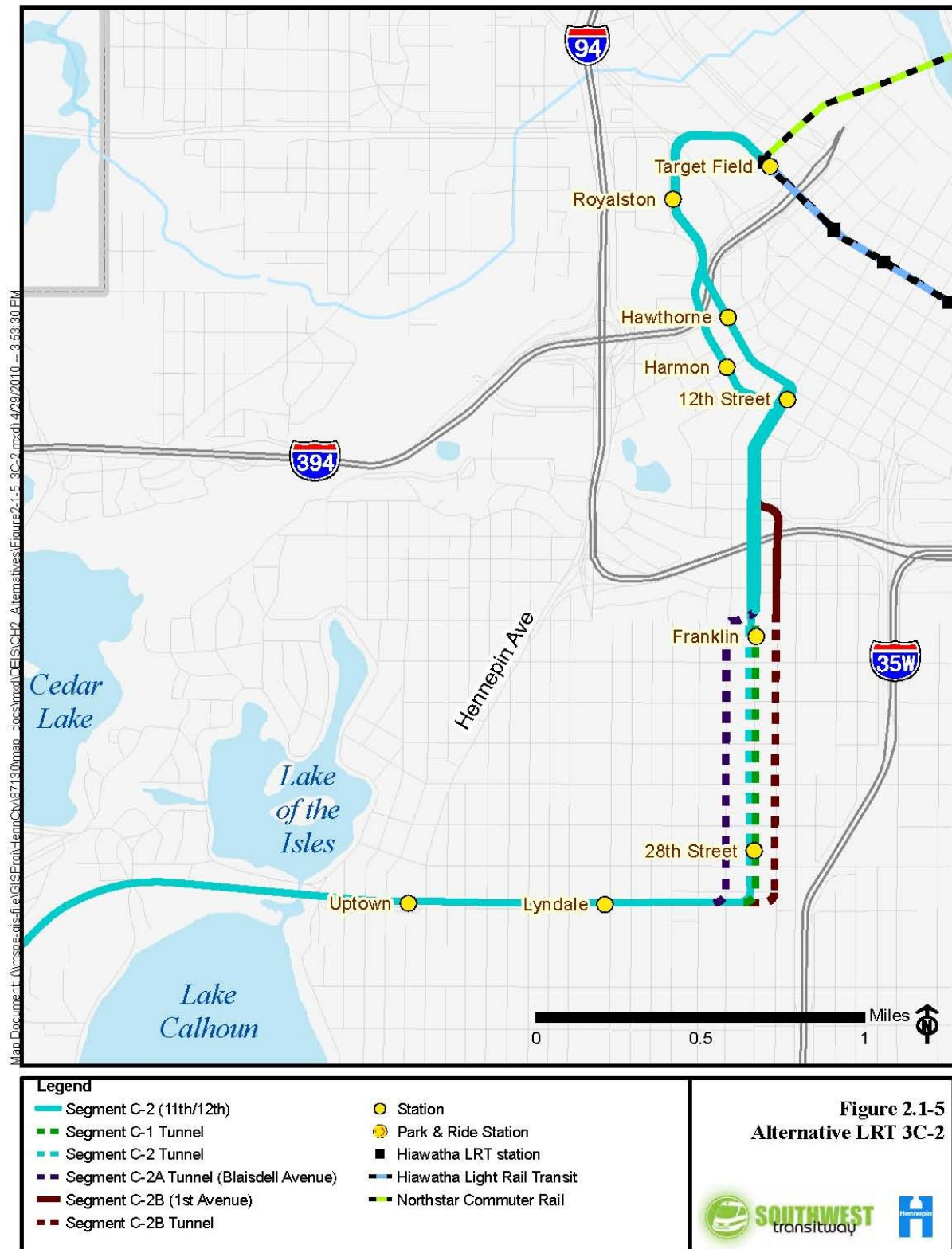
On January 27, 2009, HCRRA voted unanimously to accept the Southwest Draft EIS Scoping Summary Report including the recommendations that the LRT 3C-2 (11th/12th Sub-alternative) be included in the Southwest Transitway Draft EIS and the

LRT 3E Alternative be excluded from the Southwest Transitway Draft EIS because it was not consistent with the Southwest Transitway Purpose and Need Statement, it was not consistent with Regional and Local planning, it was inferior in performance compared to LRT 3C, LRT 3A, and LRT 1A; and it presented significant engineering, traffic, and LRT operations issues.

2.1.3 Locally Preferred Alternative Recommendation

The selection of the LPA is part of the planning and project development process for a transitway project. Consistent with federal guidance, the selection of the LPA for the Southwest Transitway and its inclusion in the region's long-range transportation plan, the *2030 Transportation Policy Plan* (2009) (2030 TPP) concluded the Southwest Transitway AA process initiated in 2005. Identification of the LPA at the conclusion of the AA process allowed the project sponsor to submit a New Starts application to enter Preliminary Engineering.

The Metropolitan Council's selection and adoption of the LPA into the 2030 TPP is part of the long-range planning process required by state and federal law. The LPA selection does not replace, nor does it override the requirement to fully examine alternatives and determine the adverse impacts that must be avoided or mitigated (reduced) under NEPA and MEPA. The HCRRA decided to initiate the NEPA/MEPA process prior to selection of the LPA. This approach ensures consideration of potential impacts to critical environmental resources and allows 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.



2.1.3.1 Alternatives Considered for the Locally Preferred Alternative Selection Process

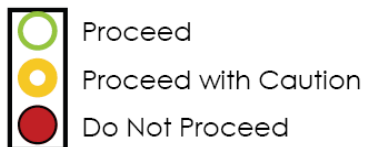
Based on the public and agency comments received during the NEPA/MEPA scoping process, four build alternatives were considered candidates for the LPA. Those alternatives were the LRT 1A, LRT 3A, LRT 3C-1 (Nicollet Mall), and LRT 3C-2 (11th/12th Street). (See Figure 2.1-6) (Note that the LRT 3C-1 Alternative was formerly referred to as the LRT 3C Alternative.)

2.1.3.2 Evaluation

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.

The following ratings were used:



2.1.3.3 Findings

Table 2.1-3 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 it best meets 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.

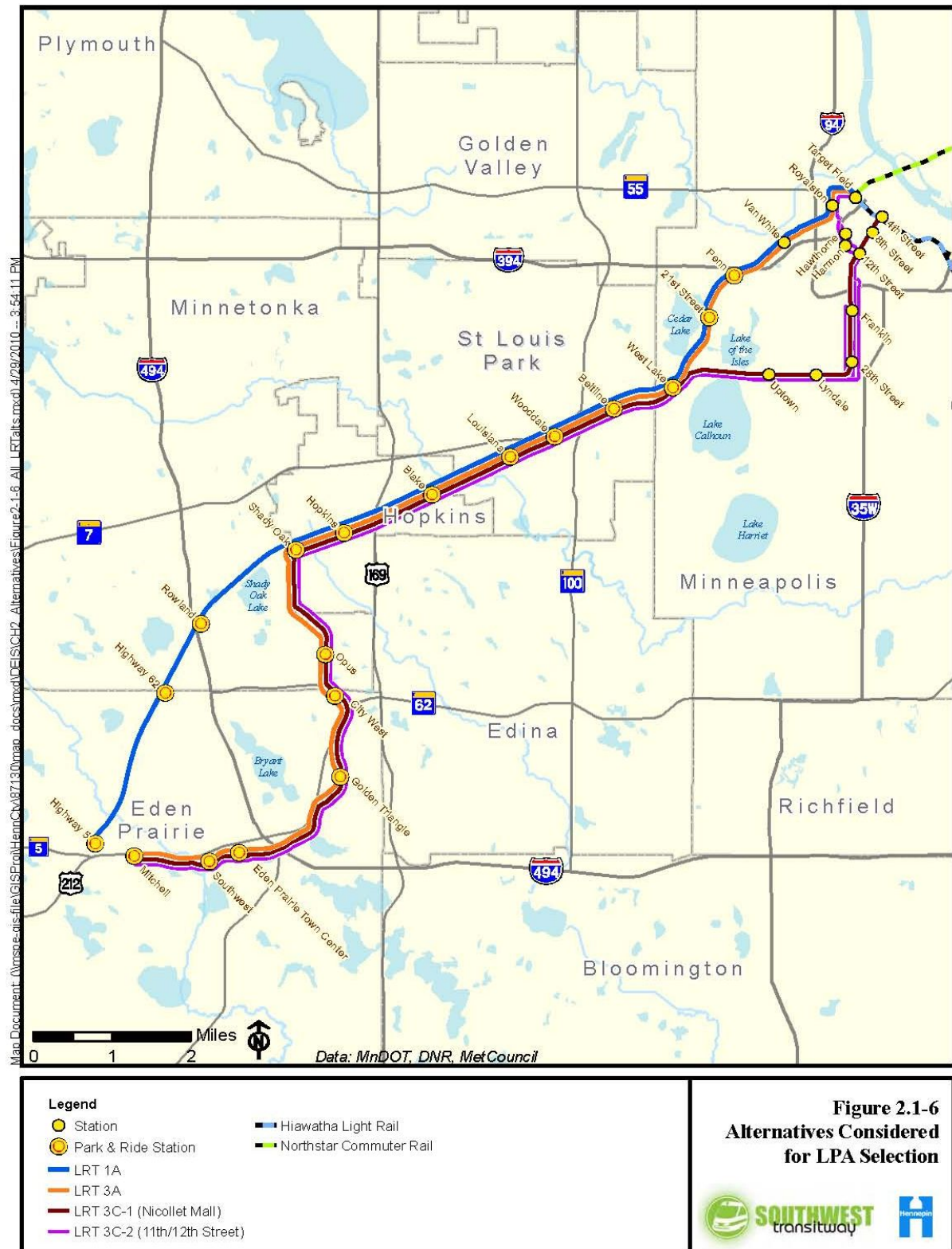


Table 2.1-3. LPA Evaluation

	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.)	●	○	○	●	●	●	●

Planning Compatibility

LRT 1A was 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 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 compatible with all local plans except those of Minneapolis.

Performance

Based on preliminary **travel demand modeling**, all four LRT alternatives had strong ridership and showed significant travel time benefits over the Enhanced Bus Alternative. Therefore, the selection of the LPA focused primarily on criteria other than ridership.

Capital cost was a key differentiator among the alternatives. In 2017 dollars, 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 are insufficient to offset the greater capital cost; therefore the "C" alternatives were unlikely to qualify for federal funding without major revisions.

A "Travel demand model" is a computer generated estimate that uses either actual or projected population and/or employment data to help predict how roadway or transit changes might affect local traffic.

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 are capable of fully integrating with both the Hiawatha and Central Corridor LRT lines, while the LRT 3C-1 (Nicollet Mall) Alternative is 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. In addition, duplicative service would not effectively advance the region toward its goal of doubling transit ridership by 2030.

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. 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 suggest that this area is not a high transit trip generator, and is 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 is highest along the LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street) alternatives. Generally, accessibility is 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, the “A” alternatives may have less interaction with the current transit network, but are 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, 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 reduce approval and construction schedule risks for LRT 1A and LRT 3A.

Presence of Critical Environmental Resources

Preliminary review of environmental resources indicates that fewer resources are present along LRT 1A and LRT 3A, therefore these alternatives pose less environmental risk than LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street). The “C” alternatives have significantly greater numbers of known historic resources, contaminated properties, and potential **noise and vibration receptors** than the “A” alternatives.

Sensitive “noise and vibration receptors” are places or areas that may be affected by changes in noise and vibration. Generally they are residential areas, churches, schools, recreation areas, hospitals, etc.

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 decision came as a result of the extensive AA led by HCRRA as well as the cities along the alignment. (See http://www.southwesttransitway.org/technical-documents/cat_view/4-alternatives-analysis-documents.html for copy of the AA document.)

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. (See <http://www.metrocouncil.org/planning/transportation/TPP/2010/index.htm> for a copy of the 2030 TPP document.) 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 formally concluding the AA phase and allowing the project to proceed with a Federal New Starts application and a request to enter preliminary engineering.

2.2 Alternatives Considered but Eliminated from Further Discussion

The light rail alternatives LRT 2A, LRT 4A, LRT 1C, LRT 2C, LRT 4C, and LRT 3E as well as bus rapid transit alternatives BRT 1 and BRT 2 were considered through the AA or scoping processes and eliminated from further consideration because they did not meet the Purpose and Need for the Southwest Transitway project. (See http://www.southwesttransitway.org/technical-documents/cat_view/4-alternatives-analysis-documents.html for supporting documentation.)

2.3 Draft EIS Alternatives

This section describes the alternatives included in this Draft EIS for evaluation.

2.3.1 No Build Alternative

The No Build Alternative is required by the NEPA/MEPA process and includes all existing and committed transportation infrastructure, facilities, and services contained in the region's fiscally constrained and federally approved transportation plan, the Metropolitan Council's 2030 Transportation Policy Plan (TPP).

2.3.1.1 Highway/Roadway Network

The Metropolitan Council's 2030 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

"Price-managed lanes" are toll lanes that charge a higher price when more people are using the lanes—such as during morning or afternoon rush hours—and a lower price at other times when demand is less.

city streets. To address deteriorating levels of service on area roadways, the 2030 TPP has programmed improvements intended to expand the capacity of the regional highway and roadway systems. These projects include:

- I-35W Southbound from I-94 to 46th Street – Adding High Occupancy Toll (HOT)/transit priority lane and Lake Street Interchange with Bus Rapid Transit station
- TH 100 from 36th Street to Cedar Lake Road – Replace the Tier 1 bridges and ancillary improvements
- I-494 from TH 77 to TH 100 – It is no longer thought that a full build out as proposed in the 1997 EIS will occur by 2030. Instead, two projects in this area are included in the Highway Investment Plan: 1) Construction of an auxiliary lane between TH 100 and I-35W, programmed for 2011–2014, and 2) Construction of a flyover from NB I-35W to WB I-494 and interchange consolidation programmed for 2021–2030
- Reconstruction of the I-494/TH 169 Interchange

2.3.1.2 Transit Network

The transit network and facilities in the 2030 TPP are incorporated into the 2030 No Build Alternative for this Draft EIS. The alternative assumes the future transit service network will closely resemble the existing route structure and extensive facilities of the existing system. Transit system improvements under the No Build Alternative include minor modifications to the existing bus services and transit facilities for which funding has been committed. Routes 12 and 17, specifically, are targeted to become arterial bus routes. Express and long-distance express bus routes are also expected to grow in the Twin Cities metropolitan area.

In an effort to achieve the goal of doubling ridership levels by 2030, the 2030 TPP also identifies the need for expanded passenger facilities and transit infrastructure as a catalyst for attracting new riders. Noting that transit passenger facilities “provide convenient and attractive service,” the 2030 TPP identifies several existing transit facilities for expansion and proposes the construction of new facilities. These new or expanded facilities include 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.

2.3.1.3 Freight Rail

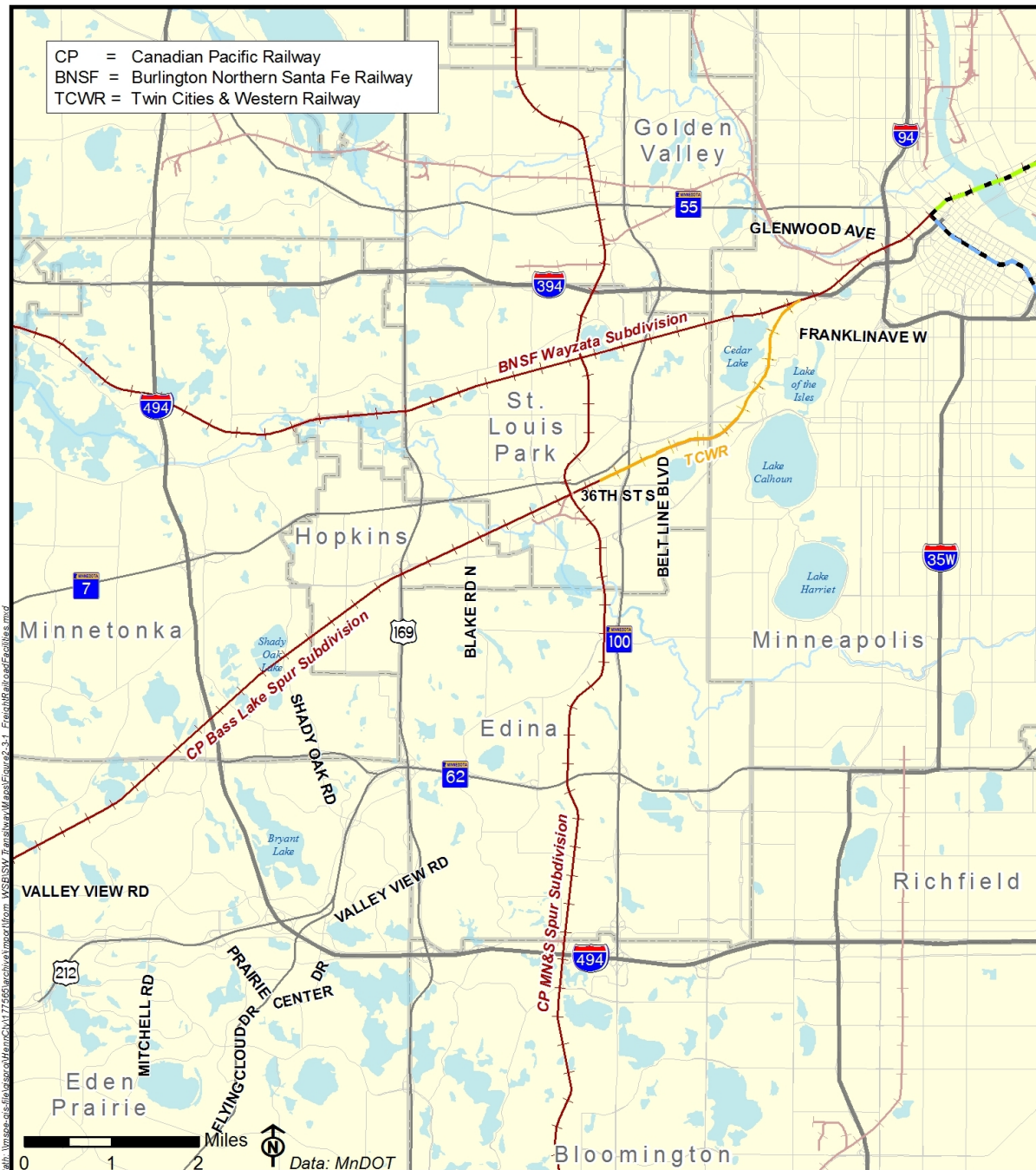
The Minneapolis St. Paul metropolitan area is a focal point of the freight railroad system in the North Central region of the United States. Four of North America’s Class I railroads, 1) BNSF Railway, 2) Union Pacific (UP) Railroad, 3) Canadian Pacific (CP) Railway and 4) Canadian National, provide service to the Twin Cities. Also operating in the metropolitan area are TC&W and Progressive Rail. Interchange among these carriers is facilitated by the Minnesota Commercial Railroad, which is classified as a switching and terminal railroad, and is based in St. Paul. See Figure 2.3-1, Freight Rail Facilities.

There are currently four active freight rail lines within the study area: the CP-owned Bass Lake Spur, the CP-owned MN&S Subdivision, the HCRRA’s Cedar Lake Junction

(locally referred to as the Kenilworth Corridor), and a short segment of the BNSF-owned Wayzata Subdivision from downtown Minneapolis to the MN&S Subdivision in St. Louis Park (see Figure 2.3-2).

According to data obtained from the Federal Railroad Administration (FRA) and the MN&S Freight Rail Report (HCRRA, 3/2012), the number of trains currently operating in the study area is as follows:

- MN&S Spur - CP currently operates one local assignment (round trip) daily with a light tonnage train (10 to 30 car trains) on the MN&S Spur to serve local industries
- BNSF Wayzata Subdivision - 8 to 20 trains run per day including TC&W.
- CP Bass Lake Spur and HCRRA Cedar Lake Junction TC&W operations include:
 - One freight train (round trip) with two to four locomotives and 50 cars operating six days per week.
 - One freight train (round trip) with two to four locomotives and 20 cars operating three to four days per week.
 - A unit ethanol train with two locomotives and 80 cars operating once every two weeks.
 - A unit coal train with four locomotives and 120 cars, operating once every two weeks in one direction only.



- Legend**
- Northstar Commuter Rail
 - Hiawatha Light Rail
 - Impacted Railways
 - Proposed Railway Removal
 - Existing Railways

**Figure 2.3-1
Freight Railroad Facilities**





2.3.2 Enhanced Bus Alternative

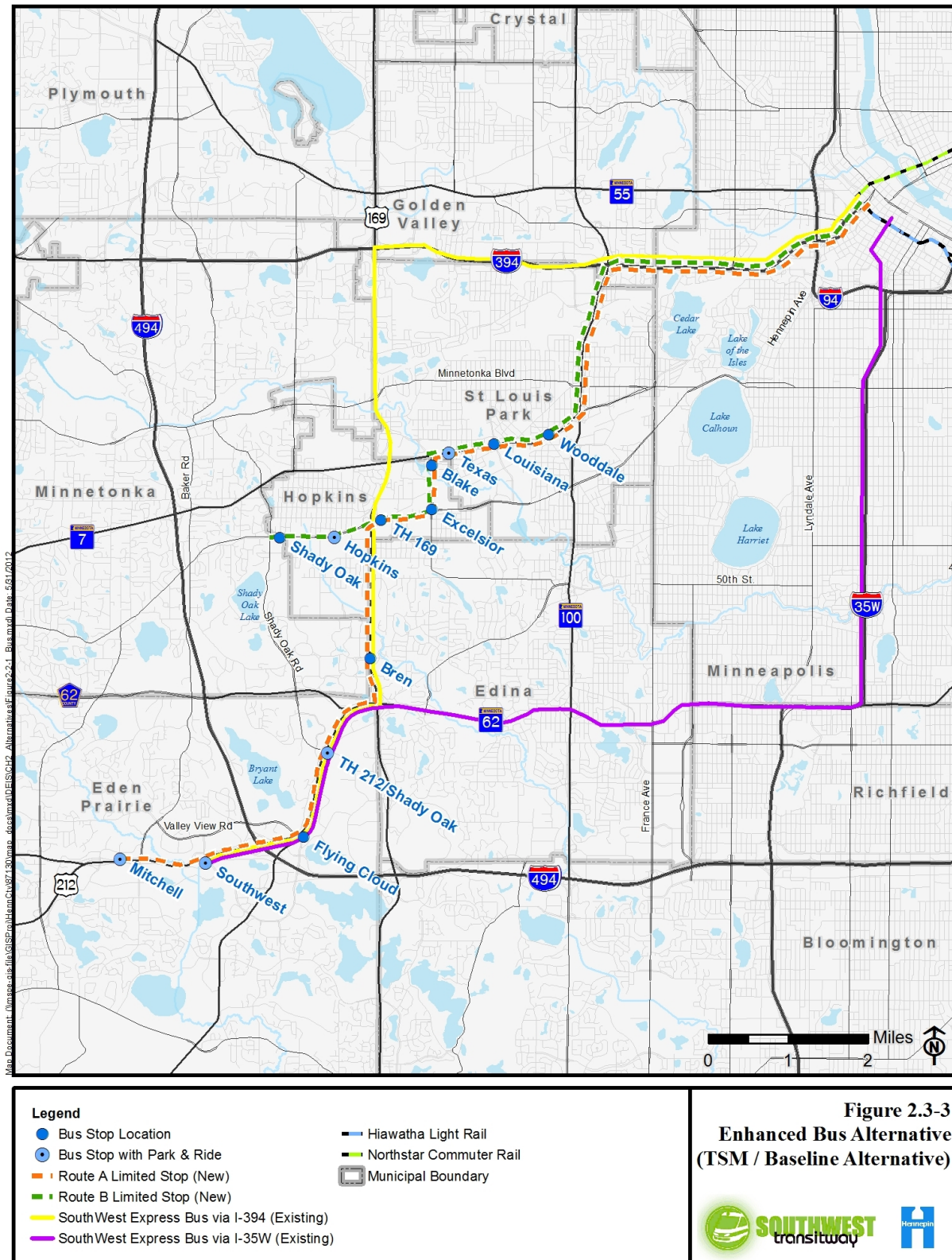
The Enhanced Bus alternative, carried forward from the Southwest Transitway AA and scoping, was refined with FTA input into the New Starts Baseline/Transportation System Management (TSM) Alternative for the purpose of the New Starts project development process. As part of the FTA's New Starts Program, major transit infrastructure investments must include a New Starts Baseline Alternative. This alternative is designed to be the "best that can be done" to improve transit service and mobility without major capital investments.

The Enhanced Bus Alternative includes the same highway and roadway network improvements contained in the No Build Alternative. The Enhanced Bus Alternative is not anticipated to result in any modifications to the existing highway or roadway infrastructure in the study area.

2.3.2.1 Enhanced Bus Alternative Description

The Enhanced Bus Alternative includes two new limited-stop bus routes providing bi-directional service between Eden Prairie and downtown Minneapolis, with stops in Minnetonka, Hopkins, and St. Louis Park. The alternative also includes minor modifications to the existing express bus service along with increased service frequencies and **restructured local service** to provide access to stops along the new express routes. The new limited-stop routes are referred to as Limited Stop Route "A" and Limited Stop Route "B," and are represented along with the existing express bus routes provided by Metro Transit and SouthWest Transit using I-394, I-35W, TH 169, and TH 100 from Eden Prairie to downtown Minneapolis in Figure 2.3-3.

"Restructured local service" means changing local bus routes to more appropriately serve transit travel patterns.



2.3.2.2 Transit Service Assumptions

The operating plan for Limited-Stop Routes "A" and "B" assumes service would be provided from approximately 4:00 a.m. to 2:00 a.m., Monday through Friday, with service on weekends. Weekday bus headways would be 15 minutes during peak periods and 20 minutes off-peak. Weekend bus headways would be 20 to 60 minutes. Where operations of the two lines overlap (between downtown Minneapolis and TH 169 in Minnetonka) the combined headways would be 7.5 minutes during peak hour periods and 10 minutes during off-peak periods (See Table 2.3-1). Service would be two-way and would serve reverse commute trips in addition to peak direction trips.

Fares, fare collection, safety/security, parking facilities, and other related facilities are assumed to be developed and operated in accordance with Metropolitan Council guidelines and standards.

**Table 2.3-1. Enhanced Bus Alternative Service Plan
Operation Hours and Frequency (in minutes)**

	Early Morning (4–6 a.m.)	AM Peak (6–9 a.m.)	Mid-Day (9 a.m.– 3 p.m.)	PM Peak (3–6 p.m.)	Evening (6 p.m.– 2 a.m.)
Weekday					
Route "A"	20	15	20	15	30
Route "B"	20	15	20	15	30
Composite "A" & "B"	10	7.5	10	7.5	15
Weekend	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60

Source: Southwest Transitway Alternatives Analysis Final Report, 2007.

2.3.3 Build Alternatives

The following sections have detailed descriptions and maps for the five build alternatives defined as LRT 1A, LRT 3A (LPA), LRT 3C-1 (Nicollet Mall), LRT 3C-2 (11th/12th Street), and LRT 3A-1 (co-location Alternative²).

Depending on the Build Alternative alignment, the proposed LRT would serve up to 21 new stations. The station platforms would be 300 feet in length and would have one of the following configurations:

- **Center platforms** – station platforms in the center of the street or ROW across from each other with the tracks on the outside of the station platforms

"Center platform" (island) is a passenger platform located between two tracks or guideways so that it can serve them both.

² Please see Section 2.1.2.1 of this Draft EIS for why LRT 3A-1 (co-location alternative) is included in this Draft EIS.

- Center separate platforms – station platforms in the center of the street or ROW separated from each other usually by a cross street with the tracks on the outside of the station platforms
- **Side platforms** – station platforms in the center of the street or ROW across from each other with the tracks on the inside of the station platforms
- Separate side platforms – station platforms in the center of the street or ROW separated from each other usually by a cross street with the tracks on the inside of the station platforms

“Side platforms” are passenger platforms located to the outside of the tracks or guideways, as distinguished from center platforms located between the tracks or guideways.

Three of the four Build Alternatives will terminate at the Target Field Station, the location of the proposed Interchange project where multiple transitways would meet. Connections for existing and proposed transitways, including the Hiawatha LRT, Northstar Commuter Rail, Central Corridor LRT (under construction), and the proposed Southwest Transitway, Bottineau Transitway, passenger rail from Duluth, and high speed rail from Chicago are anticipated.

Build Alternative LRT 3A-1 (co-location alternative) includes the City of St. Louis Park’s request to co-locate the LRT, freight rail and multi-purpose trails within the Kenilworth railroad corridor³.

The detailed conceptual engineering plans for the five Build Alternatives are included in Appendix F.

2.3.3.1 Freight Rail

Build Alternatives LRT 1A, LRT 3A, LRT 3C-1 (Nicollet Mall), and LRT 3C-2 (11th/12th Street) need the relocation of freight rail currently operating along Bass Lake Spur and the Cedar Lake Junction between just east of Louisiana Avenue in St. Louis Park and Penn Avenue in Minneapolis, along with improvements consisting of upgrading the track to 136-pound continuously welded rails. Once these improvements are complete, the current freight rail trains operating along Bass Lake Spur and the Cedar Lake Junction between just east of Louisiana Avenue in St. Louis Park and Penn Avenue in Minneapolis will be relocated to the MN&S line. The implementation of the freight rail relocation will also include the closure of the existing 29th Street at-grade crossing. In addition, freight rail trains operating along the new alignment may include the following:

³ Letter from City of St. Louis Park, October 14, 2008

Table 2.3-2. MN&S Spur Existing vs. Future Freight Rail Trains

Number of Trains under Existing Conditions	Number of Trains under Proposed Conditions
1 round trip (2 trains) daily with a light tonnage train (10 to 30 car trains)	1 round trip (2 trains) daily with a light tonnage train (10 to 30 car trains)
	1 round trip (2 trains) with 2 to 4 locomotives and 50 cars operating 6 days per week
	1 round trip (2 trains) with 2 to 4 locomotives and 20 cars operating 3 to 4 days per week
	1 ethanol train with 2 locomotives and 80 cars operating once every 2 weeks
	1 coal train with 4 locomotives and 120 cars, operating once every 2 weeks in one direction only

Source: MN&S Freight Rail Report

Implementation of Freight Rail Relocation

Rerouting TC&W trains to the MN&S Subdivision was delayed by the need to effect the completion of environmental remediation of the National Lead/Golden Auto superfund site, which was on the path of the proposed connection. That site was cleaned up and delisted from the National Priorities List (NPL) in 1998, clearing the way for the construction of the new rail connection.

A perpetual easement across the remediated property for the proposed freight rail connection was granted by Hennepin County to the City of St. Louis Park for the sole purpose of rail or rail transit use. For freight rail operations to occur over this site, HCRRA has stated that the City of St. Louis Park will need to quitclaim the easement rights.

Since the severing of the connection at TH 55/Hiawatha Avenue, TC&W trains have used the HCRRA's Cedar Lake Junction (Kenilworth Corridor), which HCRRA purchased from the Chicago Northwestern Railroad (CNW) to preserve it for a future transportation use.

Conceptual engineering for the freight rail relocation was provided by Hennepin County and prepared by Kimley-Horn and Associates, Inc. Conceptual engineering for Build Alternative LRT 3A-1 (co-location alternative) was provided by the City of St. Louis Park and prepared by Short Elliot Hendrickson, Inc.

2.3.3.2 LRT 1A

LRT 1A is proposed to operate between TH 5 in Eden Prairie and downtown Minneapolis, providing service to Eden Prairie, Minnetonka, Hopkins, St. Louis Park, and Minneapolis.

This alternative includes relocation of the existing freight rail service operating on the Bass Lake Spur and the Cedar Lake Junction between just east of Louisiana Avenue in St. Louis Park and Penn Avenue in Minneapolis to the MN&S line in St. Louis Park, as described in more detail in Section 2.3.4.1 of this chapter. The freight rail relocation will result in the cessation of freight rail service on this section of the Bass Lake Spur and the HCRRA Cedar Lake Junction (Kenilworth Corridor).

This alternative would operate from TH 5 on the HCRRA-owned ROW through Eden Prairie, Minnetonka, Hopkins and St. Louis Park, and then along the Kenilworth Corridor through Minneapolis to Royalston Avenue then past the downtown Target Field Station using an extension of the Hiawatha LRT tracks on 5th Street.

Stations are proposed at TH 5, TH 62, Rowland Road, Shady Oak Road, Downtown Hopkins, Blake Road, Louisiana Avenue, Wooddale Avenue, Beltline Boulevard, West Lake Street, 21st Street, Penn Avenue, Van White Boulevard, and Royalston Avenue.

The LRT 1A Alternative would include 15 at-grade crossings. Proposed at-grade crossings are:

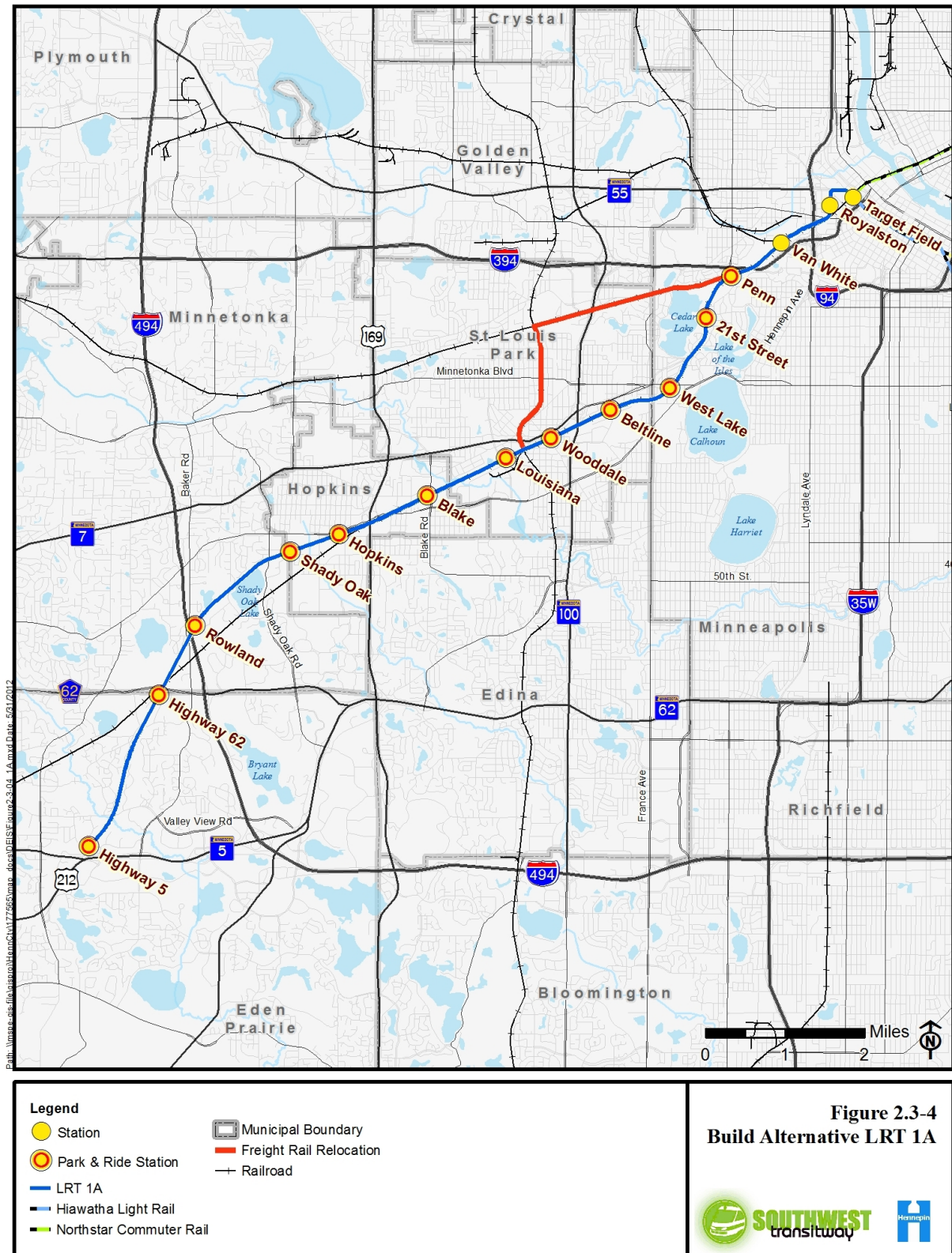
- | | | |
|--------------------------------|---|--|
| • Edenvale Boulevard | • 16 th Avenue
(proposed extension) | • Wooddale Avenue |
| • West 62 nd Street | • 11 th Avenue | • Beltline Boulevard |
| • Baker Road | • 8 th Avenue
(proposed extension) | • 21 st Street |
| • Rowland Road | • 5 th Avenue | • Holden Avenue |
| • Dominick Drive | • Blake Road | • Hennepin County
Energy Recovery Center
(HERC) entrance |

summarizes the station descriptions for LRT 1A. Figure 2.3-4 shows Build Alternative LRT 1A.

Table 2.3-3. Station Descriptions for LRT 1A

Station Location	Platform	Parking Spaces	
		Surface	Structured
TH 5	At-grade; center platforms	400	800
TH 62	At-grade; center platforms	200	NA
Rowland Road	At-grade; center platforms	100	NA
Shady Oak Road	At-grade; center platforms	250	NA
Downtown Hopkins	At-grade; center platforms	100	NA
Blake Road	At-grade; center platforms	350	NA
Louisiana Avenue	Elevated; center platforms	100	NA
Wooddale Avenue	At-grade; center platforms	100	NA
Beltline Boulevard	At-grade; center platforms	100	NA
West Lake Street	At-grade; center platforms	150	NA
21 st Street	At-grade; center platforms	100	NA
Penn Avenue	At-grade; center platforms	100	NA
Van White Boulevard	At-grade; center platforms	NA	NA
Royalston Avenue	At-grade; center platforms	NA	NA

Source: HDR, Engineering, 2009



LRT 3A (Locally Preferred Alternative)

LRT 3A travels between Mitchell Road in Eden Prairie and downtown Minneapolis, providing service to Eden Prairie, Minnetonka, Hopkins, Edina, St. Louis Park, and Minneapolis.

This alternative includes relocation of the existing freight rail service operating on the Bass Lake Spur and the Cedar Lake Junction between just east of Louisiana Avenue in St. Louis Park and Penn Avenue in Minneapolis to the MN&S line in St. Louis Park, as described in more detail in Section 2.3.4.1 of this chapter. The freight rail relocation will result in the cessation of freight rail service on this section of the Bass Lake Spur and the HCRRA Cedar Lake Junction (Kenilworth Corridor).

This alternative would operate from TH 5 and Mitchell Road on new ROW along Technology Drive through the Golden Triangle/Opus areas to the HCRRA property, through St. Louis Park and Hopkins, then along the Kenilworth Corridor through Minneapolis to Royalston Avenue, then past the downtown Target Field Station using an extension of the Hiawatha LRT tracks on 5th Street.

Stations are proposed at Mitchell Road, Southwest Station, Eden Prairie Town Center, Golden Triangle, City West, Opus, Shady Oak Road, downtown Hopkins, Blake Road, Louisiana Avenue, Wooddale Avenue, Beltline Boulevard, West Lake Street, 21st Street, Penn Avenue, Van White Boulevard, and Royalston Avenue. Proposed at-grade crossings include:

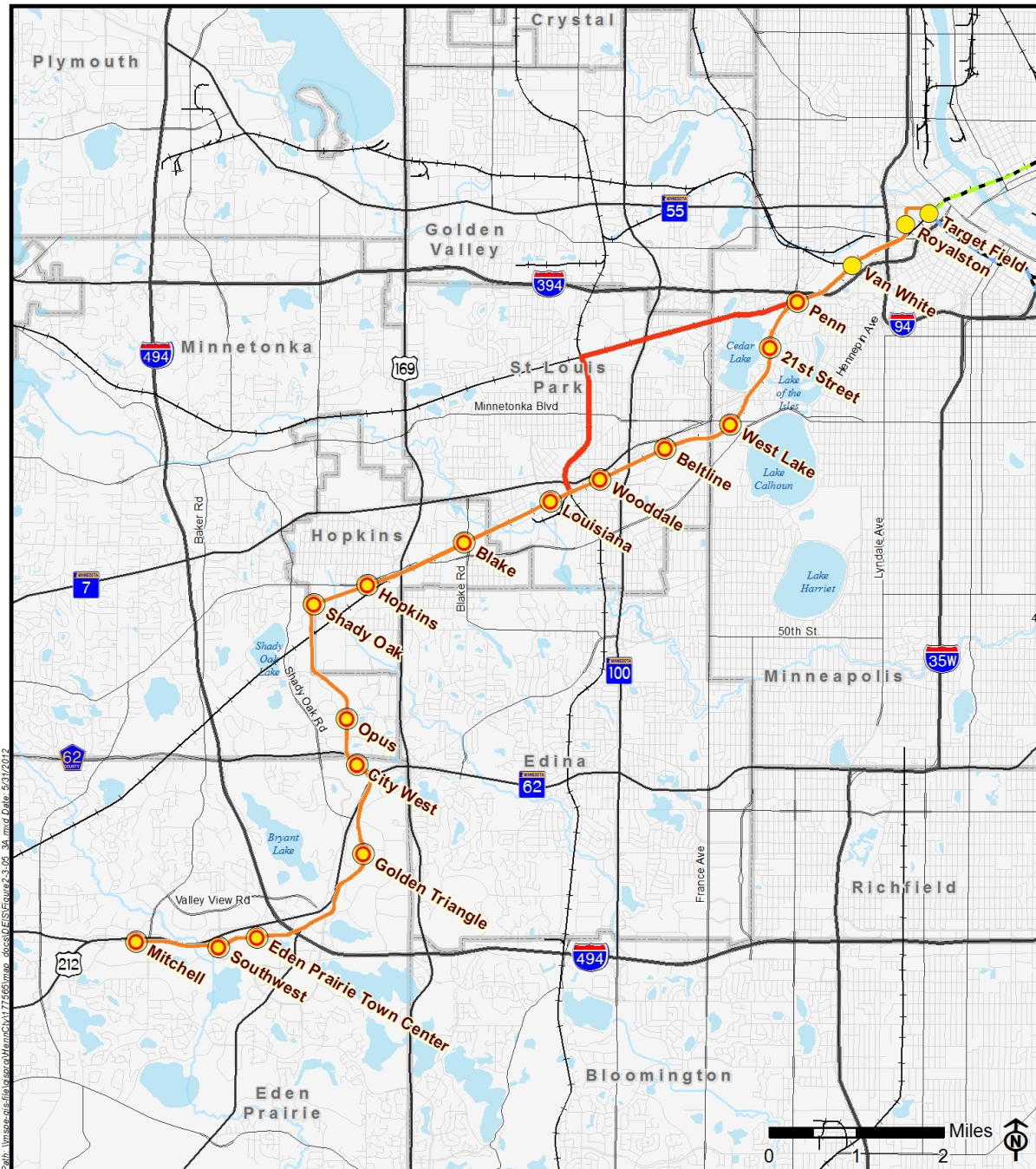
- | | | |
|---|--|---------------------------|
| • Mitchell Road | • Bren Road East | • 5 th Avenue |
| • Bus-only ramps to/from TH 5 | • Bren Road West | • Blake Road |
| • Technology Drive | • Combined Feltl and Smetana Road intersection | • Wooddale Avenue |
| • Commercial property access along Technology Drive | • K-Tel Drive | • Beltline Boulevard |
| • Valley View Road | • 16 th Avenue (proposed extension) | • 21 st Street |
| • Flying Cloud Drive | • 11 th Avenue | • Holden Avenue |
| • West 70 th Street | • 8 th Avenue (proposed extension) | • HERC entrance |

Table 2.3-4 summarizes the station descriptions for LRT 3A (LPA). Figure 2.3-5 shows Build Alternative LRT 3A (LPA).

Table 2.3-4. Station Descriptions for LRT 3A (LPA)

Station Location	Platform	Parking Spaces	
		Surface	Structured
Mitchell Road	At-grade; center platforms	400	400
Southwest Station	At-grade; center platforms	NA	400
Eden Prairie Town Center	At-grade; center platforms	NA	650
Golden Triangle	At-grade; center platforms	100	NA
City West	At-grade; center platforms	NA	100
Opus	At-grade; center platforms	100	NA
Shady Oak Road	At-grade; center platforms	250	NA
Downtown Hopkins	At-grade; center platforms	100	NA
Blake Road	At-grade; center platforms	350	NA
Louisiana Avenue	Elevated; center platforms	100	NA
Wooddale Avenue	At-grade; center platforms	100	NA
Beltline Boulevard	At-grade; center platforms	100	NA
West Lake Street	At-grade; center platforms	150	NA
21 st Street	At-grade; center platforms	100	NA
Penn Avenue	At-grade; center platforms	100	NA
Van White Boulevard	At-grade; center platforms	NA	NA
Royalston Avenue	At-grade; center platforms	NA	NA

Source: HDR, Engineering, 2009



2.3.3.3 LRT 3C-1 (Nicollet Mall)

LRT 3C-1 (Nicollet Mall) travels between Mitchell Road in Eden Prairie and downtown Minneapolis, providing service to Eden Prairie, Minnetonka, Hopkins, Edina, St. Louis Park, and Minneapolis.

This alternative includes relocation of the existing freight rail service operating on the Bass Lake Spur and the Cedar Lake Junction between just east of Louisiana Avenue in St. Louis Park and Penn Avenue in Minneapolis to the MN&S line in St. Louis Park, as described in more detail in Section 2.3.4.1 of this chapter. The freight rail relocation will result in the cessation of freight rail service on this section of the Bass Lake Spur and the HCRRA Cedar Lake Junction (Kenilworth Corridor).

This alternative would operate from TH 5 and Mitchell Road on new ROW along Technology Drive through the Golden Triangle/Opus areas to the HCRRA property through Hopkins and St. Louis Park, then to the Midtown corridor through Minneapolis, to Nicollet Avenue (tunnel from Franklin Avenue to 28th Street) then Nicollet Mall.

Stations are proposed at Mitchell Road, Southwest Station, Eden Prairie Town Center, Golden Triangle, City West, Opus, Shady Oak Road, downtown Hopkins, Blake Road, Louisiana Avenue, Wooddale Avenue, Beltline Boulevard, West Lake Street, Hennepin Avenue (Uptown), Lyndale Avenue, 28th Street, Franklin Avenue, 12th Street, 8th Street, and 4th Street.

Proposed at-grade crossings include:

- | | | |
|---|--|---------------------------|
| • Mitchell Road | • 8 th Avenue
(proposed extension) | • Grant Street |
| • Bus-only ramps to/from
TH 5 | • 5 th Avenue | • 13 th Street |
| • Technology Drive | • Blake Road | • 12 th Street |
| • Commercial property
access along
Technology Drive | • Wooddale Avenue | • 11 th Street |
| • Valley View Road | • Beltline Boulevard | • 10 th Street |
| • Flying Cloud Drive | • James Avenue | • 9 th Street |
| • West 70 th Street | • Irving Avenue | • 8 th Street |
| • Bren Road East | • Humboldt Avenue | • 7 th Street |
| • Bren Road West | • Franklin Avenue | • 6 th Street |
| • Combined Feltl and
Smetana Road
intersection | • Groveland Avenue | • 5 th Street |

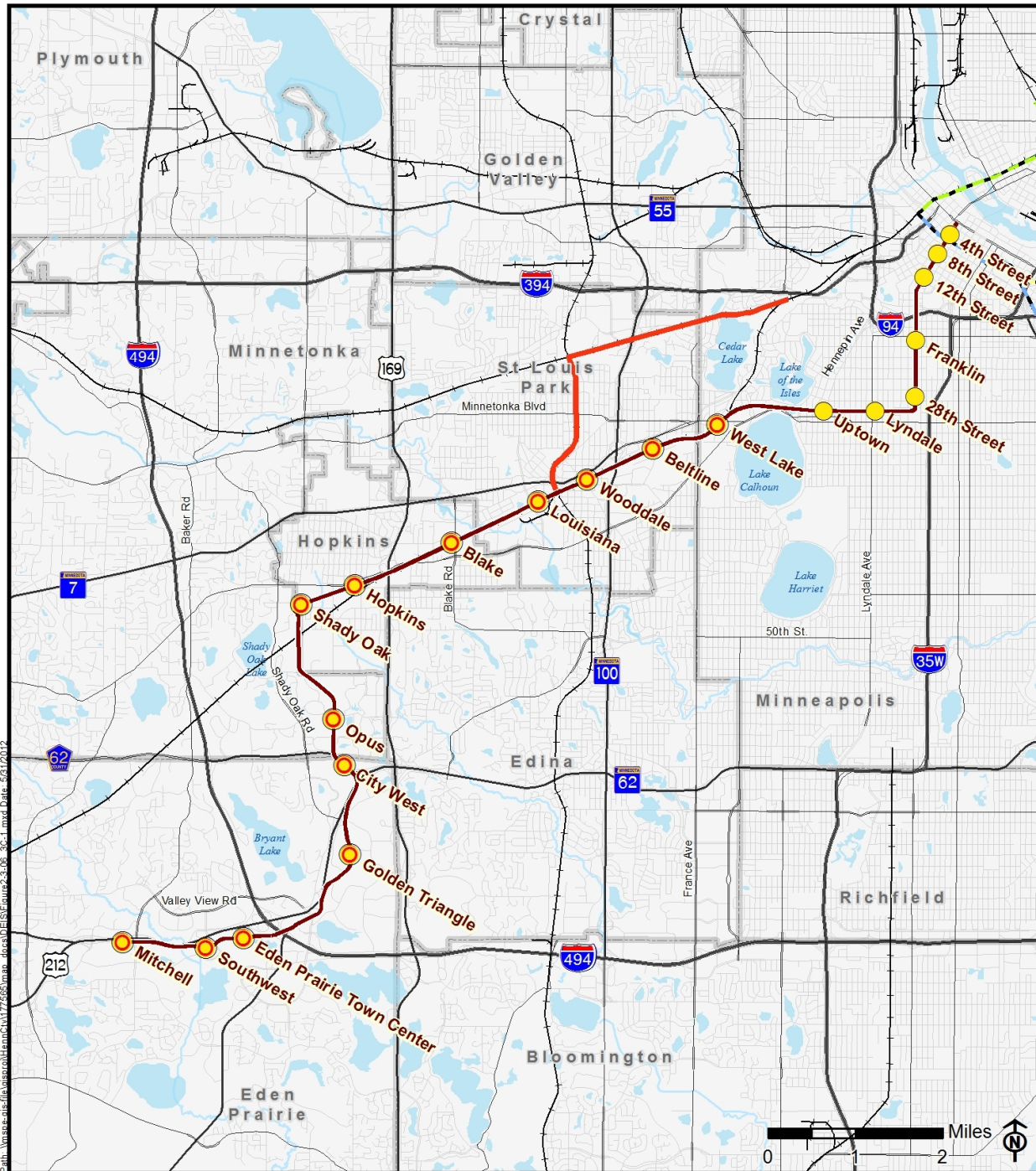
- K-Tel Drive
- 18th Street
- 4th Street
- 16th Avenue (proposed extension)
- 15th Street
- 3rd Street
- 11th Avenue
- 14th Street

Table 2.3-5 summarizes the station descriptions for LRT 3C-1 (Nicollet Mall). Figure 2.3-6 shows Build Alternative LRT 3C-1 (Nicollet Mall).

Table 2.3-5. Station Descriptions for LRT 3C-1 (Nicollet Mall)

Station Location	Platform	Parking Spaces	
		Surface	Structured
Mitchell Road	At-grade; center platforms	400	400
Southwest Station	At-grade; center platforms	NA	400
Eden Prairie Town Center	At-grade; center platforms	NA	650
Golden Triangle	At-grade; center platforms	100	NA
City West	At-grade; center platforms	NA	100
Opus	At-grade; center platforms	100	NA
Shady Oak Road	At-grade; center platforms	250	NA
Downtown Hopkins	At-grade; center platforms	100	NA
Blake Road	At-grade; center platforms	350	NA
Louisiana Avenue	Elevated; center platforms	100	NA
Wooddale Avenue	At-grade; center platforms	100	NA
Beltline Boulevard	At-grade; center platforms	100	NA
West Lake Street	At-grade; center platforms	150	NA
Hennepin Avenue (Uptown)	Open cut; side platforms	NA	NA
Lyndale Avenue	Open cut; center platforms	NA	NA
28 th Street	Subway; center platforms	NA	NA
Franklin Avenue	Subway; center platforms	NA	NA
12 th Street	At-grade; side platforms	NA	NA
8 th Street	At-grade; side platforms	NA	NA
4 th Street	At-grade; side platforms	NA	NA

Source: HDR, Engineering, 2009



Legend

- Station
- Park & Ride Station
- LRT 3C-1
- Hiawatha Light Rail
- Northstar Commuter Rail
- Municipal Boundary
- Freight Rail Relocation
- Railroad

**Figure 2.3-6
Build Alternative LRT 3C-1**



LRT 3C-2 (11th/12th Street)

LRT 3C-2 (11th/12th Street) travels between Mitchell Road in Eden Prairie and downtown Minneapolis, providing service to Eden Prairie, Minnetonka, Hopkins, Edina, St. Louis Park, and Minneapolis.

This alternative includes relocation of the existing freight rail service operating on the Bass Lake Spur and the Cedar Lake Junction between just east of Louisiana Avenue in St. Louis Park and Penn Avenue in Minneapolis to the MN&S line in St. Louis Park, as described in more detail in Section 2.3.4.1 of this chapter. The freight rail relocation will result in the cessation of freight rail service on this section of the Bass Lake Spur and the HCRRA Cedar Lake Junction (Kenilworth Corridor).

LRT 3C-2 (11th/12th Street) would operate on the same alignment as LRT 3C-1 (Nicollet Mall) between Eden Prairie and the West Lake Station in Minneapolis. At the Midtown Corridor in the vicinity of Nicollet Avenue, the alignment would travel either under Nicollet Avenue, Blaisdell Avenue (C-2B), or 1st Avenue (C-2A) in a tunnel between the Midtown Corridor and Franklin Avenue. North of Franklin Avenue, it would operate on-street to the vicinity of 11th/12th Street where it would turn west onto 11th Street operating as a **one-way pair** between Nicollet Mall and Royalston Avenue. At Royalston the alternative would use the same routing as the LRT 1A and LRT 3A alternatives, which interline with the Hiawatha/Central LRT lines on 5th Street.

A "one-way pair" is two one-way tracks running in opposite directions on parallel streets.

Stations are proposed at Mitchell Road, Southwest Station, Eden Prairie Town Center, Golden Triangle, City West, Opus, Shady Oak Road, downtown Hopkins, Blake Road, Louisiana Avenue, Wooddale Avenue, Beltline Boulevard, West Lake Street, Hennepin Avenue (Uptown), Lyndale Avenue, 28th Street and either Blaisdell Avenue or 1st Avenue, Franklin Avenue and either Blaisdell Avenue or 1st Avenue, 12th Street/Nicollet Mall, 11th Street/Hawthorne Avenue, 12th Street/Harmon Avenue, and Royalston Avenue.

The LRT 3C-2 (11th/12th Street) Alternative proposes to use either a tunnel under Nicollet Avenue, with optional routes under Blaisdell or 1st Avenue, between the Midtown Corridor and Franklin Avenue. For the Blaisdell Avenue option, the LRT would exit the tunnel at Blaisdell and Franklin and transition across the Plymouth Congregational Church property to enter center-running operations on Nicollet Avenue. The LRT would operate in the center of Nicollet Avenue to 12th Street. For the 1st Avenue option, the LRT would exit the tunnel north of Franklin and operate center-running on 1st Avenue to 16th Street where it would transition diagonally across the City of Minneapolis meter farm entering Nicollet Avenue at 15th Street for center-running operations to 12th Street. At 12th Street under all options the LRT would operate as a one-way pair on 11th and 12th Street, rejoining as a two-way configuration on 12th Street at Glenwood, then operating on Royalston Avenue with a short tunnel under 7th Street and **interlined** on the Hiawatha/Central LRT tracks on 5th Street in downtown Minneapolis.

"Interlined" LRT shares/uses the same tracks/guideway as another transit line

Proposed at-grade crossings include:

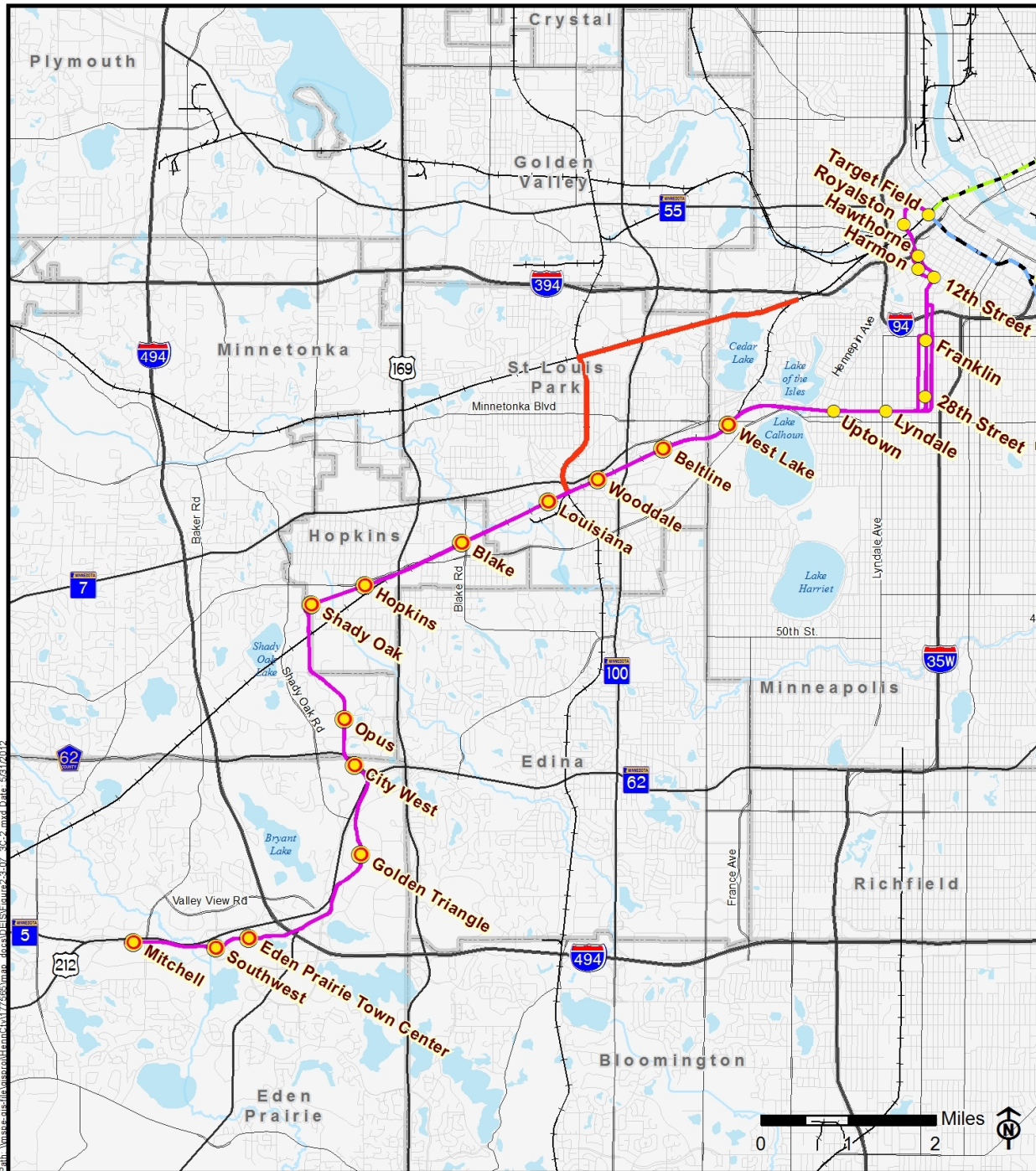
- | | | |
|---|---|--|
| • Mitchell Road | • 8 th Avenue (proposed extension) | • Grant Street |
| • Bus-only ramps to/from TH 5 | • 5 th Avenue | • 13 th Street |
| • Technology Drive | • Blake Road | • 12 th Street |
| • Commercial property access along Technology Drive | • Wooddale Avenue | • 11 th Street |
| • Valley View Road | • Beltline Boulevard | • LaSalle Avenue |
| • Flying Cloud Drive | • James Avenue | • Harmon Place |
| • West 70 th Street | • Irving Avenue | • Hennepin Avenue |
| • Bren Road East | • Humboldt Avenue | • Hawthorne Avenue |
| • Bren Road West | • Franklin Avenue | • I-394 Interchange at 12 th Street |
| • Combined Feltl and Smetana Road intersection | • Groveland Avenue | • Glenwood Avenue |
| • K-Tel Drive | • 18 th Street | • 7 th Street |
| • 16 th Avenue (proposed extension) | • 15 th Street | |
| • 11 th Avenue | • 14 th Street | |

Table 2.3-6 summarizes the station descriptions for LRT 3C-2 (11th/12th Street). Figure 2.3-7 shows Build Alternative LRT 3C-2 (11th/12th Street).

Table 2.3-6. Station Descriptions for LRT 3C-2 (11th/12th Street)

Station Location	Platform	Parking Spaces	
		Surface	Structured
Mitchell Road	At-grade; center platforms	400	400
Southwest Station	At-grade; center platforms	NA	400
Eden Prairie Town Center	At-grade; center platforms	NA	650
Golden Triangle	At-grade; center platforms	100	NA
City West	At-grade; center platforms	NA	100
Opus	At-grade; center platforms	100	NA
Shady Oak Road	At-grade; center platforms	250	NA
Downtown Hopkins	At-grade; center platforms	100	NA
Blake Road	At-grade; center platforms	350	NA
Louisiana Avenue	Elevated; center platforms	100	NA
Wooddale Avenue	At-grade; center platforms	100	NA
Beltline Boulevard	At-grade; center platforms	100	NA
West Lake Street	At-grade; center platforms	150	NA
Hennepin Avenue (Uptown)	Open cut; side platforms	NA	NA
Lyndale Avenue	Open cut	NA	NA
28 th Street and either Blaisdell Avenue or 1 st Avenue	Subway; center platforms	NA	NA
Franklin Avenue and either Blaisdell Avenue or 1 st Avenue	Subway; center platforms	NA	NA
12 th Street/Nicollet Mall	At grade; side platforms	NA	NA
11 th Street/Hawthorne Avenue	At grade;	NA	NA
12 th Street/Harmon Avenue	At grade;	NA	NA
Royalston Avenue	At grade; center platforms	NA	NA

Source: HDR, Engineering, 2009



Legend

- Station
- Park & Ride Station
- LRT 3C-2
- Hiawatha Light Rail
- Northstar Commuter Rail
- Municipal Boundary
- Freight Rail Relocation
- Railroad

**Figure 2.3-7
Build Alternative LRT 3C-2**



LRT 3A-1 (Co-location Alternative)

LRT 3A-1 (co-location alternative) travels between Mitchell Road in Eden Prairie and downtown Minneapolis, providing service to Eden Prairie, Minnetonka, Hopkins, Edina, St. Louis Park, and Minneapolis. This alternative would operate from TH 5 and Mitchell Road on new ROW through the Opus/Golden Triangle areas along Technology Drive to the HCRRA property, through St. Louis Park and Hopkins, then along the Kenilworth Corridor through Minneapolis to Royalston Avenue, then past the downtown Target Field Station using an extension of the Hiawatha LRT tracks on 5th Street.

From just east of the proposed Louisiana Avenue LRT station and the proposed Penn Avenue Station, the Southwest LRT, freight rail, and commuter bike trails (Cedar Lake LRT Trail and the Kenilworth Trail) would be co-located as requested by the City of St. Louis Park in their September 2008 letter. The existing freight tracks along the CP Bass Lake Spur and the HCRRA Cedar Lake Junction (locally referred to as the Kenilworth tracks) would need to be reconstructed to meet BNSF design standards for clearance requirements, as well as meeting recommended build out criteria for track roadbed.

An elevated LRT structure is proposed between the planned Louisiana Avenue station and the Wooddale Avenue station to accommodate the LRT's transition from placement on HCRRA owned property to the north of the CP Bass Lake Spur to placement south of the CP Bass Lake Spur prior to crossing Wooddale Avenue at-grade.

Stations are proposed at Mitchell Road, Southwest Station, Eden Prairie Town Center, Golden Triangle, City West, Opus, Shady Oak Road, downtown Hopkins, Blake Road, Louisiana Avenue, Wooddale Avenue, Beltline Boulevard, West Lake Street, 21st Street, Penn Avenue, Van White Boulevard, and Royalston Avenue. Stations from Louisiana Avenue to Penn Avenue would have slightly different locations than the LRT 3A (LPA) Alternative because a larger footprint would be needed for the co-location of freight rail, LRT, and commuter bike trails. Proposed at-grade crossings include:

- | | | |
|---|--|---------------------------|
| • Mitchell Road | • Bren Road East | • 5 th Avenue |
| • Bus-only ramps to/from TH 5 | • Bren Road West | • Blake Road |
| • Technology Drive | • Combined Feltl and Smetana Road intersection | • Wooddale Avenue |
| • Commercial property access along Technology Drive | • K-Tel Drive | • Beltline Boulevard |
| | | • Valley View Road |
| • 16 th Avenue (proposed extension) | • Cedar Lake Parkway | • 21 st Street |

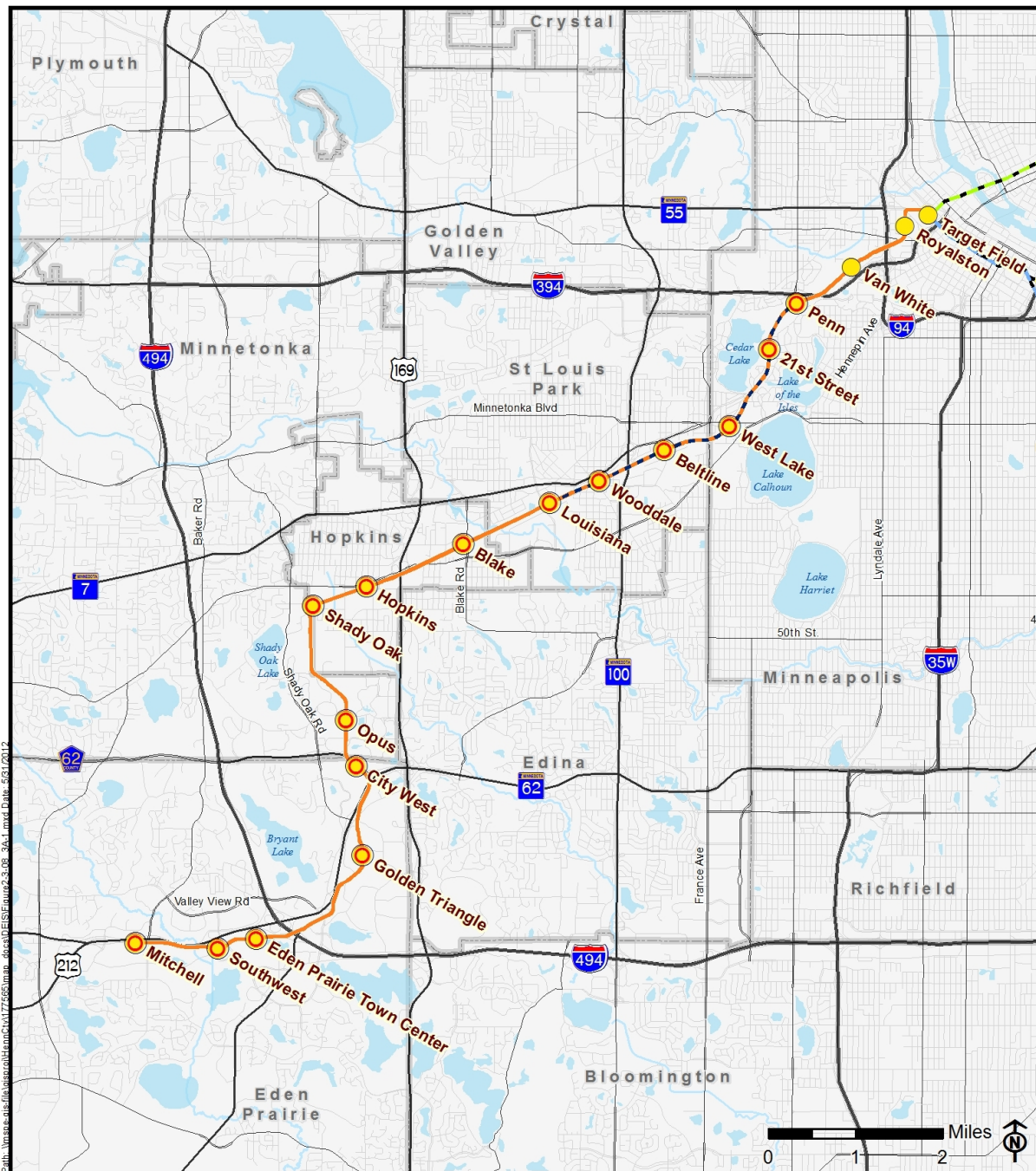
- Flying Cloud Drive
- 11th Avenue
- Holden Avenue
- West 70th Street
- 8th Avenue
(proposed extension)
- HERC entrance

Table 2.3-7 summarizes the station descriptions for LRT 3A-1 (co-location alternative). Figure 2.3-8 shows Build Alternative LRT 3A-1 (co-location alternative).

Table 2.3-7. Station Descriptions for LRT 3A-1 (Co-location Alternative)

Station Location	Platform	Parking Spaces	
		Surface	Structured
Mitchell Road	At-grade; center platforms	400	400
Southwest Station	At-grade; center platforms	NA	400
Eden Prairie Town Center	At-grade; center platforms	NA	650
Golden Triangle	At-grade; center platforms	100	NA
City West	At-grade; center platforms	NA	100
Opus	At-grade; center platforms	100	NA
Shady Oak Road	At-grade; center platforms	250	NA
Downtown Hopkins	At-grade; center platforms	100	NA
Blake Road	At-grade; center platforms	350	NA
Louisiana Avenue	Elevated; center platforms	100	NA
Wooddale Avenue	At-grade; center platforms	100	NA
Beltline Boulevard	At-grade; center platforms	100	NA
West Lake Street	At-grade; center platforms	150	NA
21 st Street	At-grade; center platforms	100	NA
Penn Avenue	At-grade; center platforms	100	NA
Van White Boulevard	At-grade; center platforms	NA	NA
Royalston Avenue	At-grade; center platforms	NA	NA

Source: HDR, Engineering, 2012



Legend

- Station
- Park & Ride Station
- Freight Rail Co-location
- LRT 3A-1
- Hiawatha Light Rail
- Northstar Commuter Rail
- Municipal Boundary

**Figure 2.3-8
Build Alternative LRT 3A-1**



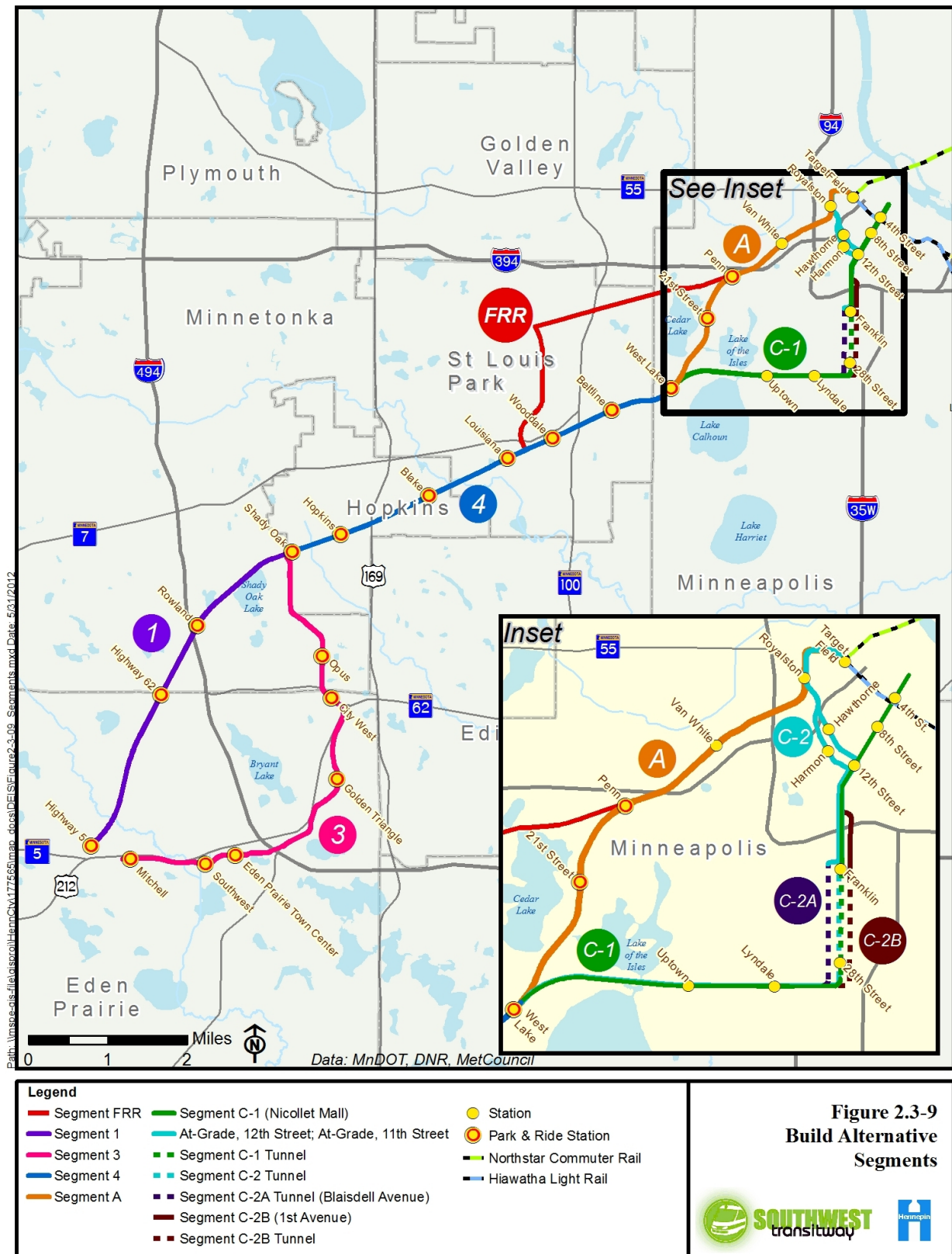
2.3.3.4 Build Alternative Segments

In this Draft EIS, the Build Alternatives are presented and analyzed by segment. For evaluation purposes the segments are then combined into the respective Build Alternative for reporting potential impacts. Refer to **Table 2.3-8** below and Figure 2.3-9 for identification of the segments that comprise each Build Alternative and the stations included on each segment.

Table 2.3-8. Build Alternatives and Segments

Build Alternatives	Segments
LRT 1A	Segment 1, Segment 4, Segment FR, Segment A
LRT 3A (LPA)	Segment 3, Segment 4, Segment FR, Segment A
LRT 3C-1 (Nicollet Mall)	Segment 3, Segment 4, Segment FR, Segment C-1 (Nicollet Mall)
LRT 3C-2 (11 th /12 th Street)	Segment 3, Segment 4, Segment FR, Segment C-2 (11 th /12 th Streets via Nicollet Avenue Tunnel)
	Segment 3, Segment 4, Segment FR, Segment C-2A (11 th /12 th Streets via Blaisdell Avenue Tunnel)
	Segment 3, Segment 4, Segment FR, Segment C-2B (11 th /12 th Streets via 1 st Avenue Tunnel)
LRT 3A-1 (Co-location alternative)	Segment 3, Segment 4, Segment A

Source: HDR, Engineering, 2012



2.3.3.5 Right-of-Way

The ROW needed for the Build Alternatives would vary depending on whether the alignment of the fixed guideway would be at-grade or elevated. The typical sections and general ROW needs for LRT are shown in Figure 2.3-10 through Figure 2.3-18 below. The Build Alternatives would primarily use HCRRRA owned ROW, which is abandoned freight rail property acquired to preserve it for a future transportation use. In addition, the Build Alternatives would use sections of existing roadway ROW and new ROW. Additional ROW is assumed to be acquired for proposed park and ride facilities and **traction power substations (TPSS)** for all Build Alternatives. The conceptual engineering drawings in Appendix F illustrate general locations of anticipated ROW acquisition.

“Traction power substations” are LRT power sources; these are enclosed structures surrounded by security fencing.

Figure 2.3-10. LRT Guideway – 100-foot Right of Way At Grade – Typical Section

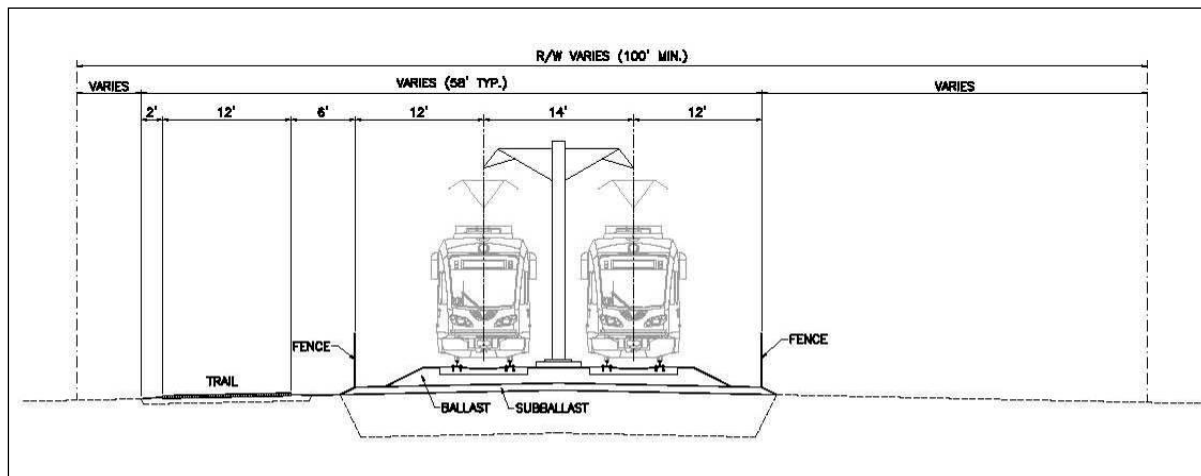


Figure 2.3-11. LRT Guideway – Aerial Structure – Typical Section

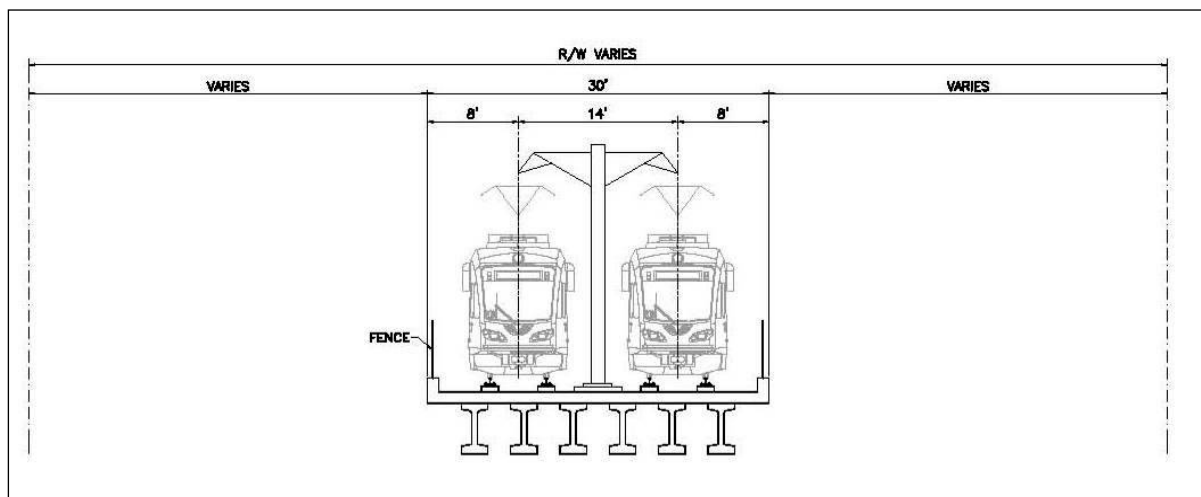


Figure 2.3-12. LRT Guideway – Embedded Track – Typical Structure

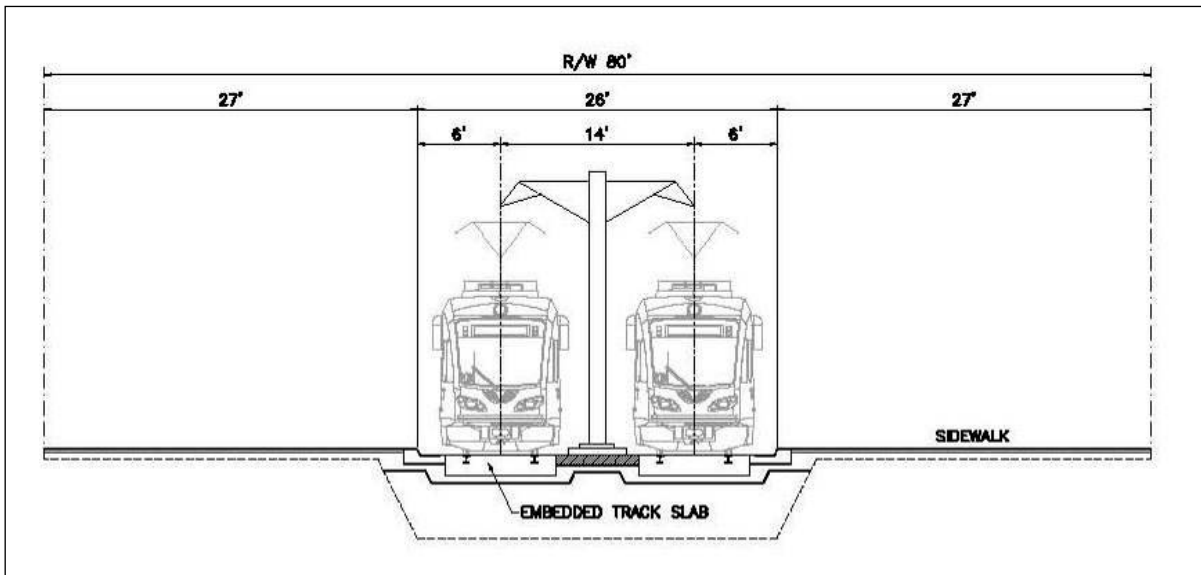
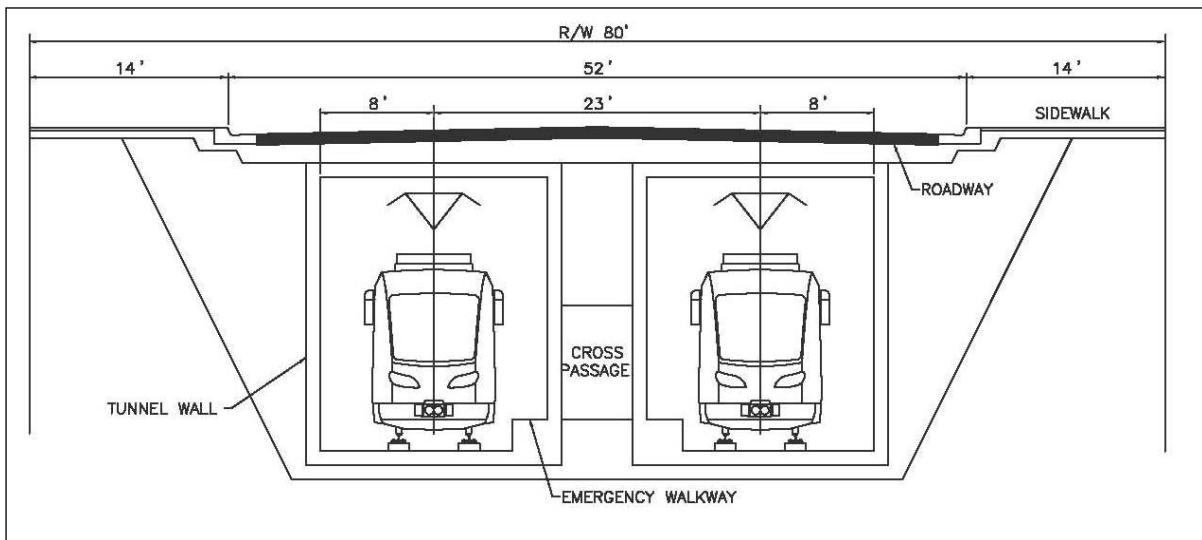
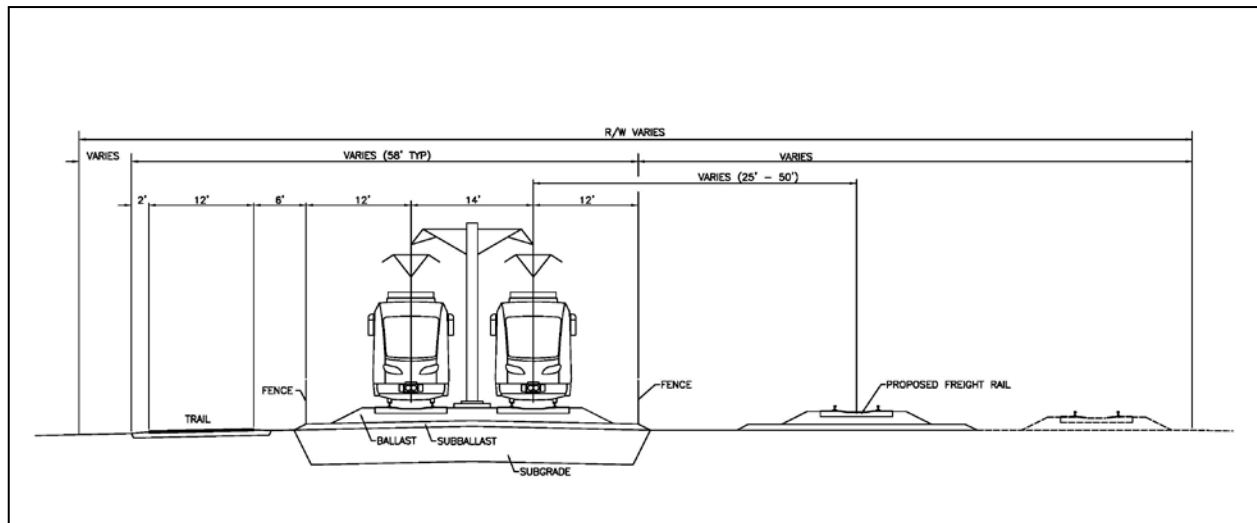


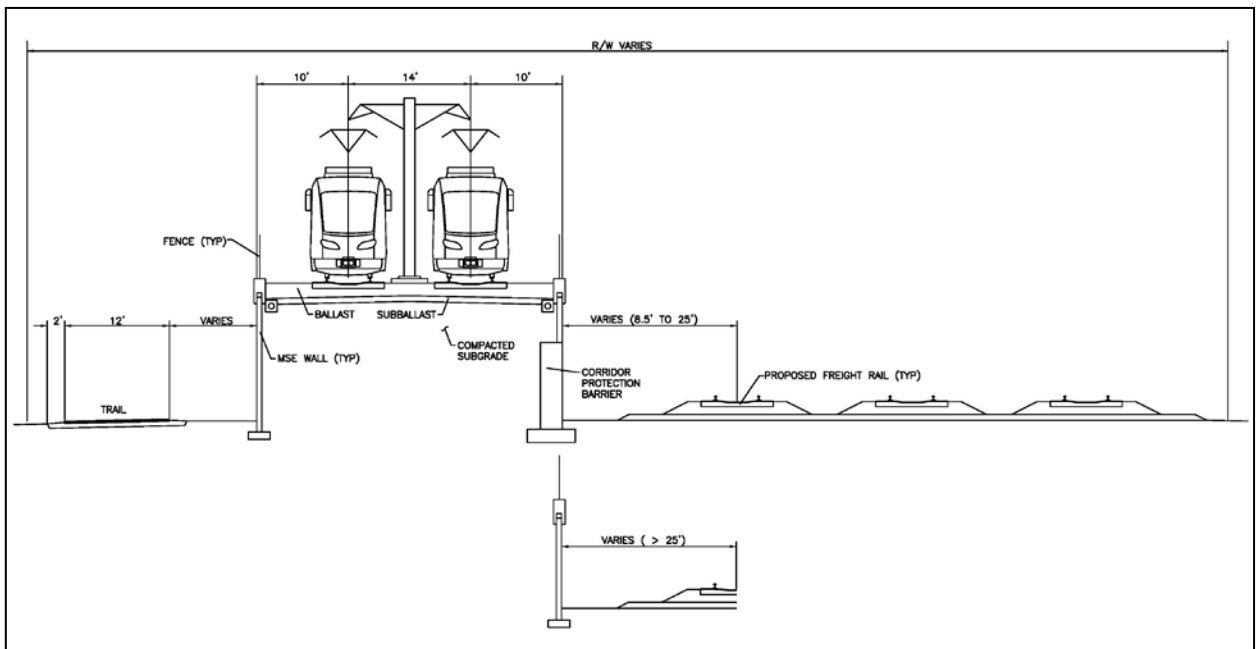
Figure 2.3-13. LRT Guideway – Cut and Cover Tunnel – Typical Structure



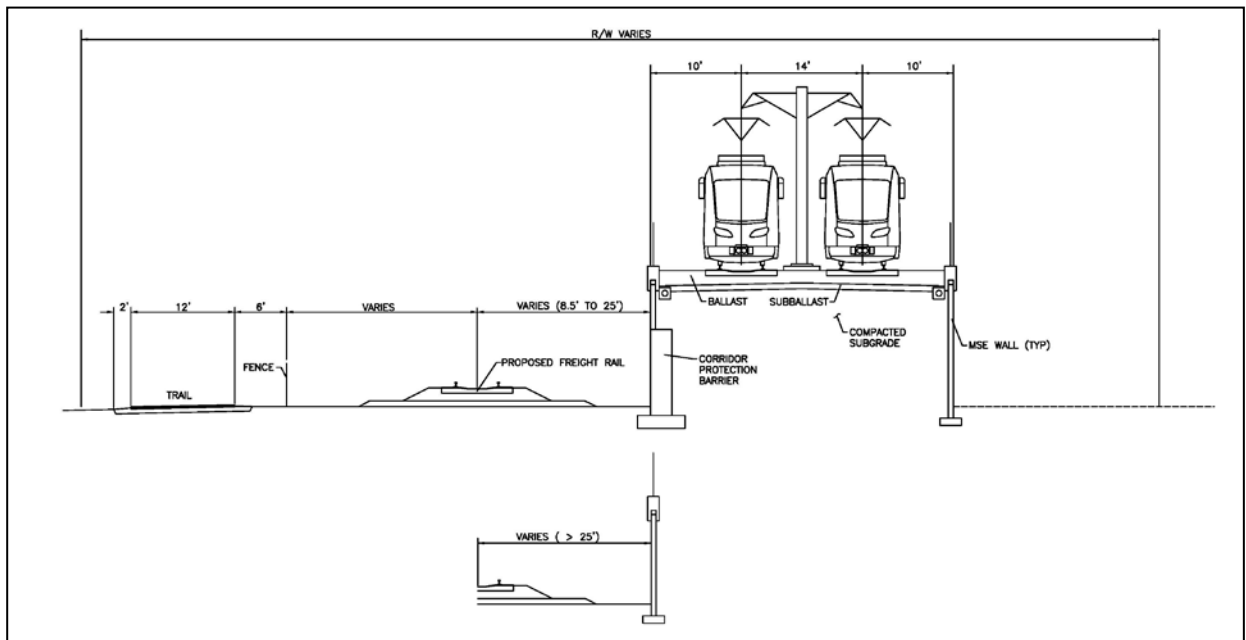
**Figure 2.3-14. LRT Guideway – LRT 3A-1 (Co-location Alternative)
Freight Rail South of LRT**



**Figure 2.3-15. LRT Guideway – LRT 3A-1 (Co-location Alternative)
West of Crossover**



**Figure 2.3-16. LRT Guideway – LRT 3A-1 (Co-location Alternative)
East of Crossover**



**Figure 2.3-17. LRT Guideway – LRT 3A-1 (Co-location Alternative)
Freight Rail North of LRT**

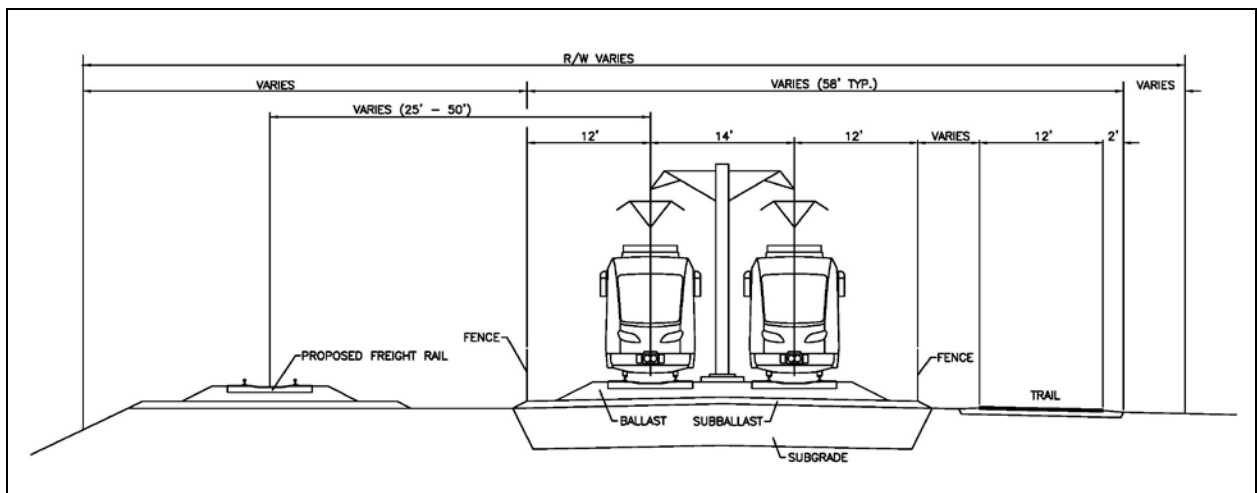
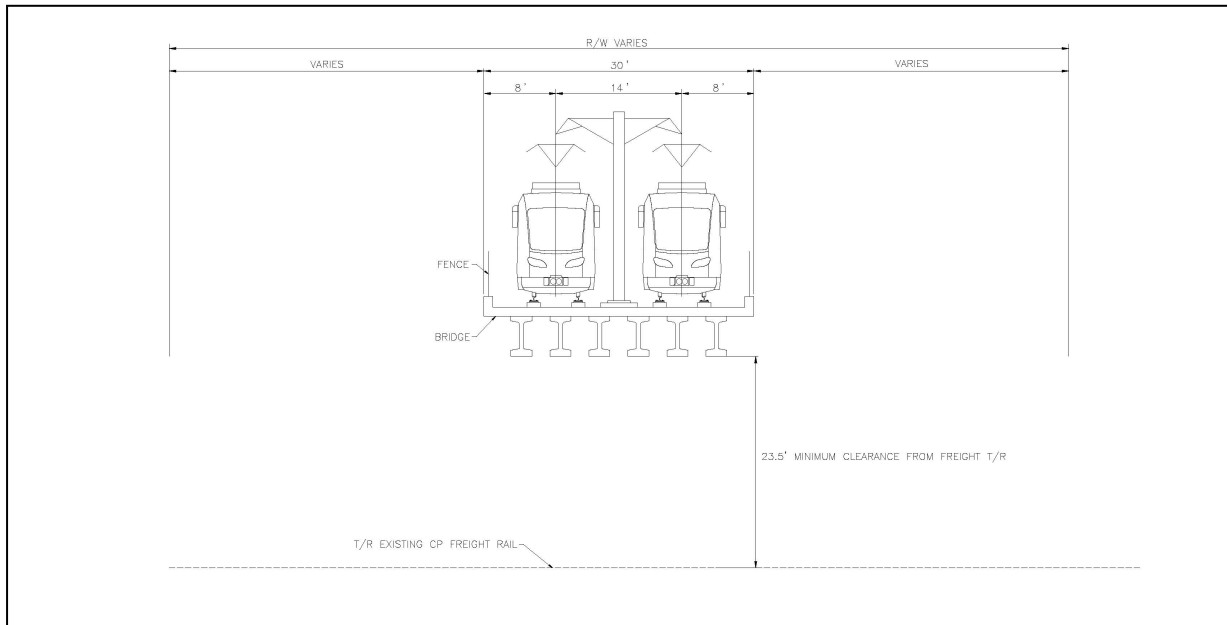


Figure 2.3-18. LRT Guideway – LRT 3A (LPA) - Aerial Structure of CPRR



2.3.3.6 Traction Power Substations

TPSSs would be included at approximately one-mile intervals along the Build Alternatives to supply electrical power to the traction networks and to the passenger stations. TPSSs do not generate electricity. They convert existing electrical current to an appropriate type (AC to DC) and level to power LRT vehicles. The TPSS sites would be approximately 80 feet by 120 feet.

The proposed general locations for TPSSs are shown in Appendix F. The proposed sites were located to minimize impacts to the surrounding properties; however, the site locations are subject to change during Preliminary Engineering and Final Design. TPSS sites are selected to meet a balance of safety, reliability, cost, and operational efficiency needs. **Photo 2.3-1** is a picture of a working TPSS.

Photo 2.3-1. Typical TPSS Facility



2.3.3.7 Traffic and Train Control

Active devices - such as traffic signals, railroad-type flashers, and bells - are proposed to control traffic at locations where the LRT would cross public streets. In low-speed areas, including downtowns, intersection traffic signals would be used. Traffic and pedestrian signals, signs, and markings would generally be in accordance with the current *Manual on Uniform Traffic Control Devices* (MUTCD).

Signal bungalows are small sheds that hold the equipment to operate and monitor the signals that regulate train movement on the alignment. Signal bungalows need to be placed near special trackwork such as **turnouts and crossovers** within the LRT ROW to minimize installation costs and power demand and to reduce power losses. At this stage of the project, signal bungalow locations have not been identified. The number and locations of the bungalows will be identified in the Final Environmental Impact Statement (Final EIS). **Photo 2.3-2** is a picture of a typical signal bungalow.

Railway "turnouts and crossovers" are mechanical installations enabling trains to move from one track to another.

Photo 2.3-2. Typical Signal Bungalow



2.3.3.8 Vehicles

The Southwest light rail vehicles (LRVs) are assumed to be similar in design and operating characteristics to the Hiawatha LRVs. The vehicles are designed to operate independently or to be coupled and operated as multiple-unit train sets. Depending on the Build Alternative, the LRT fleet assumes that 19 to 30 additional vehicles would be required for operations.

2.3.3.9 Operations and Maintenance Facility

The Build Alternatives for the Southwest Transitway will need an LRT Operations and Maintenance Facility (OMF). The proposed facility would be used for heavy vehicle

maintenance and running repairs for the LRT vehicles, as well as a storage area for vehicles that are not in service. LRT vehicles would be cleaned and repaired inside and outside daily. They would also be inspected and serviced according to a fixed inspection and maintenance schedule to help ensure operational safety and reliability. The OMF would also be where LRT administrative staff would report for work and where trains would enter and leave revenue service each day. Having an OMF in an efficient location along the proposed rail line is considered important in minimizing non-revenue mileage traveled by trains, and for adjusting train lengths during different periods of the day.

Some of the features and functions needed at the OMF would include:

- Storage yard for the Southwest Transitway LRT fleet
- Train make-up and yard dispatch
- **Circulation and lead tracks**
- Service and inspection shops for interior and exterior cleaning, light maintenance, and repairs
- Support facilities such as parts storage, building mechanical and electrical space, administration and records offices, employee locker and washrooms, conference and training rooms, and lunch and vending rooms
- Parking for employees and visitors

“Circulation and lead tracks” are segments of track, separated from the mainline tracks, which are used to store and move cars without interfering with mainline traffic.

Initially, more than 20 locations were considered for the Southwest Transitway LRT OMF. These sites were evaluated and screened to determine those sites most feasible for further evaluation in the Draft EIS. The OMF Site Evaluation technical memorandum documenting the evaluation process may be found in Appendix H. The four sites currently being considered include:

- Eden Prairie 1 – This approximately 10-acre site is located south and southwest of the TH 212/Wallace Road interchange, approximately ¼ mile west of the Mitchell Road station.
- Eden Prairie 2 (Wallace Road) – This approximately 24-acre site is located on the west side of TH 212 just south of TH 5.
- Eden Prairie 3 (Mitchell Road) – This approximately 10-acre site is located on the west side of Mitchell Road south of TH 5.
- Minneapolis 4 – This is a nearly 14-acre site located approximately one-quarter mile northwest of Target Field in western downtown Minneapolis. This site is centered on 5th Street North between 6th Avenue North and 10th Avenue North, is bounded by the 3rd Street/4th Street viaduct to the northeast, and by the Metro Transit Heywood Bus Garage to the southwest.

2.3.3.10 Existing Transit Operating Plan Changes

All Build Alternatives are assumed to operate on the same frequency and **service periods** as the existing Hiawatha LRT line and the Central Corridor LRT line, which is currently under construction. Fares would be based on the Metro Transit fare structure policy. The Build Alternatives assume that parking would be

“Service periods” are hours and days of operation (ex. Monday through Friday, 9 am to 5 pm).

provided as shown in Table 2.3-2 through Table 2.3-5 above. Vehicle operating speeds for the Build Alternatives may be as high as 55 miles per hour (mph) depending upon operating conditions. The average speed over the entire length of the Build Alternatives would range from 25 to 33 mph.

The bus-rail integration operating plan for the Southwest Transitway assumes modifications such as restructuring local bus routes to serve the LRT stations, eliminating duplicate routes, and creating new routes.

Proposed Service Modifications

For each Build Alternative, the bus operating plan would be modified to improve intermodal connectivity and maximize rail ridership.

Table 2.3-9 through Table 2.3-11 summarize the major changes that would be made to the bus operating plan for each Build Alternative.

Table 2.3-9. Bus Service Changes – LRT 1A

Station	Bus Routes	Changes
TH 5	631, 636	Midday service on Route 636 eliminated. Peak frequency on Route 631 increased.
TH 62	661, 681 Circulator	Route 661 maintained with a slight route modification. Route 681-Circulator is a new route serving Eden Prairie and Golden Triangle.
Shady Oak	12	Route 12 serves this station. Its downtown segment is eliminated.
Hopkins	12, 661, 615, 664, 665	Routes 12, 615, and 664 rerouted to serve Hopkins. Route 661 is a new route. Peak frequency increased. Route 665 is also increased in service frequency.
Blake	17, 615, 668	Routes 17 and 668 extended to Blake station and the Library loop is eliminated. Route 615 rerouted to serve Blake station.
Louisiana Ave	604	Frequency increased
Wooddale	17, 615	Frequency increased
Beltline	17, 604 ,615	Routes 604 and 615 extended to Beltline station. Peak frequency increased.
West Lake	6-shuttle, 12,17,21,25, 53	Route 6-Shuttle is a new route serving Edina between Southdale and West Lake station. Route 12 serves this station which is eastern terminus for Route 12. Its downtown segment is eliminated; Routes 21 and 53 are extended to connect to this station. Route 25 extended south to connect to this station.
21 st Street	25	Route 25 rerouted to connect to this station.

Source: HDR, Metro Transit, Metropolitan Council, 2009

**Table 2.3-10. Bus Service Changes
LRT 3A (LPA) and LRT 3A-1 (Co-location Alternative)**

Station	Bus Routes	Changes
Mitchell	631, 636	Frequency on 631 changed from 1 hour to 15 min during peak periods. Route 636 remains unchanged but midday service eliminated.
Southwest	603, 631, 636, 681 Circulator, 690, 690A, 690B	Double the frequency on Route 603. Route 681 is combined with Routes 690 and 690A to operate a high-frequency, bi-directional service between Southwest station and Minneapolis downtown. For Routes 636, 681, 631, see LRT 1A. Changes to 631 and 636 discussed under Mitchell.
Eden Prairie	636, 681	See above
Golden Triangle	631, 681	See above
Shady Oak	12	See LRT 1A
Hopkins	12, 661, 615, 664, 665	See LRT 1A
Blake	17, 615, 668	See LRT 1A
Louisiana Ave	604	See LRT 1A
Wooddale	17, 615	See LRT 1A
Beltline	17, 604, 615	See LRT 1A
West Lake	6-shuttle, 12, 17, 21, 25, 53	See LRT 1A
21st Street	25	See LRT 1A

Source: HDR, Metro Transit, Metropolitan Council, 2009, 2012

Table 2.3-11. Bus Service Changes
LRT 3C-1 (Nicollet Mall) and LRT 3C-2 (11th/12th Street)

Station	Bus Routes	Changes
Mitchell	631, 636	See LRT 3A (LPA)
Southwest	603, 631, 636, 681 Circulator, 690, 690A, 690B	Double the frequency on Route 603. Route 681 is combined with Routes 690 and 690A to operate a high-frequency, bi-directional service between Southwest station and Minneapolis downtown. For Routes 636, 681, 631, see LRT 1A.
Eden Prairie	636, 681	See above
Golden Triangle	631, 681	See above
Opus	12 and 661	See West Lake for route 12. Route 661 is reinstated and operates at 30 min peak and 60 min off-peak headways.
Shady Oak	12	See LRT 1A
Hopkins	12, 661, 615, 664, 665	See LRT 1A
Blake	17, 615, 668	See LRT 1A
Louisiana Ave	604	See LRT 1A
Wooddale	17, 615	See LRT 1A
Beltline	17, 604 ,615	See LRT 1A
West Lake	6-shuttle, 12, 17, 25,	Route 12 serves this station and terminates at Hennepin Avenue (Uptown). See LRT 1A for Route 6-shuttle.
Hennepin Avenue (Uptown)	12, 17	Route 12 serves this station which is eastern terminus for Route 12.
Lyndale	4, 21, 53, 113	No changes
28 th Street	18, 21, 53, 568	No changes
Franklin	2, 18, 53, 568	No changes

Source: HDR, Metro Transit, Metropolitan Council, 2009

Southwest Transitway Operating Characteristics

The operating plan requires two-car trains during weekday service. Table 2.3-12 summarizes the operating characteristics for the Build Alternatives.

Table 2.3-12. Southwest Transitway Operating Characteristics

	LRT 1A	LRT 3A (LPA)	LRT 3A-1 (Co-location Alternative)	LRT 3C-1 (Nicollet Mall)	LRT 3C-2 (11 th /12 th Street)
Span of Service	5 a.m. to 1 a.m.	5 a.m. to 1 a.m.	5 a.m. to 1 a.m.	5 a.m. to 1 a.m.	5 a.m. to 1 a.m.
Frequency (minutes)	7.5	7.5	7.5	7.5	7.5
Number of Stations	14	17	17	20	21
One-way Running Time (from end of line to Target Field station)	26 minutes	32 minutes	32 minutes	40 minutes	41 minutes

Source: HDR, 2012

TABLE OF CONTENTS

2.0	ALTERNATIVES CONSIDERED	2-1
2.1	Alternatives Considered for Project Development Purposes	2-1
2.1.1	Alternatives Analysis	2-1
2.1.2	Alternatives Identified Through NEPA / MEPA Scoping	2-8
2.1.3	Locally Preferred Alternative Recommendation	2-12
2.2	Alternatives Considered but Eliminated from Further Discussion	2-18
2.3	Draft EIS Alternatives	2-18
2.3.1	No Build Alternative	2-18
2.3.2	Enhanced Bus Alternative	2-23
2.3.3	Build Alternatives	2-25

LIST OF TABLES

TABLE 2.1-1: PROJECT GOALS AND OBJECTIVES	2-6
TABLE 2.1-2. EVALUATION RESULTS OF THE SOUTHWEST TRANSITWAY ALTERNATIVES	2-7
TABLE 2.1-3. LPA EVALUATION	2-16
TABLE 2.3-1. ENHANCED BUS ALTERNATIVE SERVICE PLAN OPERATION HOURS AND FREQUENCY (IN MINUTES)	2-25
TABLE 2.3-2. MN&S SPUR EXISTING VS. FUTURE FREIGHT RAIL TRAINS	2-27
TABLE 2.3-3. STATION DESCRIPTIONS FOR LRT 1A	2-29
TABLE 2.3-4. STATION DESCRIPTIONS FOR LRT 3A (LPA)	2-32
TABLE 2.3-5. STATION DESCRIPTIONS FOR LRT 3C-1 (NICOLLET MALL)	2-35
TABLE 2.3-6. STATION DESCRIPTIONS FOR LRT 3C-2 (11TH/12TH STREET)	2-39
TABLE 2.3-7. STATION DESCRIPTIONS FOR LRT 3A-1 (CO-LOCATION ALTERNATIVE)	2-42
TABLE 2.3-8. BUILD ALTERNATIVES AND SEGMENTS	2-44
TABLE 2.3-9. BUS SERVICE CHANGES – LRT 1A	2-53
TABLE 2.3-10. BUS SERVICE CHANGES	2-54
TABLE 2.3-11. BUS SERVICE CHANGES	2-55
TABLE 2.3-12. SOUTHWEST TRANSITWAY OPERATING CHARACTERISTICS	2-56

TABLE OF PHOTOS

PHOTO 2.3-1. TYPICAL TPSS FACILITY	2-50
PHOTO 2.3-2. TYPICAL SIGNAL BUNGALOW	2-51

TABLE OF FIGURES

FIGURE 2.1-1. SOUTHWEST TRANSITWAY “A” ALTERNATIVES, ALTERNATIVES ANALYSIS (2005)	2-2
FIGURE 2.1-2. SOUTHWEST TRANSITWAY “C” ALTERNATIVES, ALTERNATIVES ANALYSIS (2005)	2-3
FIGURE 2.1-3. SOUTHWEST TRANSITWAY BUS RAPID TRANSIT ALTERNATIVES, ALTERNATIVES ANALYSIS (2005)	2-4
FIGURE 2.1-4. ALTERNATIVE LRT 3E	2-11
FIGURE 2.1-5. ALTERNATIVE LRT 3C-2 (11TH /12TH)	2-13
FIGURE 2.1-6. ALTERNATIVES CONSIDERED FOR LPA SELECTION	2-15
FIGURE 2.3-1. FREIGHT RAIL FACILITIES	2-21
FIGURE 2.3-2. FREIGHT RAIL RELOCATION AND RAILROAD AREAS	2-22
FIGURE 2.3-3. ENHANCED BUS ALTERNATIVE (TSM/BASELINE ALTERNATIVE)	2-24
FIGURE 2.3-4. BUILD ALTERNATIVE LRT 1A	2-30
FIGURE 2.3-5. BUILD ALTERNATIVE LRT 3A	2-33
FIGURE 2.3-6. BUILD ALTERNATIVE LRT 3C-1	2-36

FIGURE 2.3-7. BUILD ALTERNATIVE LRT 3C-2	2-40
FIGURE 2.3-8. BUILD ALTERNATIVE LRT 3A-1.....	2-43
FIGURE 2.3-9. BUILD ALTERNATIVE SEGMENTS.....	2-45
FIGURE 2.3-10. LRT GUIDEWAY – 100-FOOT RIGHT OF WAY AT GRADE – TYPICAL SECTION	2-46
FIGURE 2.3-11. LRT GUIDEWAY – AERIAL STRUCTURE – TYPICAL SECTION	2-46
FIGURE 2.3-12. LRT GUIDEWAY – EMBEDDED TRACK – TYPICAL STRUCTURE	2-47
FIGURE 2.3-13. LRT GUIDEWAY – CUT AND COVER TUNNEL – TYPICAL STRUCTURE	2-47
FIGURE 2.3-14. LRT GUIDEWAY – LRT 3A-1 (CO-LOCATION ALTERNATIVE)	2-48
FIGURE 2.3-15. LRT GUIDEWAY – LRT 3A-1 (CO-LOCATION ALTERNATIVE)	2-48
FIGURE 2.3-16. LRT GUIDEWAY – LRT 3A-1 (CO-LOCATION ALTERNATIVE)	2-49
FIGURE 2.3-17. LRT GUIDEWAY – LRT 3A-1 (CO-LOCATION ALTERNATIVE)	2-49
FIGURE 2.3-18. LRT GUIDEWAY – LRT 3A (LPA) - AERIAL STRUCTURE OF CPRR	2-50