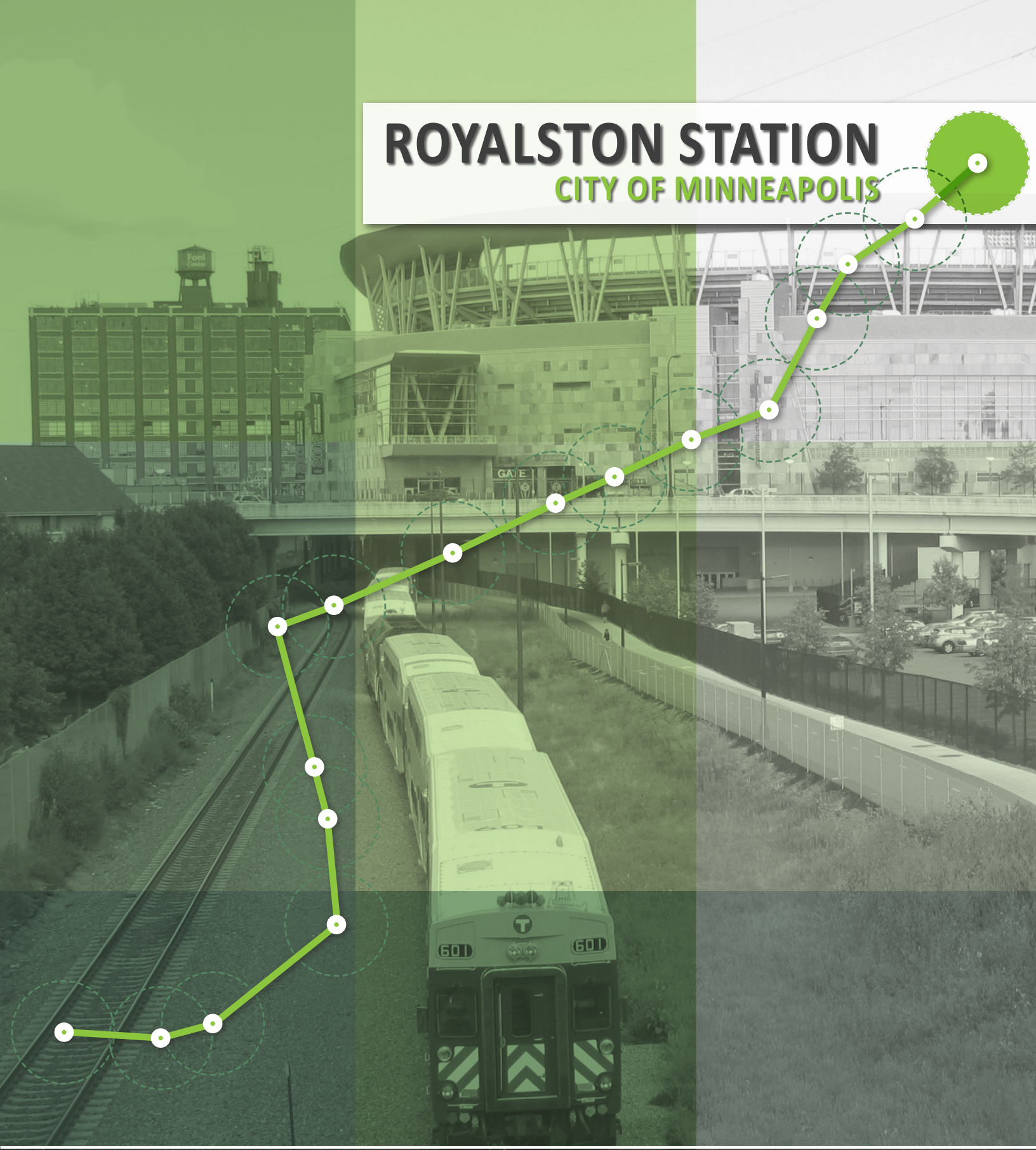
ROYALSTON STATION

CITY OF MINNEAPOLIS



SOUTHWEST CORRIDOR INVESTMENT FRAMEWORK

TRANSITIONAL STATION AREA ACTION PLAN

Hoisington Koegler Group Inc.

SOUTHWEST LRT community works
www.swlrtcommunityworks.org

Hennepin

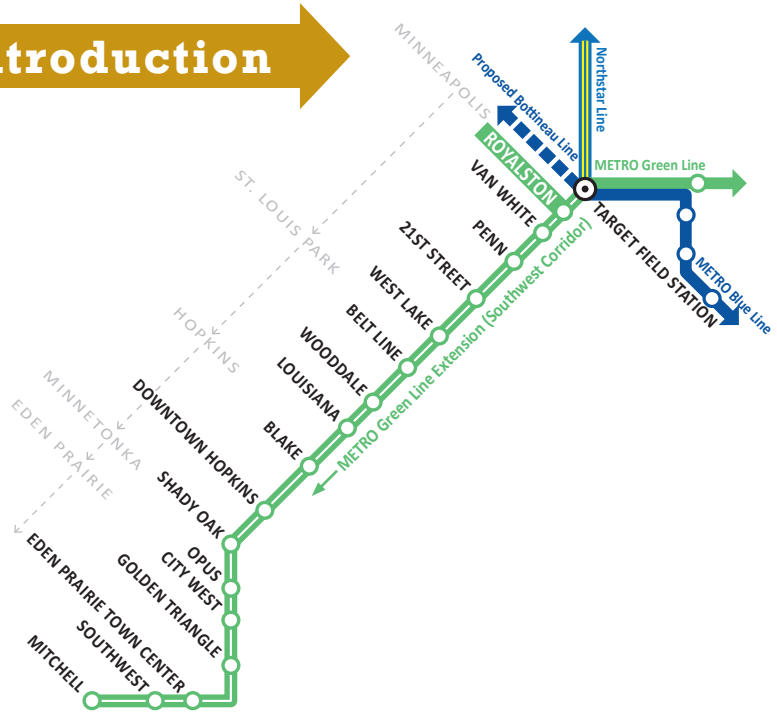
ABOUT THIS CHAPTER:

The Transitional Station Area Action Plans are the product of a Hennepin County led effort to help communities along the Southwest LRT corridor prepare for SW LRT's opening day in 2018 and beyond.

An individualized plan has been created for each of the 17 stations in the Southwest corridor, each plan comprising a chapter in the larger Southwest Corridor Investment Framework. The station area action plans suggest ways to build on local assets, enhance mobility, identify infrastructure needs, and capitalize on promising opportunities for development and redevelopment near each station.

Plan Components:

Introduction



ROYALSTON STATION WITHIN THE CORRIDOR:

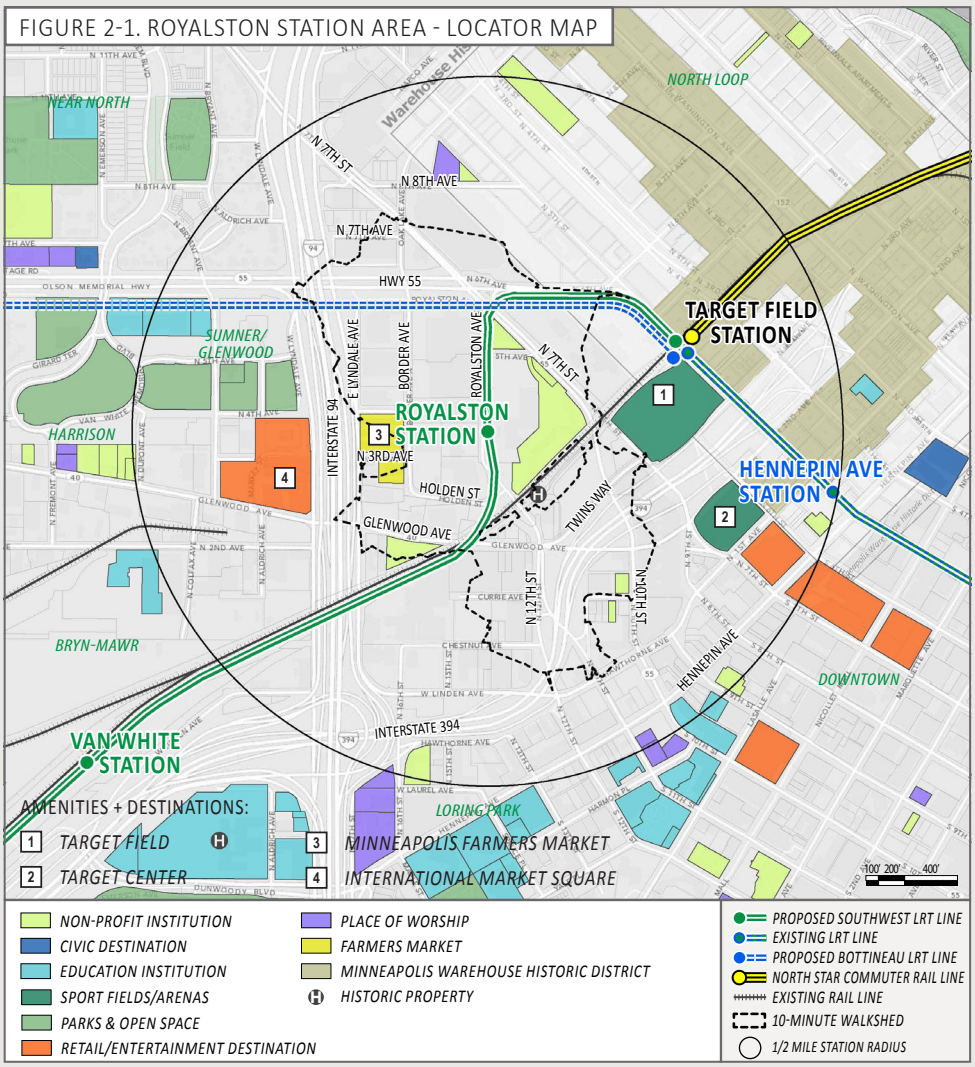
A vibrant Heritage, Arts, and Cultural destination attracting visitors from throughout the Twin City Region.

HERITAGE, ARTS AND CULTURE Royalston Station is the closest station to downtown Minneapolis and is identified as one of the Heritage, Arts and Culture stations in the corridor (see Place Types discussion beginning on p. 1-19). The station will play an important role in promoting arts, cultural and recreational activities near downtown Minneapolis. Major attractions including the Minneapolis Farmers Market, Target Field, and the International Market Square are located within the station walkshed. These facilities will draw a significant number of visitors especially during peak periods such as weekends and event days. The high volume of visitors traveling to and from these destinations has the potential to generate transit ridership at the station. National Register listed/eligible properties in this station area include the Minneapolis Warehouse Historic District and the Great Northern Main Railroad Line.

NEIGHBORHOOD The surrounding neighborhood includes low-rise industrial and commercial buildings. These older facilities occupy large street blocks, creating an inefficient street network that is unfriendly to pedestrians. Access to area destinations is further restricted by busy roadways and freeways including I-94 and I-394 which provide regional access to industrial and commercial businesses in the area. Residential areas, made up of single- and multi-family housing, are located away from the station in the Sumner/ Glenwood, North Loop, and Loring Park neighborhoods. Improved pedestrian access from the station to these neighborhoods will help generate transit ridership at Royalston.

OTHER DESTINATIONS The Hennepin Avenue Theater District can also be accessed via 7th, 10th, and12th Streets to the south of the station. The theater district contains the State Theater, Orpheum Theater, Pantages Theater, Hennepin Center for the Arts, along with other historic and architecturally significant art facilities.

FIGURE 2-1. ROYALSTON STATION AREA - LOCATOR MAP



NOTE: 10-minute walkshed approximates the area accessible within a 10-minute walk from the station platform using the existing sidewalk/trail network. See Glossary for walkshed assumptions and methodology.

Station Location

The Royalston Station is located just west of downtown Minneapolis, between Target Field and the Minneapolis Farmers Market. The proposed station platform is located on Royalston Avenue, midway between Glenwood Avenue and Olson Memorial Highway/Highway 55.

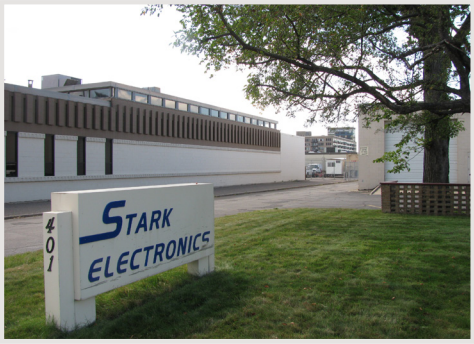
The area is dominated by low-rise industrial buildings, however, several destinations are within walking distance from the station including the Minneapolis Farmers Market, Target Field, Target Center, and the International Market Square. The Royalston Station also has the ability to serve residents in the burgeoning North Loop and Loring Park neighborhoods. Figure 2-1 shows the station location and proposed LRT alignments in the context of present day development and roadways.

ROYALSTON STATION AREA TODAY:

Minneapolis Farmers Market

Station area view of downtown

Royalston Avenue looking south



Existing light industrial uses

Nearby Cedar Lake LRT Regional Trail

Target Field

Where Are We Today?

The following section describes the station area's EXISTING CONDITIONS, including the local context, land uses, transit and transportation systems, pedestrian and bicycle facilities, assets, destinations, and barriers to accessing the station. This analysis of current conditions presents key issues and opportunities in the station area and informs the recommendations for future station area improvements.

NOTE: Existing conditions maps are based on data provided by Hennepin County and local municipalities. The data used to create each map is collected to varying degrees of accuracy and represents infrastructure and conditions at varying points in time. Actual conditions may vary slightly from what is shown.

Land Use

Land uses in the Royalston station area are dominated by industrial and commercial uses. Most of these are in the form of low-rise buildings, 1-2 stories tall. Block sizes in the area are large and the road network is limited, with poor east-west connections. Businesses in the area are served by adjacent freeway access to I-94 and I-394.

Significant land uses anticipated to generate transit ridership, located within walking distance from the station, include the Minneapolis Farmers Market, Target Field, Target Center, and International Market Square. The station will serve these destinations and local businesses but also has the potential to serve the North Loop and Loring Park neighborhoods, which lie just beyond the 10-minute walkshed.

FIGURE 2-2. EXISTING LAND USE

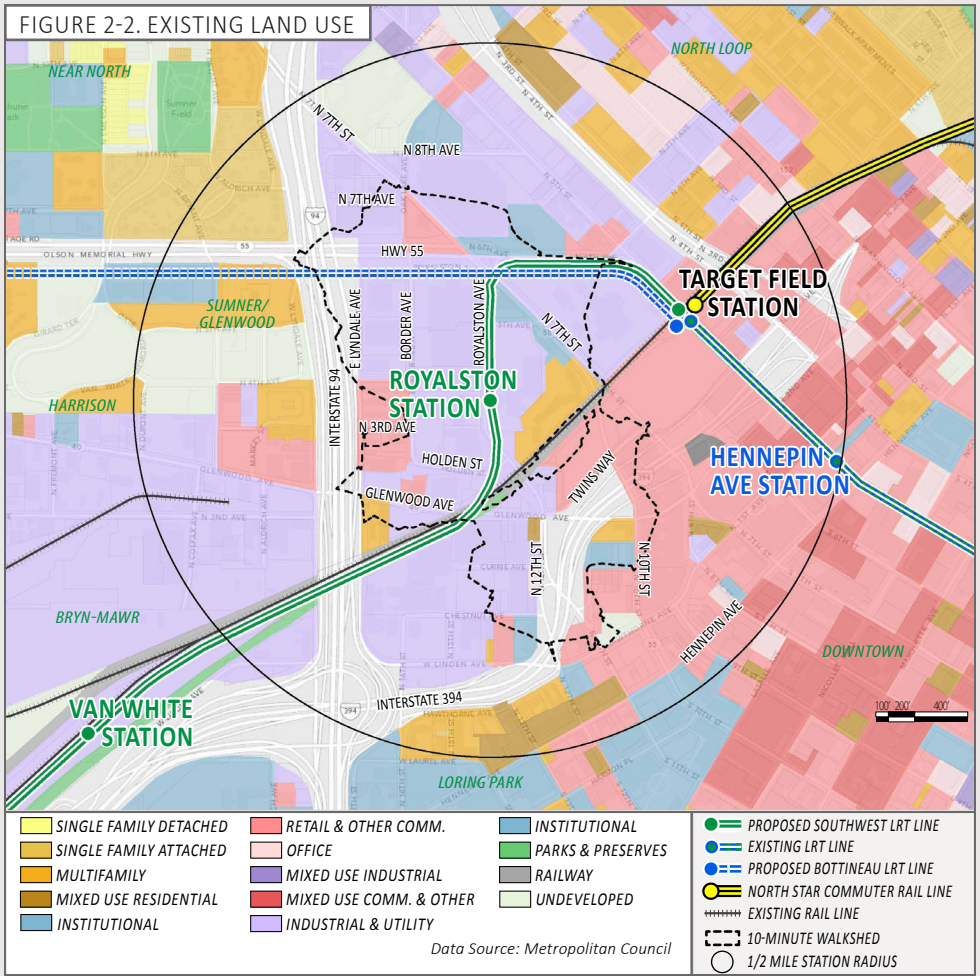
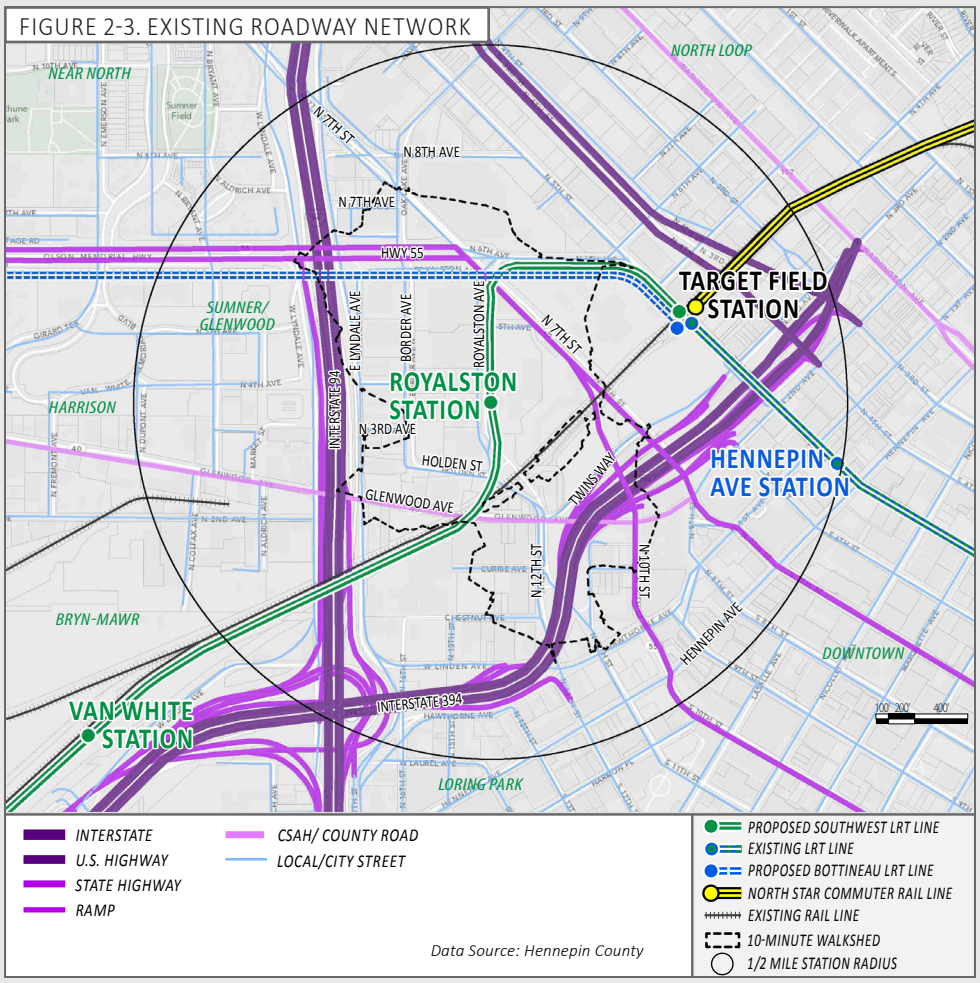


FIGURE 2-3. EXISTING ROADWAY NETWORK

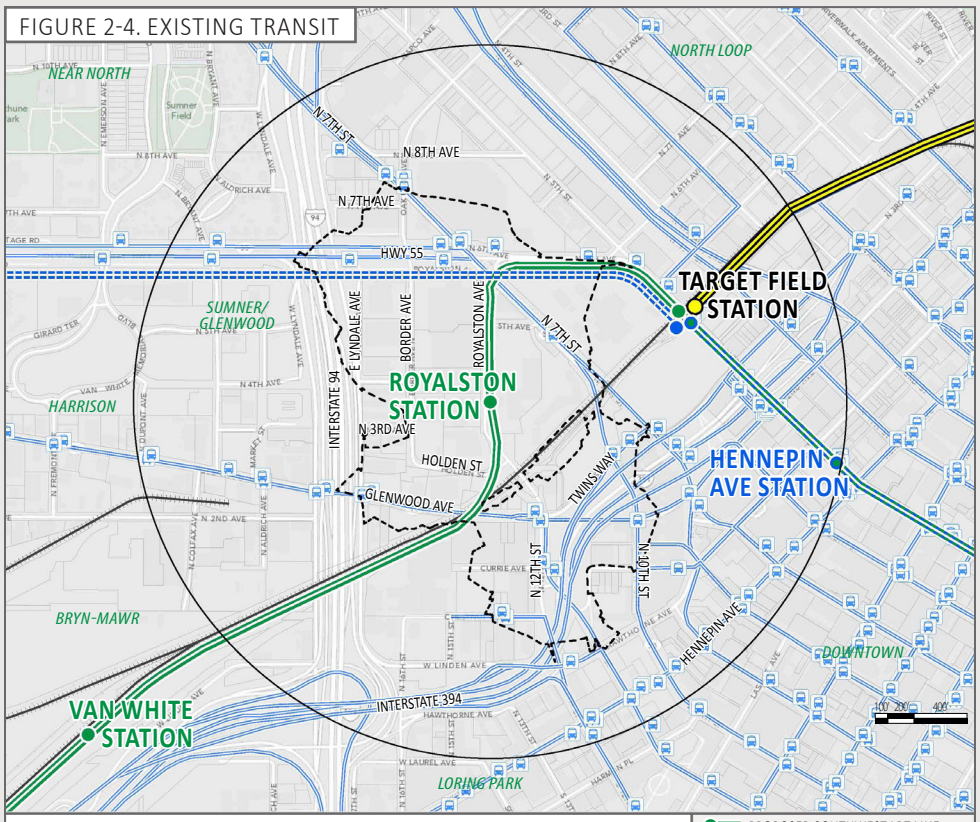


Roadway Network

The Royalston Station area connects to downtown along Royalston Avenue and 12th Street, or along 7th Street and 10th Street. Just to the north of the station, the intersection at Olson Memorial Highway/ Highway 55 and 7th Street is congested at peak traffic flow times. Although I-94 and I-394 offer good regional access to the area, these freeways also limit local movement for cars, pedestrians and bicycles to the west into the Bassett Creek Valley, Heritage Park, Harrison, and Bryn Mawr neighborhoods. Olson Memorial Highway/Highway 55 and Glenwood Avenue provide important connections to these destinations west of the station area.

Large block sizes and a limited roadway network in the area are designed to serve truck access to existing industrial and commercial businesses, however, access and circulation is limited if the area develops with greater intensity and a more diverse set of land uses.

FIGURE 2-4. EXISTING TRANSIT



Transit

Existing land uses in the area are not transit supportive, however, there are three major bus transit corridors that serve the area, bringing riders into downtown from the north and the west: Olson Memorial Highway/Highway 55, Glenwood Avenue and 7th Street. Of these corridors, 7th Street carries the greatest number of riders and frequency of buses, and will be a significant bus/LRT transfer interface. Proposed bus stops located at the intersection of 5th Avenue and 7th Street lie within a 2-3 minute walk from the proposed Royalston Station.

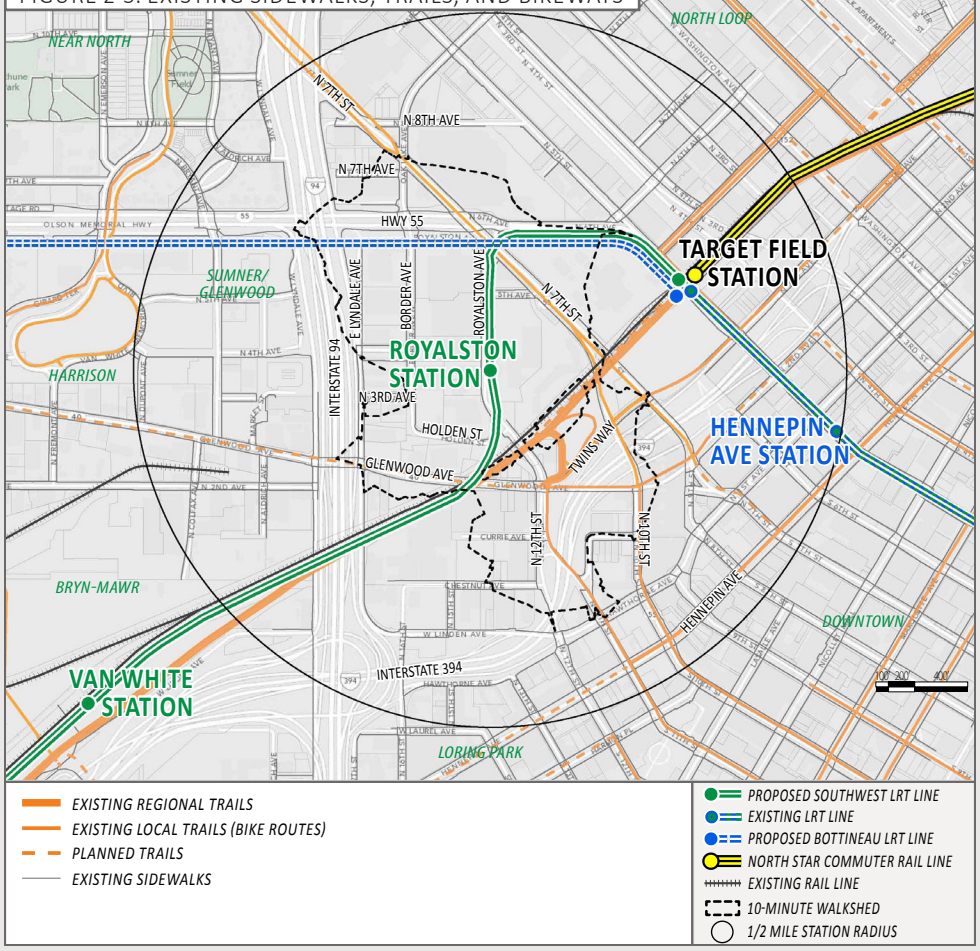
In addition to bus transit, other rail transit facilities/stations are located within walking distance of the Royalston Station, including Northstar Commuter Rail, the Target Field Station, Central Corridor and Hiawatha LRT Lines, and the future Bottineau LRT line.

Sidewalks, Trails, and Bikeways

Existing pedestrian and bicycle facilities in the Royalston Station area are limited and many barriers exist that further limit access and connectivity to and from the station. Large block sizes, industrial uses, major roadways, and the freight line, as well as a lack of sidewalks and bikeways, constrict safe and convenient mobility in the area.

Opportunities exist to enhance pedestrian and bicycle mobility to and from the station. Smaller block sizes, trail connections to the Cedar Lake LRT Regional Trail, and a system of complete streets with improved sidewalk and bicycle connections to Bassett Creek Valley, Heritage Park, Loring Park and North Loop neighborhoods, local businesses, and major destinations will increase transit ridership at this station.

FIGURE 2-5. EXISTING SIDEWALKS, TRAILS, AND BIKEWAYS



Sanitary Sewer

Sanitary sewer infrastructure consists of a collection of gravity flow sewer mains, lift stations, and pressurized force mains that transport sewage to a wastewater treatment plant (WWTP). An efficient collection system has the capacity to accommodate all of the existing land uses within its particular sewer shed. Beyond capacity, the material and age of pipes within a system can also impact a system's effectiveness.

Sanitary sewer infrastructure within the project area is typically maintained by either the City of Minneapolis or by the Metropolitan Council Environmental Services (MCES) Division. MCES maintains a series of interceptor trunk sewers that collect sewage at key locations and convey sewage across community boundaries to regional WWTPs. Wastewater from the station area is treated by the MCES Metro WWTP located in St. Paul.

FIGURE 2-6. EXISTING SANITARY SEWER

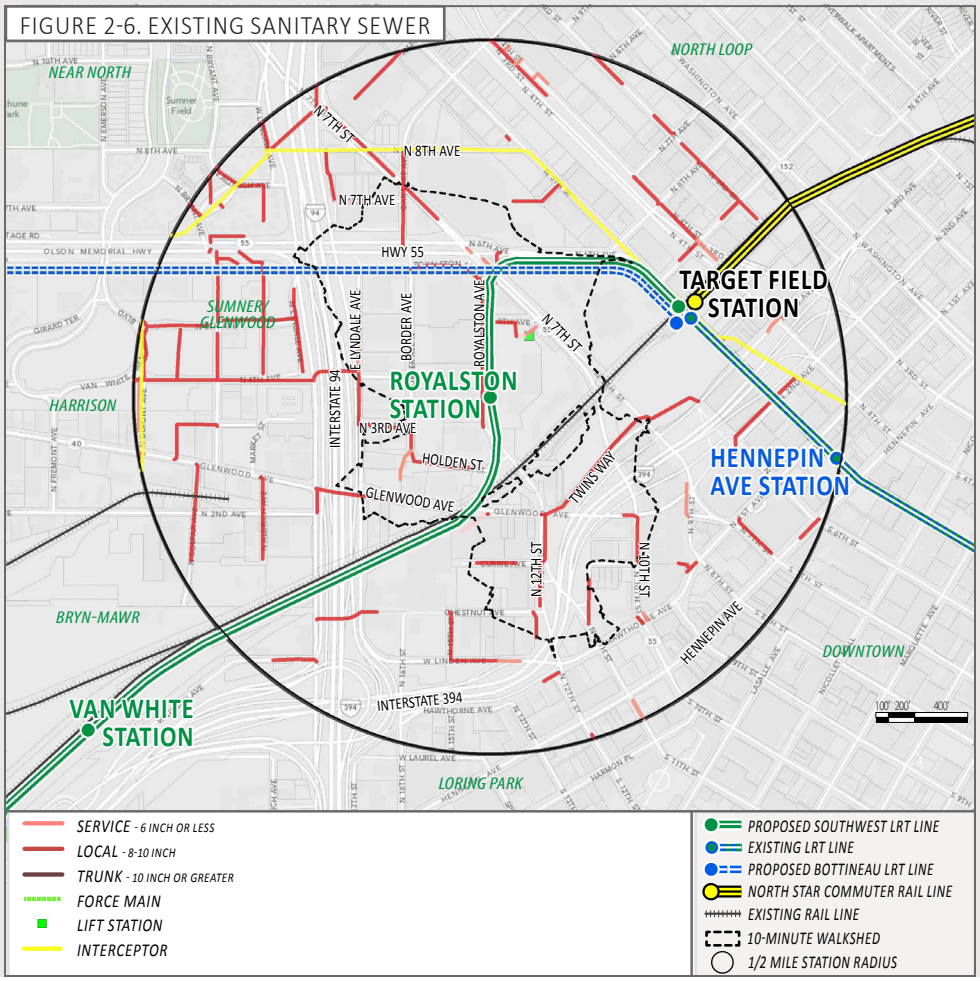
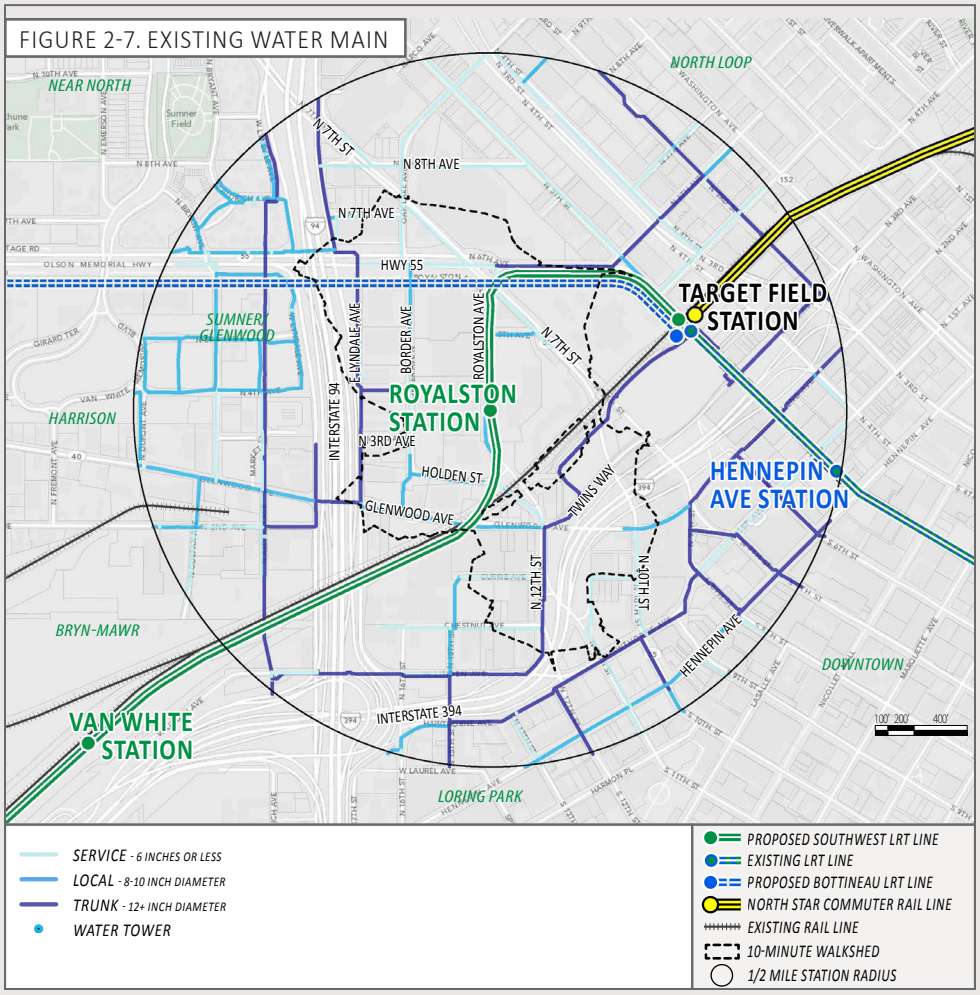


FIGURE 2-7. EXISTING WATER MAIN



Water Main

Water main distribution systems serve to supply potable water to individual properties and to support fire suppression throughout the community. A well-designed system can maintain adequate pressure to support demand of individual properties and provide high flow rates to fire hydrants/fire suppression systems in emergency situations. Because of the complexity of water distribution networks and the importance of pressure, flow, and water quality, City water system models are used to evaluate a system's adequacy. The material and age of the system's water mains can also be factors in system breaks, leaks, and pressure and flow degradations.

Water pressure and flow rates can be influenced by: the size of water main serving an area, proximity and elevation relative to a water tower, proximity to a trunk water main with high flow capacity, if the water main creates a loop, the demand of adjacent land uses, and the condition of the water main.

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Where Are We Going?

The plans and diagrams on the following pages illustrate a range of recommendations for infrastructure improvements, station amenities, and potential redevelopment opportunities within the station area.

The ACCESS AND CIRCULATION PLAN shown in Figure 2-8 provides a high level view of how future transit, automobile, bike, and pedestrian systems will connect to the station area and its surroundings.

Figure 2-9 illustrates the STATION AREA IMPROVEMENTS that will facilitate access to and from the station and catalyze redevelopment in the station area. This includes opening day and long-term station area improvements

Figure 2-10 focuses on OPENING DAY STATION AREA IMPROVEMENTS only. These recommendations represent the improvements necessary to enhance the efficient function of the transit station, roadways, pedestrian and bicycle connections, and transit connections on opening day in 2018.

Station Area Improvements

The discussion below outlines a range of future station area improvements. While some of the identified improvements may be constructed as part of the LRT project itself, other improvements must be funded, designed and constructed by other entities and will require coordination between the City, County, and Metro Transit as well as local stakeholder and community groups.

ROADWAYS

» Due to its location between downtown and I-94, roadways in the Royalston LRT station area currently cater primarily to automobiles and through-traffic needs. The roadway network is not well-connected and includes a system of one-way streets. Recommended roadway improvements include:

Opening Day Improvements:

» Create a "Loop" route that connects the Lower North Loop, which includes the Royalston LRT station, and the Upper North Loop by extending Border Avenue south from Holden Avenue to Glenwood Avenue.

» In order to make Border Avenue convenient for walking, biking, driving and accessing transit, it should be converted back to a two-way street along with new streetscape improvements, including parallel on-street parking, street tree plantings, sidewalks, pedestrian lighting, wayfinding, and enhanced pedestrian crossings.

Long-Term Improvements:

» Establish new east/west roadways to the west of the station platform, particularly between Royalston Avenue and Border Avenue, to create smaller block patterns, a more connected street network, better connections between the LRT station and the Minneapolis Farmers Market, and new opportunities for redevelopment in the area.

» Close the frontage road (Royalston Avenue) along the south side of Highway 55 and reconfigure the intersection of Highway 55/Border Avenue in order to improve the safety and ease of travel through this currently complicated intersection for all modes of travel.

PEDESTRIAN CONNECTIONS

Opening Day Improvements:

» Complete any sidewalk gaps on all streets within a 10-minute walk from the LRT station area.

» Focus pedestrian/bike crossings and streetscape enhancements on Royalston Avenue, Holden Street, 12th Street, 5th Avenue, 7th Street, Olson Memorial Highway/ Highway 55, Border Avenue, and Glenwood Avenue to improve pedestrian connections to the station platform and existing bus stops.

» Implement a direct pedestrian connection to the Farmers Market from the station platform by negotiating with existing land owners for access easements and improved pedestrian facilities and/or as part of the redevelopment of the property. This connection will require a vertical circulation solution at Border Avenue.

Long-Term Improvements:

» Enhance streetscape and pedestrian connections on new east/west roadways between Royalston Avenue and Border Avenue.

BICYCLE CONNECTIONS

Opening Day Improvements:

» Provide bike parking, lockers, pumps, and bike share facilities in a highly visible area near the station platform.

Long-Term Improvements:

» Provide on-street bike facilities (lanes, shared routes, signage, etc.) on local streets to better connect the LRT station to nearby neighborhoods, businesses, amenities, and destinations.

Bike parking

Public art integrated in transit station design

- Provide bike connections to the Cedar Lake LRT Regional Trail trailhead at Royalston Avenue/Glenwood Avenue.
- Explore the opportunity to build an off-street bike facility from the Cedar Lake LRT Regional Trail trailhead to the station platform.

TRANSIT CONNECTIONS

Opening Day Improvements:

- Add a traffic signal and marked street crossings at the 7th Street/5th Avenue intersection to make pedestrian/bicycle connections to the existing bus stop on 7th Street safer and more convenient.
- Add a traffic signal and marked street crossings at the Royalston Avenue/Holden Street intersection to make pedestrian/bicycle connections to the existing bus stops on Glenwood Avenue safer and more convenient.

NEIGHBORHOOD CONNECTIONS

Opening Day Improvements:

- Strengthen connections to nearby neighborhoods (North Loop, Loring Park, Heritage Park, and Bassett Creek Valley) and major destinations (Target Field, Target Center, International Market Square) by improving facilities, streetscapes, and street crossings for pedestrians and bicyclists.

Long-Term Improvements:

- Introduce public art into neighborhood gateway areas, public gathering spaces, and streetscapes.

STATION AMENITIES (*Beyond SW LRT Base Project Scope*)

Opening Day Improvements:

- Wayfinding- define and install a cohesive and contextual wayfinding system near the LRT station platforms, major nearby destinations (Minneapolis Farmers Market, Target Field, Target Center), nearby bus stops, and major gateways (such as Cedar Lake LRT Regional Trail trailhead, Highway 55/ Border Ave, Glenwood Avenue).
- Seating – provide comfortable and durable seating near the station platform.
- Lighting – provide adequate lighting for the safety of pedestrians, bicyclists and motorists near the station platform and along Royalston Avenue, Border Avenue and Holden Street.
- Pedestrian Facilities- create a multi-use path connection along the east side of Royalston Ave that connects the LRT station to the nearest bus stops to the north and south, as well as the Cedar Lake LRT Regional Trail trailhead, Minneapolis Farmers Market, and Target Field. Create east-west transit-oriented connections between the LRT station platform and the Minneapolis Farmers Market that incorporates pedestrian/bike facilities and vehicular circulation.
- Bike Facilities- add pedestrian/bike crossing enhancements at all Royalston Ave intersections, including 5th Ave, 12th Street, Holden Street, and Glenwood Ave. Provide bike parking, lockers, pumping station, and bike sharing near the station platform.

Long-Term Improvements:

- Plaza- explore the potential for a creating a transit plaza connection between the LRT station and the Minneapolis Farmers Market in the vicinity of Cesar Chavez Avenue.
- Public Art- incorporate public art beyond the station platform area to create an attractive and identifiable place.

DEVELOPMENT POTENTIAL

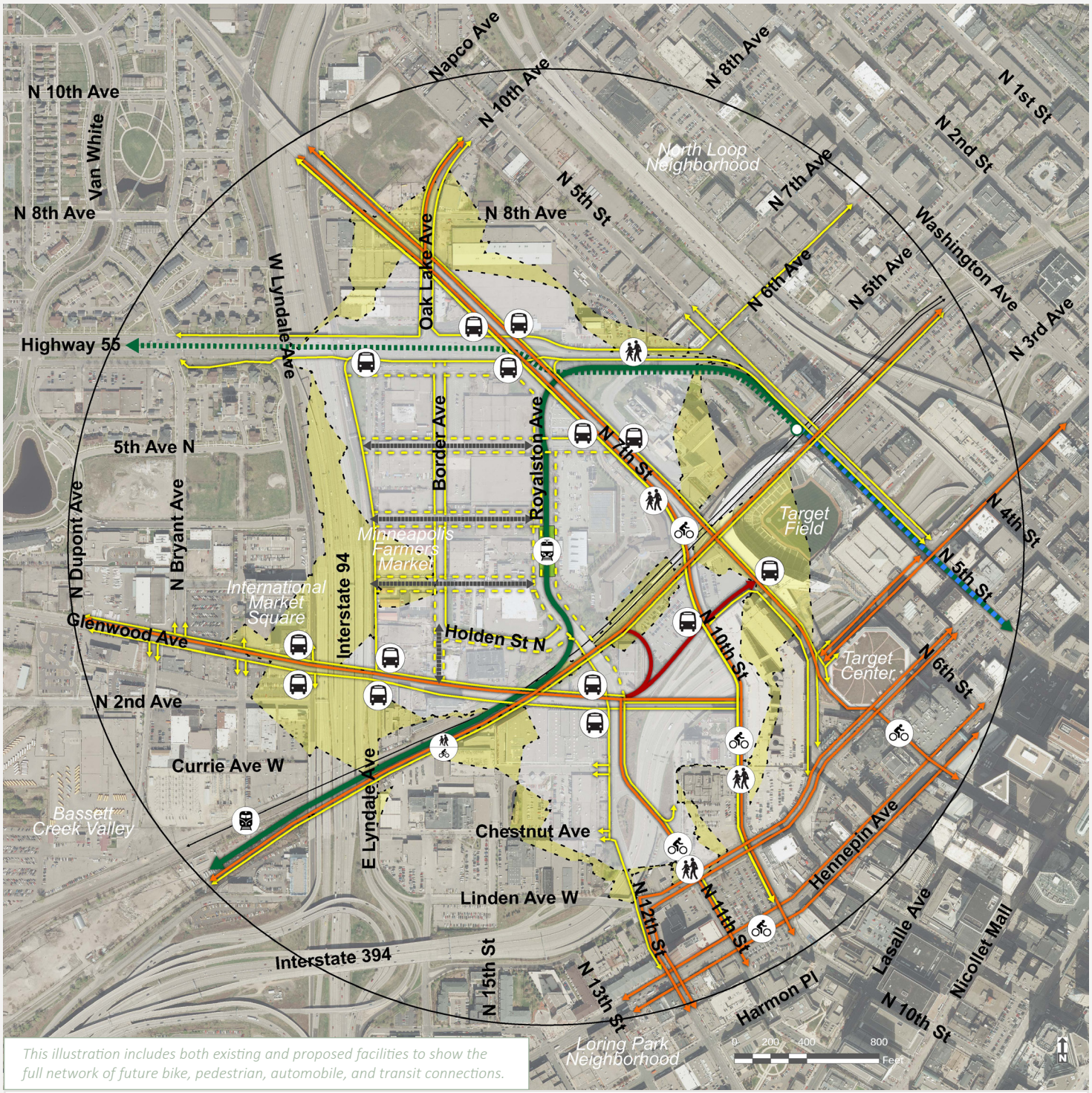
Long-Term Improvements:

- See the "Development Potential" discussion on page 2-18 for more on long-term development opportunities.

UTILITIES

- See the "Station Area Utility Plan" beginning on page 2-20 for all utility recommendations.

FIGURE 2-8. ACCESS + CIRCULATION PLAN



This illustration includes both existing and proposed facilities to show the full network of future bike, pedestrian, automobile, and transit connections.

LRT PLATFORM
LRT LINE
BUS STOP
PARK AND RIDE
FREIGHT LINE
NEW ROADWAY
KISS AND RIDE
EXISTING WALKSHED
EXISTING PEDESTRIAN CONNECTION
EXISTING BIKE CONNECTION
EXISTING MULTI USE CONNECTION
FUTURE WALKSHED (WITH TSAAP IMPROVEMENTS)
PROPOSED(DASHED) PEDESTRIAN CONNECTION
PROPOSED(DASHED) BIKE CONNECTION
PROPOSED(DASHED) MULTI USE CONNECTION

NOTE: Existing walkshed approximates the area accessible within a 10-minute walk from the station platform using only the existing sidewalk/trail network. Future walkshed incorporates all proposed improvements to the sidewalk/trail network. Walksheds are based on GIS modeling and available sidewalk/trail information- and may not reflect exact on-the-ground conditions. See Glossary for detailed explanation of walkshed assumptions and methodology.

FIGURE 2-9. STATION AREA IMPROVEMENTS

Faded symbology indicates existing facilities and infrastructure.

LRT PLATFORM	NEW SIDEWALK IMPROVEMENT	NEW ROADWAY	BIKE PARKING
FREIGHT LINE	ON STREET BIKE INFRASTRUCTURE	STREETSCAPE	WAYFINDING
BUS STOP	MULTI-USE PATH	PARK AND RIDE	PUBLIC ART OPPORTUNITY
BUS SHELTER	NEW CROSSING IMPROVEMENT	KISS AND RIDE	POTENTIAL DEVELOPMENT SITE
		NEW SIGNALIZED INTERSECTION	PLAZA SPACE / BUILDING SETBACK AREA

FIGURE 2-10. OPENING DAY STATION AREA IMPROVEMENTS

LRT PLATFORM
FREIGHT LINE
BUS STOP
BUS SHELTER
NEW SIDEWALK / SIDEWALK IMPROVEMENT
ON STREET BIKE INFRASTRUCTURE
MULTI-USE PATH
NEW CROSSING / CROSSING IMPROVEMENT
NEW ROADWAY
STREETSCAPE
PARK AND RIDE
KISS AND RIDE
NEW SIGNALIZED INTERSECTION
BIKE PARKING
WAYFINDING
PUBLIC ART OPPORTUNITY
POTENTIAL DEVELOPMENT SITE
PLAZA SPACE / BUILDING SETBACK AREA

Conceptual Street Sections

The street cross section illustrated below is conceptual and represents a potential future streetscape condition, addressing facilities for a variety of transportation modes, streetscape amenities, and the relationship between buildings and the street edge. Further design and engineering work will be required to ensure the streetscape is in compliance with City and/or County design standards and needs.

ROYALSTON AVENUE

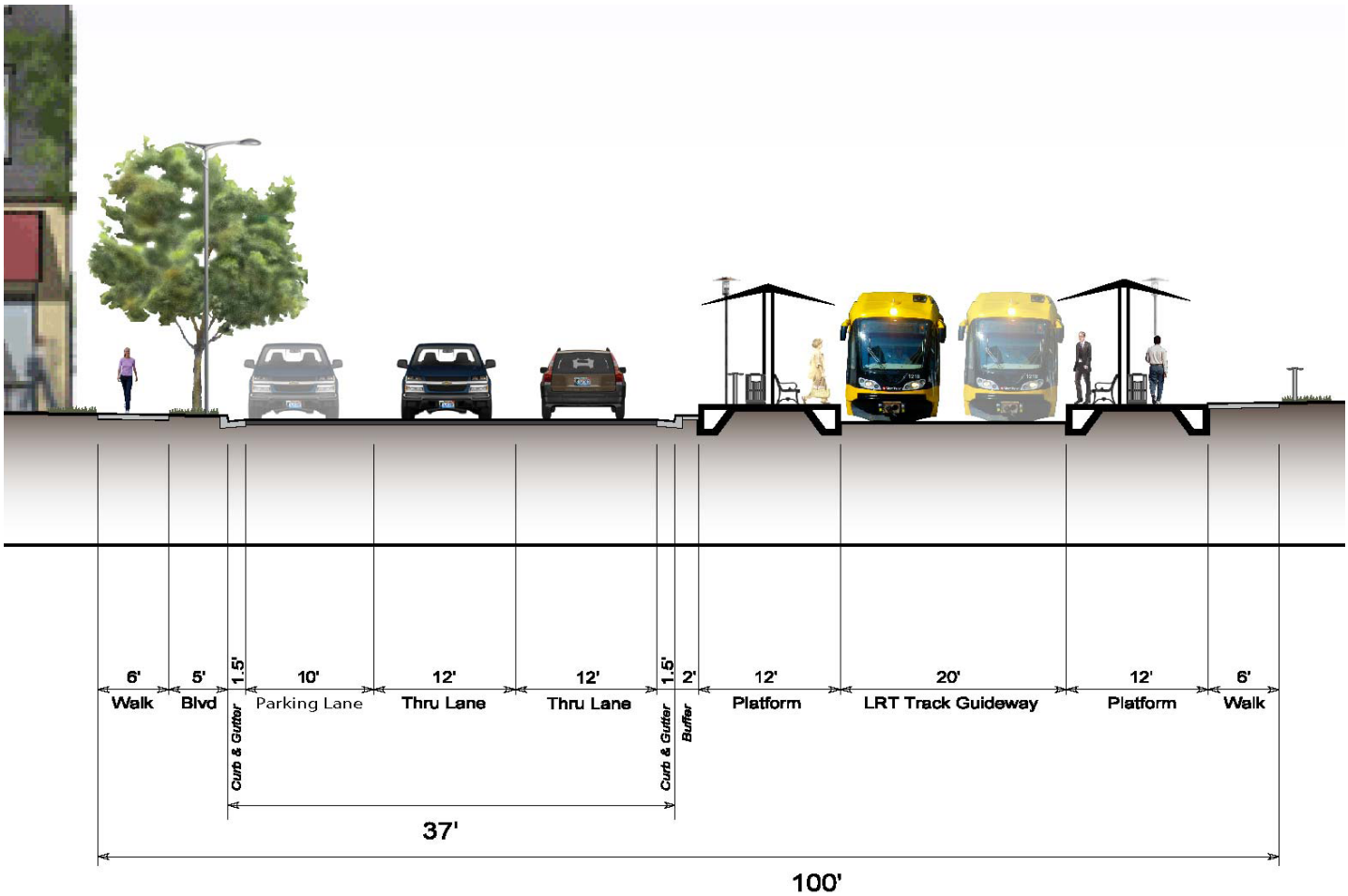
Dimensional Criteria

- » 100 feet — Right-of-Way Width
- » 37 feet — Pavement Width (2-way)
- » 12' (x2) — Platform Widths
- » 20' — LRT Track Guideway
- » 20'-30' o/c — Street Tree Spacing
- » 6'-0" min. — Sidewalk Width (both sides)

Design Features

- » Sidewalks
- » On-Street Parallel Parking (one side)
- » Street Trees/Plantings/Rain gardens
- » Streetscape Furnishings (seating, planters, trash receptacles, bicycle racks)
- » Signage/Wayfinding
- » Transit Facilities (LRT line and platform, bicycle facilities, shelters, seating, signage, lighting)
- » Street and Pedestrian Lighting
- » Pedestrian-Friendly Crossings (markings, countdown traffic signals, ADA features)

FIGURE 2-11. CONCEPTUAL STREET SECTION - ROYALSTON AVENUE



Conceptual Street Sections (Continued)

The street cross section illustrated below is conceptual and represents a potential future streetscape condition, addressing facilities for a variety of transportation modes, streetscape amenities, and the relationship between buildings and the street edge. Further design and engineering work will be required to ensure the streetscape is in compliance with City and/or County design standards and needs.

BORDER AVENUE

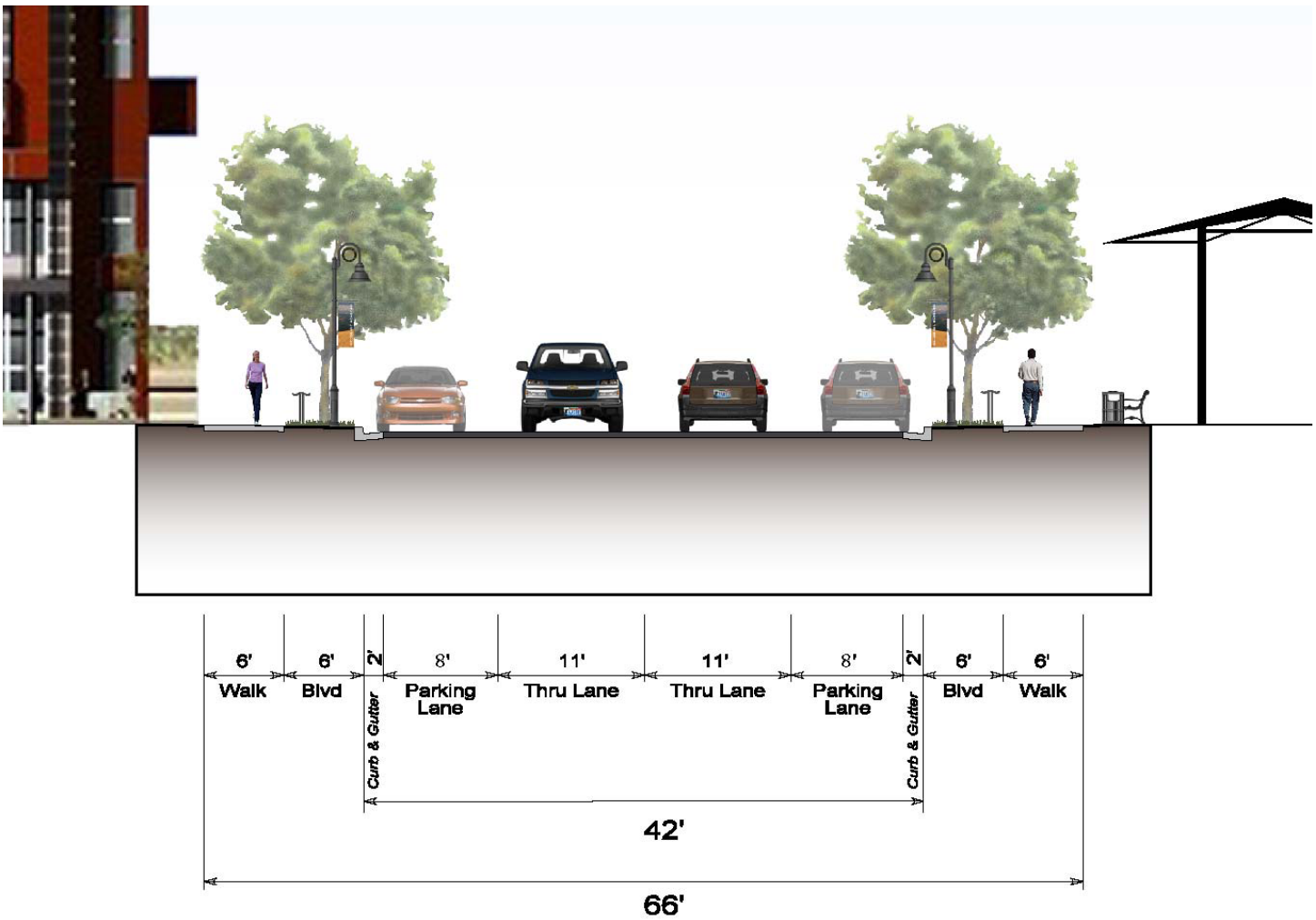
Dimensional Criteria

- » 66 feet — Right-of-Way Width
- » 42 feet — Pavement Width (2-way)
- » 20'-30' o/c — Street Tree Spacing
- » 6'-0" — Sidewalk Width (both sides)

Design Features

- » Sidewalks
- » On-Street Parallel Parking (both sides)
- » Intersection Bump-outs
- » Street Trees/Plantings/Rain gardens
- » Streetscape Furnishings (seating, trash receptacles, bicycle racks)
- » Signage/Wayfinding
- » Street and Pedestrian Lighting
- » Pedestrian-Friendly Crossings (markings, ADA features)

FIGURE 2-12. CONCEPTUAL STREET SECTION - BORDER AVENUE



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Opening Day Improvements

The following tables and diagrams outline the proposed improvements to be implemented in advance of SW LRT's opening day in 2018. Table 2-1 and Figure 2-13 show opening day improvements that are part of the SW LRT anticipated base project scope; these improvements will be part of the overall project cost for construction of the LRT line. Table 2-2 and Figure 2-14 include opening day improvements that are recommended as part of the Southwest Corridor Investment Framework and are beyond the SW LRT anticipated base project scope.

TABLE 2-1. SOUTHWEST LRT ANTICIPATED BASE PROJECT SCOPE - OPENING DAY STATION AREA IMPROVEMENTS

PLAN KEY	IMPROVEMENT	PROJECT LOCATION	PROJECT NOTES
A	LRT Platform	Royalston Ave	Includes related LRT infrastructure
B	Kiss and Ride	Royalston Ave	Kiss and ride area on Royalston Ave (on-street, south bound only)
C	Roadways	Royalston Ave, Holden Street to 5th Ave	Reconstruction of Royalston in conjunction with LRT line and station
D	Sidewalk/Trail	5th Ave, between Royalston Ave and 7th Street	New sidewalks on 5th Ave
E	Sidewalk/Trail	Royalston Ave	New sidewalks
F	Intersection Enhancement	Royalston Ave and Holden Street	New traffic signal and ped crossings
G	Intersection Enhancement	5th Ave and 7th Street	New traffic signal and ped crossings
H	Bike Facilities	Near station platform	Allowance for bike storage
I	Wayfinding	Near station platform	Allowance
J	Landscaping	Near station platform	Allowance
K	Water*	Near station platform	New water service and fire hydrant to station
L	Utilities*	Project limit area	Adjustment of existing utilities
M	Stormwater management*	Near station platform	Allowance

Note: Anticipated Southwest LRT Base Project Scope as of December 2013 (subject to change)
** Improvement not symbolized on opening day figures (exact location to be determined as part of the base project scope)*

TABLE 2-2. SOUTHWEST CORRIDOR INVESTMENT FRAMEWORK (TSAAP) - OPENING DAY STATION AREA IMPROVEMENTS

PLAN KEY	IMPROVEMENT	PROJECT LOCATION	PROJECT NOTES	PRIORITY
1	Roadways	Border Ave, Holden Street to Glenwood Ave	Extend Border Street from Holden Street to Glenwood Ave	Primary
2	Roadways	Border Ave	Re-striping to 2-way street	Primary
3	Roadways	Border Ave, Olson Memorial Highway to Holden Street	Reconstruct roadway	Secondary
4	Streetscape	Border Ave, Olson Memorial Highway to Glenwood Ave	Includes sidewalks, streetscape plantings, furnishings, lighting and signage	Primary
5	Streetscape	Holden Street	Includes sidewalks, streetscape plantings, furnishings, lighting and signage	Secondary
6	Streetscape	Royalston Ave, Glenwood Ave to 5th Ave	Includes sidewalks, streetscape plantings, furnishings, lighting and signage	Primary
7	Streetscape	5th Ave, Royalston to 7th Street	Includes streetscape plantings, furnishings, lighting and signage	Primary
8	Sidewalk/Trail	Between station platform and Farmers Market	Pedestrian access and vertical circulation to connect LRT station to Farmers Market	Primary
9	Intersection Enhancements	Varies- along Royalston, Border, Glenwood, Olson Mem Hwy, and 7th Street	Enhanced crosswalk markings and countdown signals	Primary
10	Bike Facilities	Near station platform	Bike parking, lockers, pump station and bike share facilities (beyond SPO improvements)	Primary
11	Wayfinding	Near station platform	Signage and wayfinding (beyond SPO improvements)	Primary
12	Public Art	Near station platform	Public art (beyond SPO improvements) including under grade-separated bridge	Secondary

** Improvement not symbolized on opening day figures*

FIGURE 2-13. SOUTHWEST LRT ANTICIPATED BASE PROJECT SCOPE - OPENING DAY STATION AREA IMPROVEMENTS

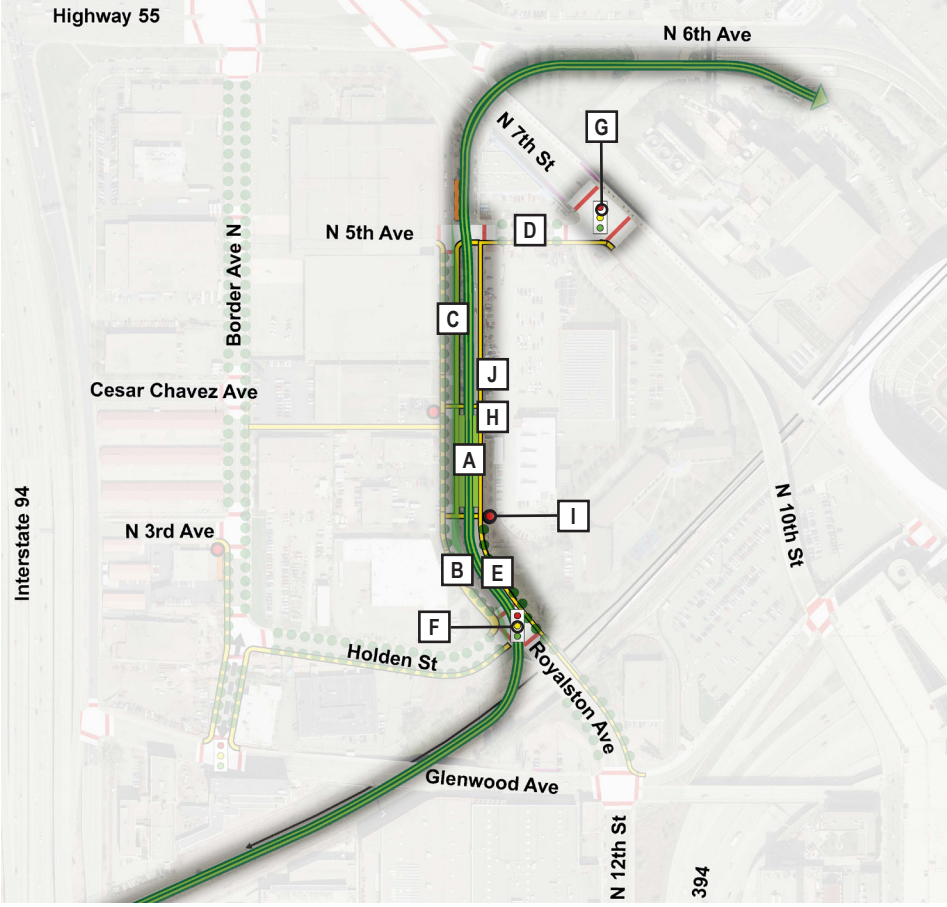
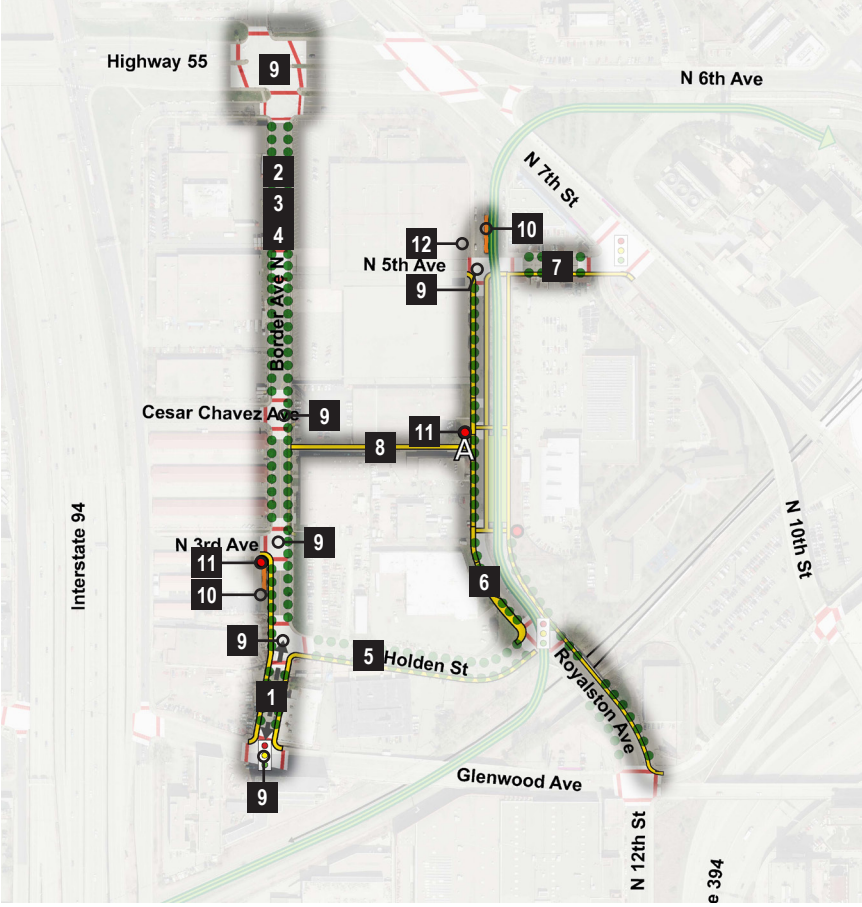


FIGURE 2-14. SOUTHWEST CORRIDOR INVESTMENT FRAMEWORK (TSAAP) - OPENING DAY STATION AREA IMPROVEMENTS



PRIMARY PRIORITY

SECONDARY PRIORITY

Development Potential

OVERVIEW

Several factors surrounding the Royalston station present opportunities for future redevelopment. In addition to a new LRT station, other nearby destinations and amenities that might drive development interest include the Minneapolis Farmers Market, Target Field, Target Center, International Market Square, Cedar Lake LRT Regional Trail, North Loop and Loring Park neighborhoods.

The Royalston station area is dominated by long-standing industrial uses, some of which are publicly owned. This also presents opportunities for future redevelopment in the area, however, the relative health of existing businesses and the likelihood of publicly-owned uses not changing in the near-term, suggests that development potential will occur in a mid- to long-term period.

Key challenges that should be addressed to facilitate long-term development potential include land uses, block sizes, and limited east-west connectivity.

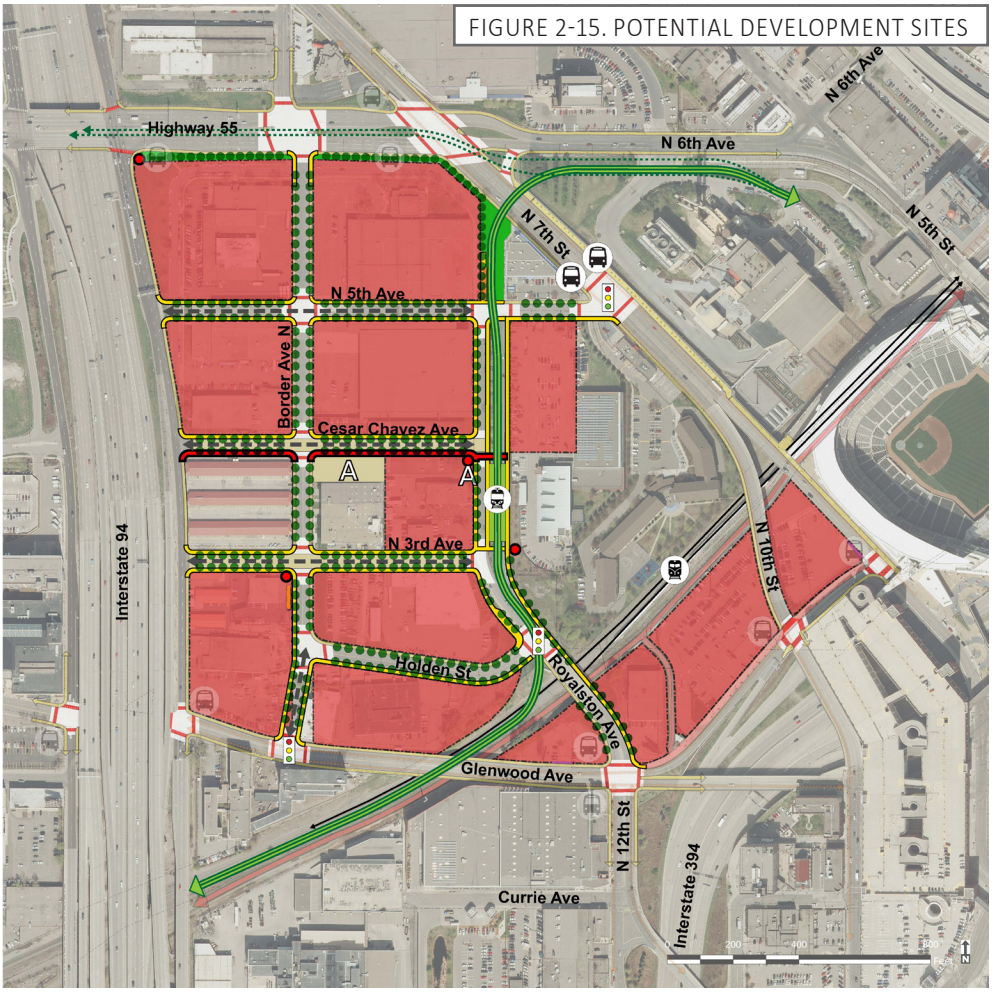
LAND USES

High-density, mixed-use, transit-oriented development is likely to occur near the Royalston station in the long-term. The North Loop Small Area Plan identifies future land uses in the Royalston station area to be higher density consisting of a mix of commercial, residential, and industrial uses.

PLANNING STRATEGIES

Several strategies should be addressed to facilitate future development in the station area. The large block sizes and limited east-west connectivity create challenges to accessing the station. Redevelopment should seek opportunities to introduce a finer grain of streets and block sizes to enhance station area mobility and set up a framework for more compact, transit-oriented development. A direct pedestrian connection to the Farmers Market and streetscape improvements along roadways connecting the station area with potential development sites, local destinations, neighborhoods, and bus transit facilities will enhance development potential in the area.

FIGURE 2-15. POTENTIAL DEVELOPMENT SITES



FUTURE LAND USE:

MIXED-USE, COMMERCIAL & OTHER

Key Considerations for Change and Development Over Time

Development within the station area should provide a mix of new uses and focus on enhancing pedestrian connections through the introduction of new streets and/or mid-block connections to make it easier to travel to major area attractions by foot. Key considerations should include:

BUILT FORM AND LAND USE

» Introduce higher density commercial development with active street level uses along Cesar Chavez Avenue, North 3rd Avenue, and Royalston Avenue adjacent to the station to extend the activity of the market east towards the station.

» Design new buildings to enhance pedestrian access by orienting them towards the street and locating them as close to the street line as possible. Where lot sizes pose a challenge to addressing all sides of a block, ensure buildings are designed at a minimum to actively address Royalston, Cesar Chavez, 3rd Avenue, and Border Avenue.

PUBLIC REALM

» Restrict outdoor storage on private properties so that it does not detract from the image of the area or discourage new higher density employment uses.

» Initiate intersection improvements at Holden Street and Royalston Avenue in order to improve safety and enhance access to the Farmers Market on opening day.

» Over time, extend intersection improvements along 3rd Avenue and Cesar Chavez Avenue to improve safety and enhance the walk between the station and Farmers Market.

» Reduce lane sizes where feasible and implement streetscape improvements along the Royalston Avenue bridge including pedestrian-oriented lighting and bike facilities to improve the walk or ride from Royalston to downtown.

» Explore the potential to transform 3rd Avenue and Cesar Chavez Avenue into "blended" pedestrian-friendly streets that can be closed to traffic on market days.

MOBILITY

» Develop a clear and direct pedestrian connection to provide access to the Farmers Market in the short-term.

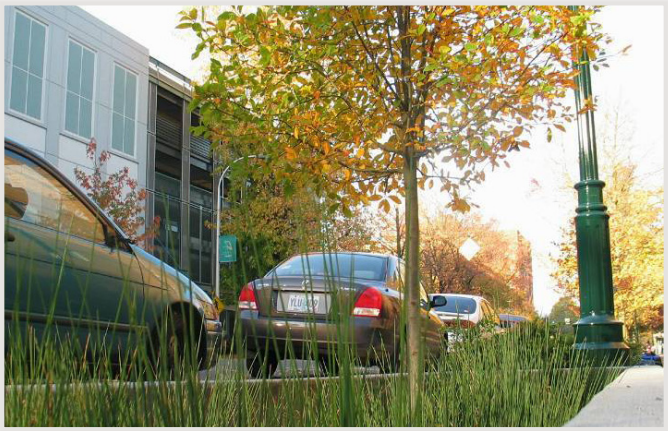
» Over time extend 5th, Cesar Chavez and 3rd Avenues to create a walkable street and block pattern.

» Support pedestrians through the introduction of sidewalks on all streets, new pedestrian crossings, and curb cuts for people in wheel chairs or other mobility devices.

» Accommodate market and short-term parking on-street or in shared structured parking facilities with active uses at street level to minimize the construction and impact of single-use parking areas.

» Minimize the impact of parking and circulation on pedestrians by locating parking below-grade, to the rear/side of new buildings, and consolidating access and service drives.

Higher density office and light industrial uses



Green infrastructure

Blended street that can be closed to traffic

Extend Farmers Market activity to the station

Station Area Utility Plan

OVERVIEW + APPROACH

The station area utility plan and strategies recommended below were developed by considering impacts on existing utilities by the construction of the LRT line, and potential future transit-oriented development within the station area, as depicted by the Station Area Improvements Plan (Figure 2-9). Opening day improvements identified in this plan should be considered prior to 2018 due to their proximity to or impact from the proposed LRT line. More improvements may be necessary by 2018, but should be reviewed with any redevelopment in the area. The City of Minneapolis should continue to follow their standard review procedures as it relates to utilities within project areas.

For any publicly initiated projects in the ROW, the City should follow current utility review procedures. This may include identifying needs and opportunities that may be coordinated with proposed improvements to the roadway or other elements in City ROW.

For any privately initiated projects in the area, the City should follow current development/ redevelopment procedures which will likely require developers to show anticipated utility system demand. Developers will need to coordinate with the City to ensure utilities are sized and located properly prior to construction. The City of Minneapolis Community Planning and Economic Development website can be found here: http://www.ci.minneapolis.mn.us/cped/. This study recognizes that the ultimate station area development/redevelopment (in 2030) will be driven by market conditions.

GENERAL RECOMMENDATIONS - SANITARY SEWER & WATER MAIN

Utility recommendations for station area improvements include opportunities for Minneapolis to improve the existing sanitary sewer and water main networks without necessarily replacing existing sanitary sewer. As part of the City's standard practice, utilities will be reviewed in conjunction with proposed station area improvements within the ROW; Any necessary utility improvements will be determined at the time of said review. As redevelopment occurs, developers will be required to provide documentation to verify that existing utilities meet the needs of the proposed development. Developers will coordinate with the City prior to project approvals.

GENERAL RECOMMENDATIONS – STORM SEWER

Local storm sewer improvements are recommended to be completed in conjunction with other improvements in the station area. Improvements which may require storm sewer modifications include: roadway realignments, roadway extensions, and pedestrian sidewalk/streetscape improvements. Storm sewer improvements may consist of: storm sewer construction, manhole reconstruction, drain tile extensions, storm sewer relocation, and complete replacement. These local storm sewer improvements are included as part of the overall cost of roadway and streetscape improvements recommended in this plan. Where roadway/streetscape improvements are part of the SW LRT base project scope, associated storm sewer improvements are assumed to be a project cost. Coordination with the local watershed district and other agencies may be needed to review the condition of and capacity of existing trunk storm sewer systems serving more regional surface water needs.

STORMWATER BEST MANAGEMENT PRACTICES

There are numerous stormwater best management practices (BMPs) that can be used to address stormwater quality and quantity. As part of this project, BMP guides were developed for four stations (Royalston, Blake, Shady Oak, and Mitchell) which exemplify the range of development intensity and character in the urbanized environment along the Southwest LRT Corridor. The recommendations and practices identified in each of the four BMP guides are applicable to various stations along the corridor.

The following section (starting on p. 2-24) includes a detailed stormwater analysis and BMP guide for Royalston Station. These BMPs may also be applicable to the station areas at Van White, Penn, 21st Street, and West Lake. Cities should consider incorporating these practices where appropriate as development/redevelopment occurs.

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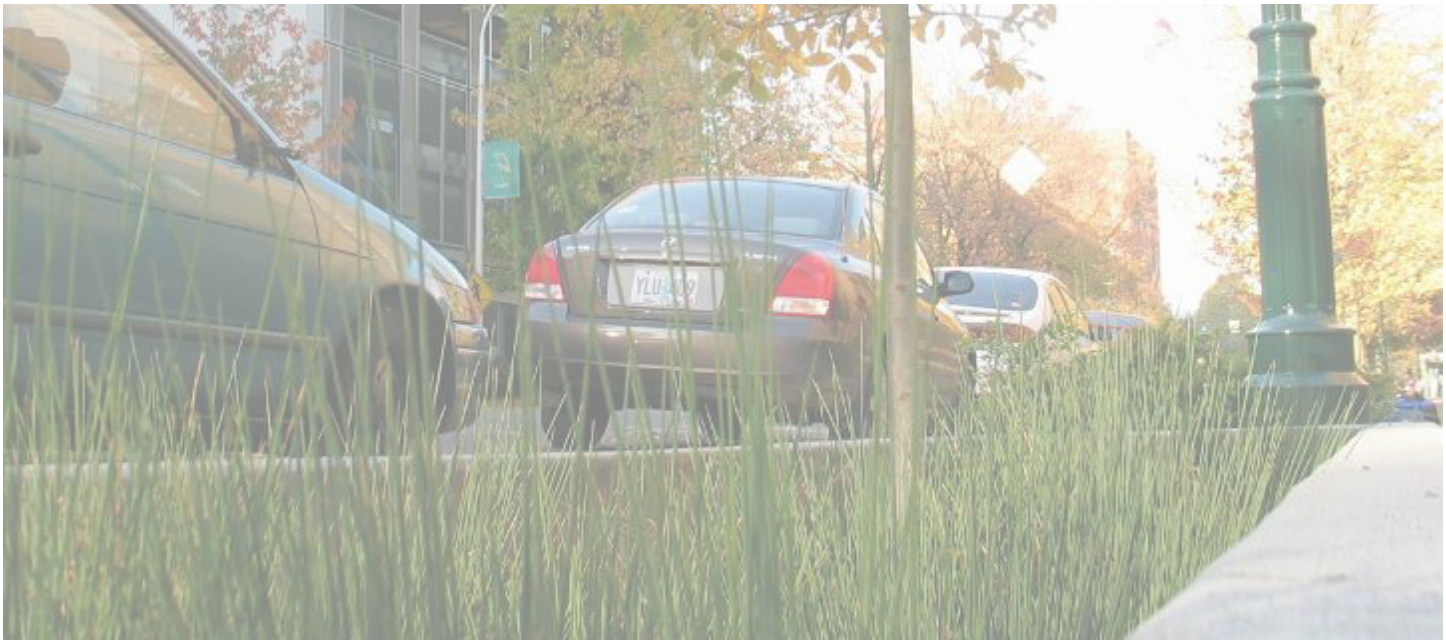


Station Area Utility Plan (Continued)

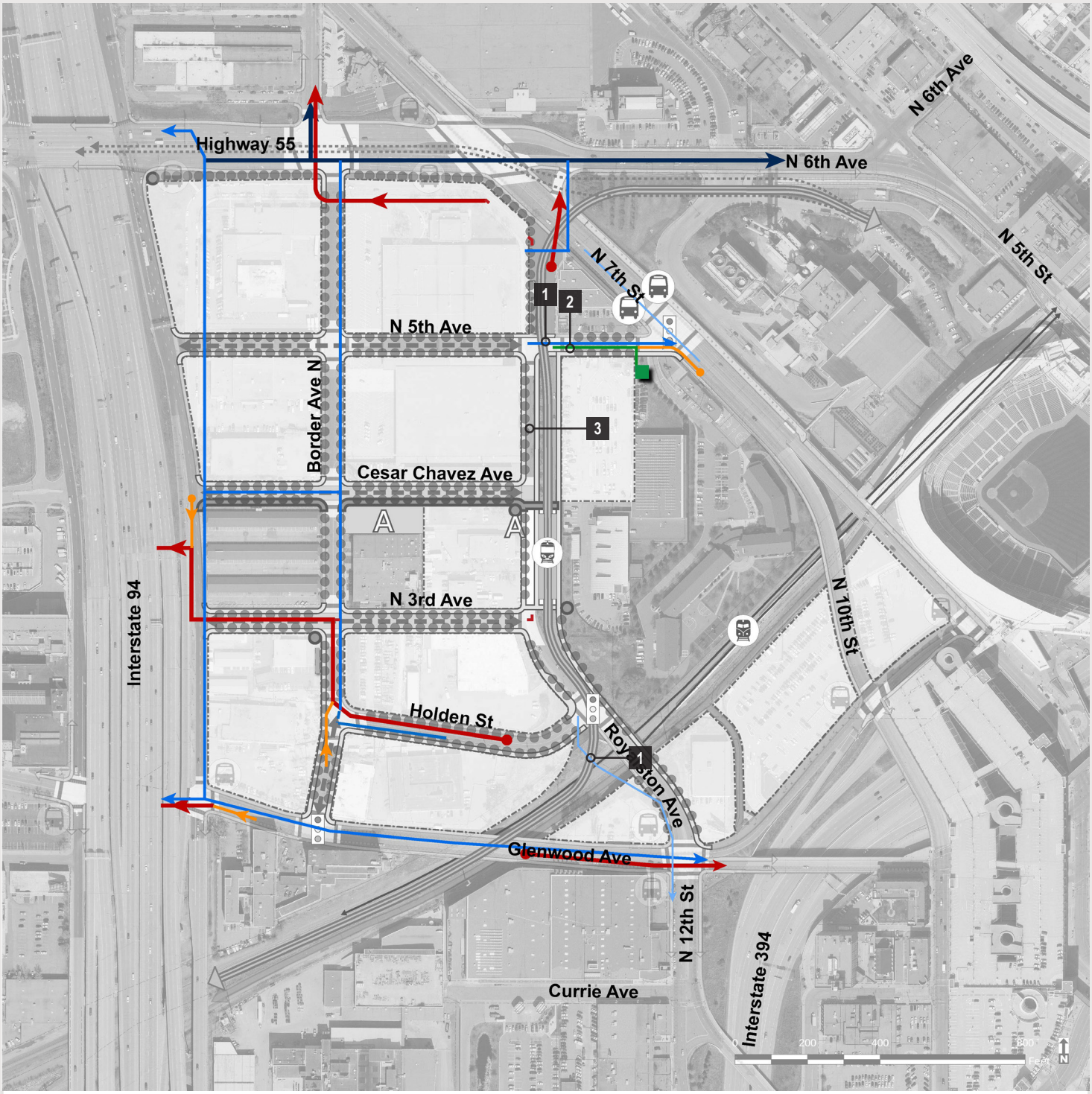
STATION AREA UTILITY RECOMMENDATIONS

The following discussion covers station-specific utility recommendations for both opening day improvements and long-term improvements. Utility recommendations (illustrated in Figure 2-16) are based on a localized analysis of proposed development. It is recommended that the City of Minneapolis take this analysis a step further and review system constraints to the existing and future sanitary sewer and water main systems using existing sewer CAD or water CAD models, or other methods of modeling these systems.

Opening Day Recommendations:

1. Encase existing sanitary sewer force main crossing LRT rail construction.
2. Encase existing water main crossing LRT rail construction.
3. Relocate existing sanitary sewer along Royalston Avenue where in conflict with LRT rail construction.

FIGURE 2-16. STATION AREA UTILITY PLAN



OPENING DAY RECOMMENDATION

EXISTING UTILITIES

SERVICE SANITARY
LOCAL SANITARY
TRUNK SANITARY
MCES SANITARY INTERCEPTOR
SANITARY SEWER FORCE MAIN
LIFT STATION

SERVICE WATER MAIN
LOCAL WATER MAIN
TRUNK WATER MAIN
WATER TOWER

Stormwater Management Recommendations

INVENTORY

Royalston station area is within the Mississippi Watershed Management Organization (MWMO). The station location lies about one mile west of the Mississippi River and is tributary to the river through the Bassett Creek Tunnel. By agreement, Minneapolis must obtain approval from Bassett Creek Watershed Commission (BCWMC) before it can alter the tunnel or change the tributary area of the tunnel.

The old Bassett Creek Tunnel skirts the north boundary of the station impact area. Both the old tunnel and the current tunnel discharge into the Mississippi River.

At the discharge point for the Bassett Creek tunnel, the Mississippi River is listed as impaired for fecal coliform, PCB in fish tissue, and mercury in fish tissue. In addition, there is a turbidity impairment downstream at Lake Pepin.

Minneapolis has identified flood prone areas throughout the City but has no specific flood areas defined for the station impact area.

CONSTRAINTS:

Impaired Waters

The Mississippi River has a number of listed impairments, but no TMDLs (Total Maximum Daily Load) have been approved yet. In the future, for impaired waters where TMDL has been approved, requirements may increase further.

Contamination

There may be soil contamination in the area. Infiltrating stormwater may be limited by contamination if the contamination source and surrounding soils are not able to be remediated.

Soils

The majority of the soils within the 10-minute walk zone have been identified as Urban, which are highly variable as significant development and/or fill has occurred in these areas. Historical soil information for the area indicates a strong presence of hydrologic group A and B soils which typically allow for infiltration.

Stormwater Management

The City of Minneapolis emphasizes stormwater management practices such as urban tree canopy, permeable surfaces, and green roofs. Minneapolis is the regulatory entity for approving stormwater management in the Royalston station area. Chapter 54 of the City's ordinance establishes stormwater requirements for development and redevelopment. Refer to Chapter 54 of the Minneapolis City Ordinance for detailed requirements (which vary based on receiving water) and for more information regarding the water quality and water quantity credits available (http://www.minneapolismn.gov/publicworks/stormwater/index.htm).

The site is within an area that eventually discharges stormwater to the Mississippi River and therefore land disturbing activities that disturb one or more acres of land are required to achieve 70% total suspended solids (TSS) removal.

STORMWATER MANAGEMENT CALCULATION

Total redevelopment area is approximately 47 acres. The 47 acres can be categorized into 3 groups; station improvements, ROW improvements, and individual site redevelopment. The following is the area breakdown by category. Note this breakdown is highly variable depending on the timeline of ROW and individual site redevelopment.

- Station improvements (LRT Platform) – 1 acre
- ROW improvements – 12 acres
- Individual site redevelopment – 34 acres

Based on City of Minneapolis Rules shown above, these areas will likely implement stormwater management to provide rate control and pollutant load reduction. Volume control is not a requirement but may be provided to enhance stormwater treatment and obtain stormwater utility credits.

Pollutant Removal

Based on redevelopment of 47 acres and a requirement of 70% TSS removal, based on discharge to the Mississippi River, it is estimated that approximately 8-10 tons of TSS would need to be removed annually. Assuming highly impervious land use (resulting in an estimated loading of 500 pounds of TSS per acre per year) the following equation was used to determine the annual load reduction required:

$$4 \text{ acres} \times \frac{500 \text{ lbs TSS Annually}}{\text{Acre}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} \times 0.70 = 8.2 \text{ tons TSS Annually}$$

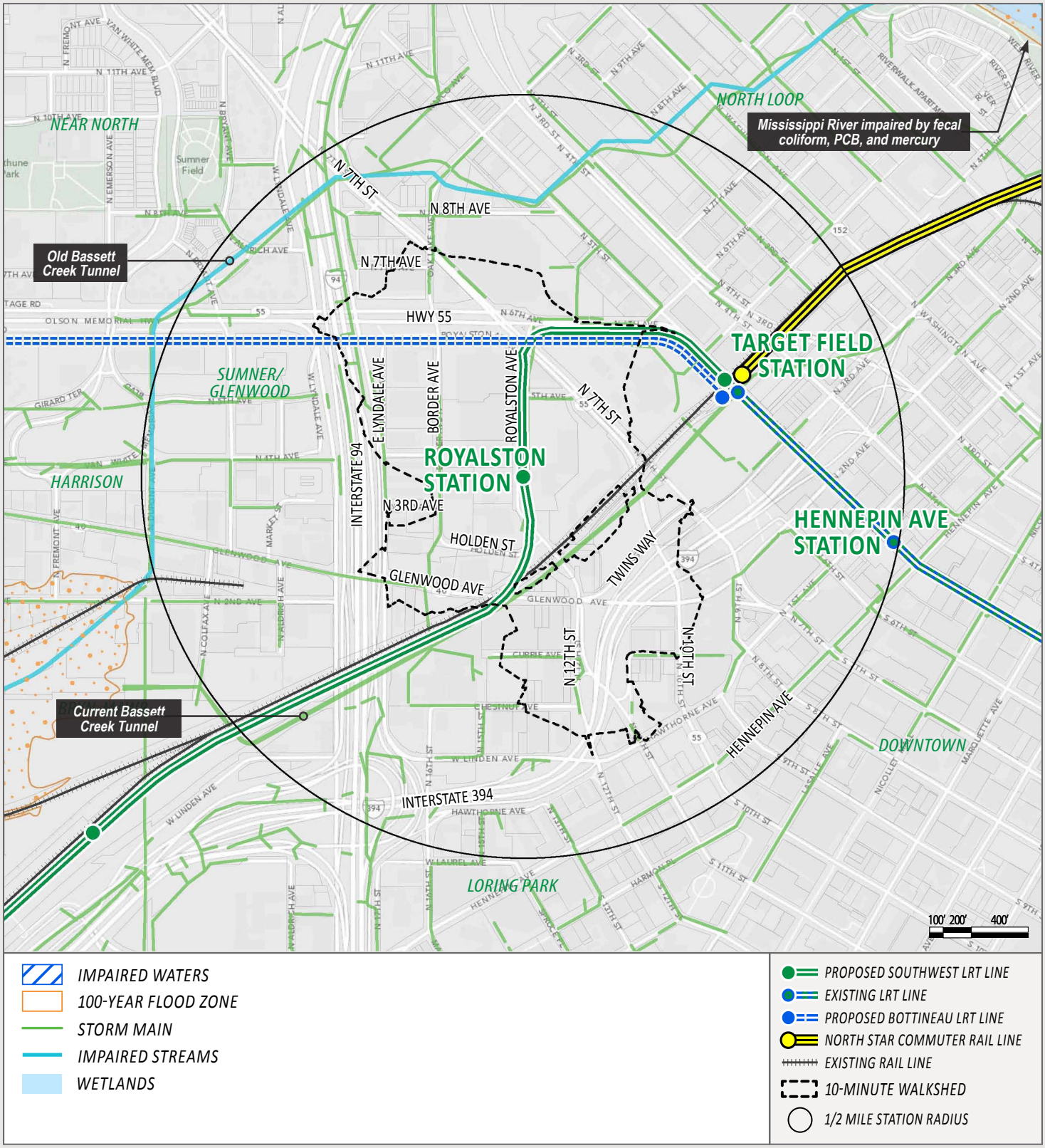
Volume Control

Volume control may be a viable option in some locations; however some areas may have high groundwater, poor soils, or contamination, which would limit the ability to provide volume control to treat stormwater.

Rate Control

Rate control is not anticipated to be a controlling requirement given the high amount of existing impervious coverage on redevelopment areas (generally over 90%) and the need to implement stormwater treatment. As a result, proposed discharge rates are anticipated to be significantly less than existing discharge rates.

FIGURE 2-17. EXISTING STORMWATER



Stormwater Management Recommendations (Continued)

OPPORTUNITIES

» The City emphasizes green and permeable surfaces as the preferred stormwater management practices. In addition, tree canopy coverage can intercept rainfall from small storms and reduce heat island effects. The City does not allow permeable pavement.

» Harvesting rainwater and storing it in cisterns and rain barrels provides water for irrigation use, conserving potable water, and effectively managing stormwater. An area-wide irrigation system is worth considering whereby a system of cisterns and rain barrels might be interconnected to provide irrigation water throughout the area. Centralized filtration systems could polish water from street areas before use on vegetation. Roof water would usually be considered suitable for irrigation without any filtering. This is similar in concept to the system utilized at Target Field.

» Green roofs should be emphasized. Green roofs are expensive and, when done right, require additional structural strength in buildings. The City of Minneapolis would like to see a hundred green roofs city-wide by 2015.

» Mississippi Watershed Management Organization offers grants through its Stewardship Fund. Planning and implementation grants are available for projects that demonstrate methods to improve water quality.

Stormwater Best Management Practices (BMP) Guide

The following section summarizes the key features and design considerations related to each of the stormwater best management practices recommended for the Royalston station area.

NOTE: These BMPs may also be applicable to the station areas at Van White, Penn, 21st Street, and West Lake. Cities should consider incorporating these practices where appropriate as development/redevelopment occurs.

LANDSCAPE FILTERS

Features:

» Volume control through infiltration and vegetative uptake

» Treatment by filtration and infiltration

» Detention capacity to reduce peak flow rates

» Irrigation of aesthetic landscaping features

» Minimal footprint

Design Considerations:

» In-situ soils determine infiltration potential

» Periodic maintenance of underground filter system will be required to ensure performance

UNDERGROUND STORAGE + REUSE

Features:

» Large detention capacity for reducing peak flows and providing treatment

» Volume reduction by reusing stormwater to irrigate trees and green spaces

» Can be used with or without reuse depending on irrigation demand

» No land needed as storage is underground

» Reduce potable water needed for wash-down or in buildings (toilets)

Design Considerations:

» Green space to be irrigated should be in close proximity to storage reservoir

» Size of green space will reflect treatment, the larger the green space the more treatment potential

» Requires large underground volume free of utilities that is above groundwater and bedrock

BIOFILTRATION CELLS

Features

» Treats stormwater through filtration, vegetative uptake, and infiltration

» Retains stormwater to reduce peak flows

» Creates naturally vegetated green space adjacent to development

Design Considerations

» Many different native vegetation options and combinations; trees, shrubs, grasses

» In-situ soils determine infiltration potential

» Noxious weeds will need to be managed to maintain native landscape

» Drain tile can be added to help facilitate filtration

ABOVE GROUND CISTERN

Features

» Large detention capacity for reducing peak flows and providing treatment

» Volume reduction by reusing stormwater to irrigate trees and green spaces

» Can be used with or without reuse depending on irrigation demand

» Reduce potable water needed for wash-down or in buildings (toilets)

Design Considerations

» Green space to be irrigated should be in close proximity to storage reservoir

» Size of green space will reflect treatment, the larger the green space the more treatment potential

» Requires above ground storage volume to collect stormwater from roof or other impervious surface

ENHANCED MEDIA FILTER

Features

» Treatment provided by filtering stormwater

» Enhanced treatment, to target dissolved pollutants, can be achieved by adding iron filings or spent lime to the filtration media

» Allows for dissolved pollutant removal without infiltration (may be necessary in or near contaminated areas)

Design Considerations

» Free draining system is necessary to achieve desired pollutant removal

» Vegetation should be planted that tolerates enhanced media

» Regular maintenance will be needed to ensure functioning filter

» Valves can be incorporated to verify system functionality.

GREEN ROOF

Features

» Treats stormwater through filtration and vegetative uptake

» Reduces runoff rates by retaining stormwater in roof landscaping features

» Reduces thermal stormwater impacts

» No land is needed as roof is utilized

Design Considerations

» Buildings may require additional structural design considerations

» Vegetation will need to withstand direct sunlight all day

» Supplemental irrigation may be needed

» Only receives direct rainfall area, no additional tributary area unless pumping is incorporated

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