# 6 Indirect Impacts and Cumulative Effects

This chapter addresses the potential indirect impacts and cumulative effects of the proposed METRO Blue Line Light Rail Transit (BLRT) Extension project.

Indirect (secondary) impacts are those that are caused by the proposed BLRT Extension project but occur later in time and/or proximity while being reasonably foreseeable. Indirect impacts can include growth-inducing effects and other effects related to induced changes in land-use patterns, population density, or growth rate and related effects to air, water and other natural systems, and the built environment.

Cumulative effects result from "the incremental impact of the [proposed] action when added to other past, present, and reasonably foreseeable future actions, regardless of the agency (federal or non-federal) or person undertaking them. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR Part 1508.7). The purpose of a cumulative effects analysis is "to ensure that federal decisions consider the full range of consequences of actions" (Council on Environmental Quality [CEQ], 1997). Cumulative effects could occur through the combination of the proposed BLRT Extension project's direct and indirect impacts combined with other development that is not directly related to the proposed BLRT Extension project.

### Changes to This Chapter since the Draft Environmental Impact Statement Was Published

This chapter updates the following sections from the Draft Environmental Impact Statement (Draft EIS):

- **Section 6.1.3** – Updates the reasonably foreseeable future actions anticipated in the proposed BLRT Extension project study area
- **Section 6.2 –** Updates potential indirect impacts associated with the proposed BLRT Extension project
- **Section 6.3 –** Updates potential cumulative effects associated with the proposed BLRT Extension project

In addition to updates of the above sections, this chapter specifically identifies cumulative effects associated with the West Broadway Avenue Reconstruction project. The identification of cumulative effects associated with the West Broadway Avenue Reconstruction project is identified as a change because this chapter includes additional information from the environmental review that was completed for the West Broadway Avenue Reconstruction project.

As described in **Section 2.5.1.1** of this Final EIS, the reconstruction of West Broadway Avenue (County State Aid Highway 103) is occurring in the same location as the proposed BLRT Extension project, from south of Candlewood Drive to north of 93rd Avenue. Funds for reconstructing West Broadway Avenue have been identified in Hennepin County's Capital Improvement Program (CIP) for several years, but the schedule for designing and reconstructing West Broadway Avenue is now progressing in parallel with planning, designing, and constructing of the proposed BLRT Extension

project. The two projects each have independent utility (that is, each project can function without the other being constructed).

The West Broadway Avenue Reconstruction project was documented in an Environmental Assessment Worksheet (EAW) (Hennepin County, 2015) in accordance with the Minnesota Environmental Policy Act (MEPA). At the conclusion of the EAW process, Hennepin County prepared its Findings of Fact and Conclusions and finalized the environmental review process through a Negative Declaration on the Need for an EIS. Because there is no federal funding involved, it is not a major federal action, and no National Environmental Policy Act (NEPA) analysis is required.

## 6.1 Methodology

The indirect impacts and cumulative effects assessment follows the requirements of NEPA (40 CFR Parts 1500–12508) and the following specific guidance documents:

- *Considering Cumulative Effects Under the National Environmental Policy Act* (CEQ, 1997)
- *Consideration of Cumulative Impacts in EPA Review of NEPA Documents* (EPA, 1999)
- *Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process* (FHWA, 2003)
- *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (CEQ, 2005)
- *Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects* (National Cooperative Highway Research Program [NCHRP] Report 466 [NCHRP, 2002])

Although the methodology and level of detail for indirect impacts and cumulative effects analyses are not dictated by NEPA, guidance from the Federal Highway Administration (FHWA) specifies that "the document needs to present a reasonably complete and accurate picture of the probable consequences involved in implementation of a proposed project, commensurate with the potential for adverse impacts …" The FHWA guidance further specifies that the analysis must be of sufficient detail to be "useful to the decision maker in deciding whether, or how, to alter the program to lessen cumulative impacts." The analysis and discussion in this chapter has been prepared with this guidance in mind.

The Metropolitan Council (Council) used a combination of analysis methodologies to fully assess and quantify cumulative effects using readily available information and data, including the following:

- **Trends Analysis.** Trend analysis was used to identify effects occurring over time and to project the future context of land-use and environmental resources of interest.
- **Map Overlays.** The Council performed quantitative and qualitative analyses by layering maps showing land-use and resource context from various periods. The patterns of past, existing, and future land use and the effects of development on resources of interest were analyzed to forecast future trends.

The Council's primary data sources for this indirect impacts and cumulative effects analysis were the following:

- The Council's *2040 Transportation Policy Plan* (2015a)
- Local capital-improvement plans and community-development data

Local land use plans were reviewed to help focus the identification of capital improvements and land use developments.

The Council used the following process to determine whether implementing the proposed BLRT Extension project will result in indirect impacts and/or cumulative effects:

1. **Identify Resources of Interest.** The Council identified resources of interest that will be directly affected by the proposed BLRT Extension project (step 1). Because these resources will be directly affected, they might also experience indirect impacts and/or cumulative effects.
2. **Analyze Existing Conditions.** The Council reviewed and analyzed the existing condition of each resource of interest as described in the resource chapters in this Final EIS. The Council's review focused on understanding the status, viability, and historical context of each resource in order to determine the relative vulnerability of the resource to indirect impacts and cumulative effects. The analysis of existing conditions also helped the Council understand the condition of the resources over a broader geographic area, which is critical for assessing the potential for indirect impacts and cumulative effects, since these effects can be separated from a project's direct impacts in both space and time. The Council used quantitative and qualitative methods for the existing conditions analysis depending on the approach that was used for each resource in each relevant section of this Final EIS.
3. **Analyze Direct Project Impacts.** The Council reviewed and analyzed the direct impacts of the proposed BLRT Extension project on each resource, as described in the resource chapters of this Final EIS. In order to anticipate how the proposed BLRT Extension project might result in indirect impacts and/or cumulative effects, this review focused on outcomes—the state of the resource assuming that the proposed BLRT Extension project has been implemented. The Council used its understanding of project impacts, combined with its understanding of existing conditions and past trends, to characterize the state of each resource of interest and its vulnerability to impacts from other present or reasonably foreseeable future actions.
4. **Identify and Analyze Impacts of Other Actions.** The Council identified other present actions and reasonably foreseeable future actions and their possible impacts to each resource of interest. These actions and the process used to identify them are discussed in **Sections 6.1.2 and 6.1.3**. The Council identified the potential impacts of each action using a checklist to consider each project-area resource in relation to each action. For example, many of the reasonably foreseeable future actions are residential or commercial development projects. The Council used the information from the analysis of existing conditions (step 2) along with its knowledge of the types of impacts that typically result from land development to perform a qualitative analysis of the resources of interest that likely will be affected by other actions. The result was a list of the resources of interest that could be affected by these other actions.

5. **Assess Indirect Impacts.** The Council identified potential indirect impacts and estimated their magnitude using the information from the existing conditions analysis (step 2) and information about trends and project impacts (step 3). The Council's indirect impacts analysis used its qualitative understanding of the causal nature of impacts to the built and natural environment that are likely to result from development, drawing on analyses for similar projects locally and elsewhere. This approach included a checklist and review of each resource area described in the Final EIS for potential physical, spatial, and ecological (system) interactions. As a result, this chapter's descriptions of potential indirect impacts are qualitative. Rather than attempting a complex analysis to quantify potential indirect impacts, the Council focused on being comprehensive with respect to potentially affected resources and estimating the potential magnitude of effects.
6. **Assess Cumulative Effects.** The Council identified potential cumulative effects on each resource of interest by considering the combination of existing conditions (step 2) and trends, project impacts (step 3), and the impacts of other present actions and other reasonably foreseeable future actions (step 4). As with the other steps, the Council used a checklist so that all potentially affected resources were considered. The Council used its professional judgment to reach conclusions regarding the potential cumulative effects, taking into account the frequency, duration, magnitude, and extent of past, present, and future effects. The results of the analysis (**Section 6.3**) are generally qualitative, reflecting the general lack of available data regarding other present and future actions. However, the lack of quantification does not prevent the analysis from considering the potential magnitude of effects and therefore does not limit the value or thoroughness of the analysis.

### 6.1.1 Select Resources of Interest

The Council selected resources of interest for this analysis that are particularly susceptible to indirect impacts and cumulative effects and that will be affected directly or indirectly by the proposed BLRT Extension project as well as by one or more other projects over time that, in aggregate, will result in indirect impacts or cumulative effects. The resources of interest addressed in this indirect impacts and cumulative effects analysis are:

- Transportation
- Land use
- Community character, services, and facilities
- Displacement of residences and businesses
- Cultural resources
- Visual and aesthetic resources
- Parklands and open space
- Economic effects
- Safety and security
- Environmental justice
- Public utilities
- Hydrology and floodplains
- Wetlands
- Geology, soils, and topography
- Hazardous materials contamination
- Noise
- Vibration
- Habitat and endangered species
- Water quality and stormwater
- Air quality/greenhouse gases
- Energy

## 6.1.2 Establish Geographic and Temporal Boundaries

### 6.1.2.1 Geographic Study Areas

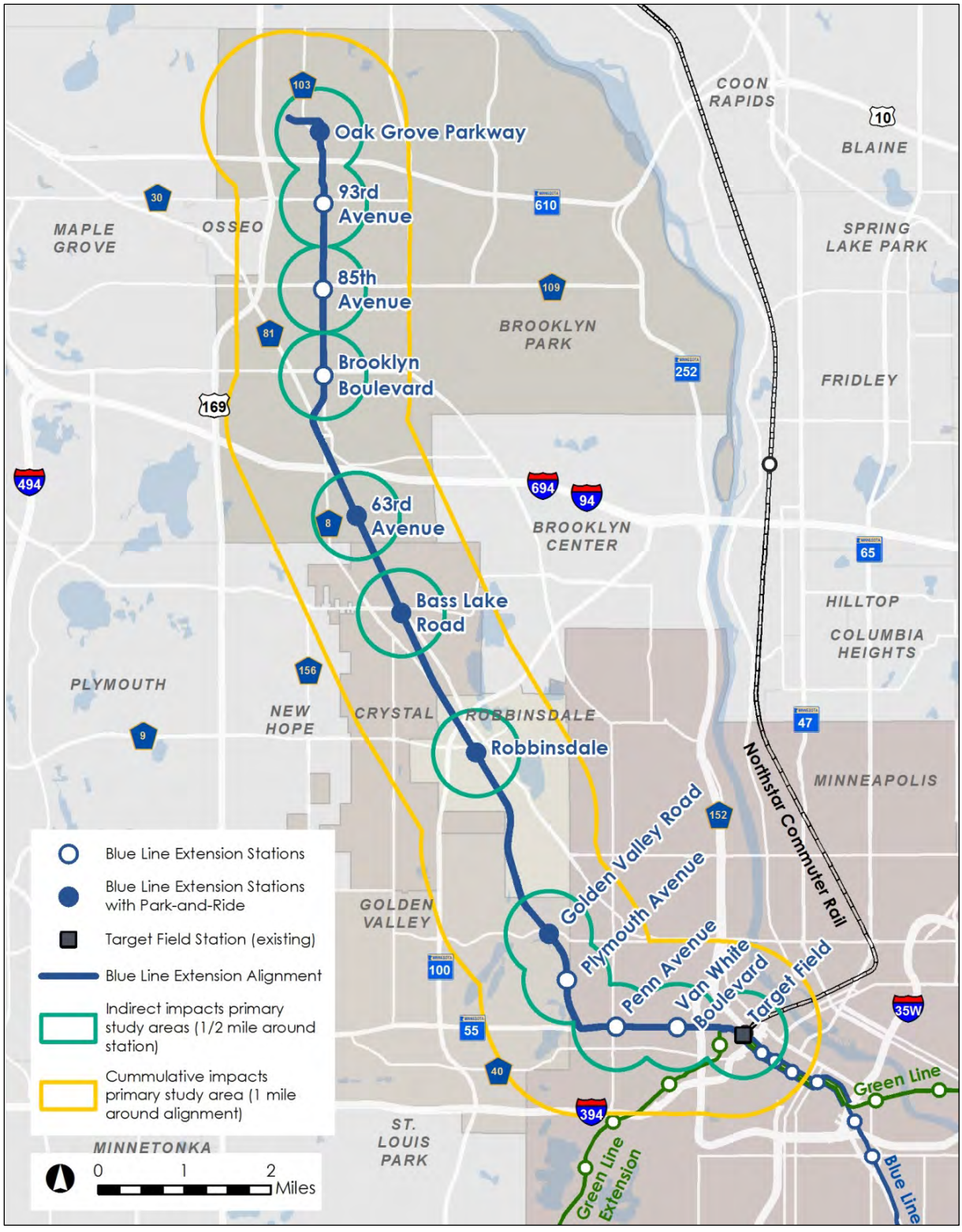
**Indirect Impact Analysis.** The analysis for indirect impacts focuses on a ½-mile radius around each of the proposed transit stations (**Figure 6.1-1**). This approach is supported by NCHRP's Report 466: *Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects*, which states that "development effects are most often found up to one-half mile around a transit station." The indirect impacts study area focuses on the proposed BLRT Extension project alignment because potential induced effects, such as effects on the built environment (businesses, environmental justice populations, traffic, and historic properties) typically occur within the ½-mile buffer around a light rail transit (LRT) project.

The indirect impacts (such as induced development) from the proposed BLRT Extension project are most likely to occur in the areas around the transit stations because the new transit service will improve access to these areas. Beyond ½ mile, new development induced by the proposed BLRT Extension project is less likely. However, secondary development impacts are possible beyond a ½-mile radius from the transit stations. For example, new development in a station area could cause natural-resource impacts that follow the extent of the resource itself rather than stopping at the ½-mile boundary relevant to the built environment. To address this, the Council analyzed potential impacts on natural resources by following the boundaries of those resources (e.g., wetland complexes, waterways, floodplains, and habitat).

**Cumulative Effects Analysis.** The primary study area for the analysis of cumulative effects is an area 1 mile on each side of the proposed BLRT Extension project alignment (**Figure 6.1-1**). The cumulative effects study area is a larger geographic area than the indirect impacts study area because it encompasses resources, primarily natural resources, that could be affected by multiple projects considered in aggregate. For example, the Council examined the effects of multiple projects on floodplains on a watershed-wide basis to determine how those projects taken together could affect the capacity of existing floodplains (acreage of available floodplains) to provide flood control.

The Council selected this study area based on guidance documents and the resource-specific study areas used in this Final EIS. However, the boundary of the cumulative effects study area varies by the resource being considered. For example, effects on air, water resources (stormwater, floodplains and wetlands), and habitat could be greater depending on the location of the resource and the degree of effect. For this reason, the Council considered the potential degree of spatial effect for each resource within this basic framework.

## Figure 6.1-1. Primary Study Areas for Indirect Impacts and Cumulative Effects



### 6.1.2.2 Temporal Boundaries and Present Definitions

The timeframes established for the indirect impacts and cumulative effects analyses include a past timeframe of 1960 to the present (2016) and a future timeframe of the present to 2040. Present actions are those defined to occur between 2018 and 2021, the construction period for the proposed BLRT Extension project.

The Council determined the past cumulative effects timeframe by examining population trends and previous key events of influence on land use and transportation in the cumulative effects study area. Beginning with the period of interstate highway construction in the 1960s and 1970s, the Twin Cities region has experienced strong population growth between 1960 and 2010. At the end of the first period of interstate highway construction (1970), during which the most miles of interstate highway were constructed, the region's population was 1.9 million. By 2010, it had increased to 2.9 million (Council, 2014). This growth has influenced the land-use patterns of the region since that time. **Table 6.1-1** shows the population trends for Minnesota and Hennepin County[1] from 1960 through 2010.

**Table 6.1-1. Population of Minnesota and Hennepin County (1960–2010)**

| Year | Minnesota | Hennepin County |
|---|---|---|
| 1960 | 3,413,864 | 842,854 |
| 1970 | 3,806,103 | 960,080 |
| 1980 | 4,075,970 | 941,411 |
| 1990 | 4,375,099 | 1,032,431 |
| 2000 | 4,919,479 | 1,116,200 |
| 2010 | 5,303,925 | 1,152,425 |
| Percent change 1960–2010 | 55% | 37% |
| Average annual growth rate | 0.9% | 0.6% |

Source: US Census Bureau, 2011

The future cumulative effects timeframe, from 2020 to 2040, extends to the same year as the regionally approved population and land-use projections[2] prepared by the Council as part of its regional development framework, Thrive 2040. Over the 20 years from 2020 to 2040, continued growth is projected for the overall proposed BLRT Extension project area. The 2010 (existing) population of the proposed BLRT Extension project corridor is 514,834. In 2040, the population of

[1] The proposed BLRT Extension project will be completely within Hennepin County, Minnesota.

[2] To develop local forecasts, the Council uses a land use model, simulating real estate development possibilities, and predicting growth patterns responsive to the region's future industry mix and future demographics. Local data—including planned land use from each community's 2030 comprehensive plan—inform the model about land supply and allowable land uses. Future transportation networks also influence the local forecasts. These forecasts reflect the array of growth policies, investment priorities, infrastructure plans, and redevelopment tools that currently exist (*Thrive MSP 2040*, page 186 [Council, 2014]).

the proposed BLRT Extension project corridor is expected to increase to 624,800, an increase of 21 percent from 2010 (see **Table 1.4-1** in **Chapter 1**).

Within the cumulative effects study area, population is projected to increase by about 23 percent between 2010 and 2040, and employment is projected to increase by 29 percent (**Table 6.1-2**).

**Table 6.1-2. Population and Employment Projections for the Cumulative Effects Study Area (2010–2040)**

| City | Population | | | Employment | | |
|---|---|---|---|---|---|---|
| | 2010 | 2040 Forecast | 2010–2040 % Change | 2010 Total Estimate | 2040 Total Estimate | 2010–2040 % Change |
| Minneapolis | 382,578 | 466,400 | 21.91% | 281,732 | 356,000 | 26.36% |
| Golden Valley | 20,371 | 24,300 | 19.29% | 33,194 | 41,500 | 25.02% |
| Robbinsdale | 13,953 | 15,300 | 9.65% | 6,858 | 7,600 | 10.82% |
| Crystal | 22,151 | 23,300 | 5.19% | 3,929 | 5,500 | 39.98% |
| Brooklyn Park | 75,781 | 95,500 | 26.02% | 24,084 | 42,000 | 74.39% |
| **Proposed BLRT Extension project area total** | **514,834** | **624,800** | **21.36%** | **349,797** | **452,600** | **29.39%** |

Source: Council, 2015b

## 6.1.3 Identify Past, Present, and Reasonably Foreseeable Future Actions

### 6.1.3.1 Past Projects

The passage of the Federal Aid Highway Act of 1956 and the start of Interstate construction the same year strongly influenced the pace and location of growth that transformed the Twin Cities region. The period of Interstate construction in the Twin Cities region extended from 1956 to 1996. According to *Politics and Freeways: Building the Twin Cities Interstate System* (University of Minnesota, 2006), the years of Interstate construction can be grouped into three periods: megaprojects (from 1956 to the late 1960s), the era of expanding the debate (from 1970 to 1990), and the era of falling behind (1990s). Accompanying the expansion of the Interstate system in the Twin Cities region was the expansion of US highways and trunk highways that provided access to the Interstate system. The beginning of the past actions period is 1960, and the end of the period is 2016.

The following major transportation projects, land-use policies, and events contributed to the changes in land-use patterns and resource context in the Twin Cities region between 1956 and 2016:

- 1956 – Passage of the Federal Aid Highway Act
- 1966 – Interstate Highway 35W (I-35W)/Highway 62 (Crosstown Commons) completed
- 1968 – Interstate Highway 94 (I-94) completed
- 1973 – Interstate Highway 35E (I-35E) completed
- 1991 – Interstate Highway 394 (I-394) completed
- 2004 – METRO Blue Line (Hiawatha LRT) completed
- 2009 – Northstar Commuter Rail Line completed
- 2014 – METRO Green Line (Central Corridor LRT) completed
- 2014 – *Thrive MSP 2040*: Major land-use policies (www.metrocouncil.org/Planning/Projects/Thrive-2040.aspx)

#### 6.1.3.2 Present Actions and Reasonably Foreseeable Future Actions

The Council identified present projects as well as other public actions planned and programmed to be completed by 2040 in the indirect impacts and cumulative effects study areas. **Table 6.1-3** lists the public and private projects by station area in the indirect impacts and cumulative effects study areas that were considered in the Council's analysis of both indirect impacts and cumulative effects.

The table identifies projects and developments currently listed in state and local plans, known private development actions, and planned and funded roadway and other infrastructure projects generally within the indirect impacts and cumulative effects study areas. The Council identified these actions by coordinating with the local agency partners serving on the project Technical Project Advisory Committee (TPAC). The members of the TPAC include the cities of Minneapolis, Golden Valley, Robbinsdale, Crystal, and Brooklyn Park; Hennepin County; the Minnesota Department of Transportation (MnDOT); and the Council/Metro Transit.

None of these future actions would occur because of the proposed BLRT Extension project. These actions are reasonably foreseeable in that they are likely to occur by virtue of being funded, approved, or part of an officially adopted planning document. Note that future station-area planning and other future planning initiatives could identify additional actions that are not included in the reasonably foreseeable future actions identified by the Council at this time because they have not been funded, approved, or a part of an officially adopted planning document.

## Table 6.1-3. Present and Reasonably Foreseeable Future Actions[1]

| Project Developer | Action (Project) | Estimated Construction Timing | Description | Potential Environmental Impacts of the Action |
|---|---|---|---|---|
| **Target Field Station** | | | | |
| City of Minneapolis and private | Public and private development in downtown Minneapolis | Ongoing | Multiple office, residential, and mixed-use development projects in North Loop and adjacent neighborhoods in downtown Minneapolis | Construction, stormwater, business impacts, traffic, transportation, noise |
| Metropolitan Council | Green Line (Southwest) LRT Extension | 2020 opening | 15-mile LRT line between Minneapolis and Eden Prairie | Stormwater, right-of-way, visual, construction, land use, business impacts, transportation (transit use, traffic patterns, freight rail traffic), noise |
| MnDOT | Northern Lights Express | To be determined | New 110-miles-per-hour passenger rail service between downtown Minneapolis and Duluth | Construction, transportation (travel patterns, freight rail operations), traffic, noise, stormwater |
| MnDOT | Midwest High-Speed Rail | To be determined | High-speed rail service between Minneapolis and Chicago | Stormwater, right-of-way, visual, construction, land use, business impacts, transportation (transit use, traffic patterns), noise |
| **Van White Boulevard Station** | | | | |
| City of Minneapolis | Heritage Park Master Plan | Ongoing | Redevelopment of 145-acre former public housing development into sustainable, affordable urban neighborhood; bounded by 12th Avenue North, Third Avenue North, Lyndale Avenue North, Humboldt Avenue North, and Girard Terrace/Emerson Avenue North | Stormwater, water resources, wetlands, visual, land use, community facilities, environmental justice |
| **Plymouth Avenue and Golden Valley Road Stations** | | | | |
| Minneapolis Park and Recreation Board | Theodore Wirth Regional Park Master Plan | 2015–2035 | Master plan to guide over $5 million in improvements | Community facilities, wildlife |

## Table 6.1-3. Present and Reasonably Foreseeable Future Actions[1]

| Project Developer | Action (Project) | Estimated Construction Timing | Description | Potential Environmental Impacts of the Action |
|---|---|---|---|---|
| **Robbinsdale Station** | | | | |
| Three Rivers Park District | Crystal Lake Regional Trail Master Plan | To be determined | Master plan for 11-mile paved multi-use trail to connect to regional trail network | Transportation, traffic, noise, stormwater, construction, community facilities |
| Joint Powers Agreement Partners[2] | Sochacki Park Master Plan | To be determined | Connect Sochacki Park to Crystal Lake Regional Trail; connect existing paved trail directly to Bassett Creek Regional Trail; develop outdoor H20 classroom | Community facilities, wildlife |
| City of Robbinsdale | Proposed Robbinsdale Wastewater Treatment Facility | To be determined | Construct new treatment plant adjacent to the BNSF Railway corridor project currently in the planning stage | Water quality, construction |
| **Bass Lake Road Station** | | | | |
| Hennepin County | Phased improvements for Bottineau Boulevard (County Road 81) | Ongoing | Reconstruct roadway from Trunk Highway (TH) 100 to 93rd Avenue with capacity and stormwater-management upgrades | Transportation, traffic, noise, stormwater, right-of-way, visual, construction |
| **63rd Avenue Station** | | | | |
| Hennepin County | Reconstruction/ expansion of Bottineau Boulevard | 2017–2019 | Reconstruct/expand roadway from north of 63rd Avenue North to TH 169 | Transportation, traffic, noise, water resources, land use, visual, stormwater, construction |
| **Brooklyn Boulevard Station** | | | | |
| Private | Undeveloped land across from Candlewood Drive on west side of West Broadway Avenue | Future development | Unknown | Transportation, traffic, noise, water resources, land use, visual, stormwater, construction |
| **85th Avenue Station** | | | | |
| Hennepin County | Construction of new library at northeast of West Broadway Avenue and 85th Avenue North | Under construction | New library | Transportation, water resources, land use, visual, stormwater, construction |

## Table 6.1-3. Present and Reasonably Foreseeable Future Actions[1]

| Project Developer | Action (Project) | Estimated Construction Timing | Description | Potential Environmental Impacts of the Action |
|---|---|---|---|---|
| Hennepin County | West Broadway Avenue Reconstruction project (93rd Avenue to Candlewood Drive) | 2018–2021 | Upgrade roadway to four-lane divided urban section with trails | Transportation, traffic, water resources, right-of-way, visual, stormwater, noise, construction |
| **93rd Avenue Station** | | | | |
| Private | Commercial development at northeast corner of West Broadway Avenue and 93rd Avenue North | Under construction | Commercial development | Transportation, traffic, noise, water resources, land use, visual, stormwater, construction |
| Private | Construction of new church at southeast corner of West Broadway Avenue and 93rd Avenue North | Under construction | New church | Transportation, traffic, noise, water resources, land use, visual, stormwater, construction |
| Hennepin County | 93rd Avenue North construction | 2018–2020 | Construction includes reconstructing 93rd Avenue North from two lanes to four from West Broadway Avenue to TH 169 | Transportation, traffic, noise, water resources, land use, visual, stormwater, construction |
| Private | Development at Calvin Gray Farm | Available for development | Single-family homes at 8924 West Broadway Avenue | Transportation, traffic, noise, water resources, land use, visual, stormwater, construction |
| Private | Gateway planned development | 2015+ | Planned mixed-use development in the southwest quadrant of the TH 610/ TH 169 interchange | Transportation, traffic, noise, water resources, land use, visual, stormwater, construction |
| Private | Brooklyn Park Business Center | Planned development – timing uncertain | Commercial development just west of West Broadway Avenue and south of TH 610 | Transportation, traffic, noise, water resources, land use, visual, stormwater, construction |
| Private | Astra Village | Planned development – timing uncertain | Commercial and housing development at the intersection of County Roads 30 and 14 | Transportation, traffic, noise, water resources, land use, visual, stormwater, construction |

### Table 6.1-3. Present and Reasonably Foreseeable Future Actions[1]

| Project Developer | Action (Project) | Estimated Construction Timing | Description | Potential Environmental Impacts of the Action |
|---|---|---|---|---|
| **Oak Grove Parkway Station** | | | | |
| Private | Target North Campus Alternative Urban Areawide Review Update | Near-term 2015; long-term 2030 | 1,700,000 square feet (sf) of office, 300,000 sf of commercial, and 130,600 sf of tech/data support buildings | Transportation, traffic, noise, stormwater, water resources, wetlands, visual, construction |
| MnDOT | TH 610 extension to I-94 | Present – 2016 | Extend TH 610 from County Road 81/Elm Creek Boulevard to I-94 | Transportation, traffic, noise, stormwater, right-of-way, visual, water resources, construction |
| City of Brooklyn Park | New interchange at TH 169 and 101st Avenue[3] | Unknown | Replace at-grade crossing of TH 169 and 101st Avenue with a grade separation | Transportation, traffic, noise, stormwater, right-of-way, visual, water resources, construction |

[1] Reasonably foreseeable future actions are identified through 2040, the planning horizon for the proposed BLRT Extension project.

[2] The cities of Golden Valley and Robbinsdale and the Three Rivers Park District entered into a Joint Powers Agreement for the management of Sochacki Park, Sochacki Park: Mary Hills Nature Area, and Rice Lake Nature Area. These three park resources are now jointly referred to as Sochacki Park; individually they are referred to as Sochacki Park: Sochacki Management Unit, Sochacki Park: Mary Hills Management Unit, and Sochacki Park: Rice Lake Management Unit.

[3] Project is not currently in the Council's *2040 Transportation Policy Plan* (*2040 TPP*) but is actively being pursued by the city of Brooklyn Park.

## 6.2 Indirect Impacts Assessment

This section describes the potential for indirect impacts from the proposed BLRT Extension project. These potential indirect impacts are considered in combination with past trends and the reasonably foreseeable future actions described in **Section 6.1.2**. The discussion is summarized in **Table 6.4-1**.

### 6.2.1 Transportation

#### 6.2.1.1 Transit Conditions

The areas of indirect benefit on transit include ridership forecasts and operational changes. Ridership forecasts for the proposed BLRT Extension project show an increase in new transit trips, which would be associated with a decrease in auto trips resulting from people switching from auto to transit for the first time. While the intent of implementing light rail is to attract new riders, this would nevertheless be an indirect impact because people may choose to use the new light rail service once it is constructed based on its benefits in relation to their transportation needs.

Implementation of the proposed BLRT Extension project would also result in a redistribution of ridership and operational changes to the existing local bus system. Trips via bicycle and pedestrian modes would increase in direct relation to the increase in transit trips because a certain number of transit riders would access the transit system by foot and/or bicycle. It is likely that demand for pedestrian and bicycle access to light rail stations would increase as an indirect result of the proposed BLRT Extension project.

Another potential indirect benefit of the proposed BLRT Extension project would be the potential increases in development density or redevelopment in areas surrounding proposed light rail stations could result in an increase in number of people that use transit. This would have a positive effect on the proposed BLRT Extension project and other elements of the transit system.

#### 6.2.1.2 Freight Rail Conditions

While the proposed BLRT Extension project would require freight rail track modifications, these modifications would not substantially alter operations and would not open access to new freight rail markets. Future freight rail operations are subject to a range of market forces and are dependent on the business plans of freight railroad operators, both of which are outside of the jurisdiction of the Federal Transit Administration (FTA) and the Council. Pursuant to 40 CFR Part 1502.22 and Minnesota Statute 4410.2500, the Final EIS does not evaluate potential adverse effects on the human environment related to the potential indirect impact of increased freight rail frequency and/or length for the following reasons:

- In order to evaluate this potential impact, the Council and FTA would need information related to freight rail market analysis in the area and operational plans, which are proprietary information that are subject to change based on a number of factors that are unknown and unavailable. FTA and the Council cannot compel the freight rail operators to disclose their business plans for future service.
- In order to evaluate reasonably foreseeable impacts, FTA and the Council would need access to private market analysis information for freight operators in the region, and short- and long-term business plans for the railroads. Such information is protected under Title 49, Subtitle IV, Part A of US Code.
- There is no existing credible scientific evidence or data which can be used to evaluate the potential for related adverse impacts on the human environment related to future market demands placed on freight rail cargo in the proposed BLRT Extension project study area.
- FTA and the Council are aware of no theoretical approaches or research methods generally accepted in the scientific community to derive the information required for this analysis without the cooperation of the freight rail operators in sharing the proprietary information.

No long-term indirect impacts on freight rail related to other aspects of the proposed BLRT Extension project are anticipated.

### 6.2.1.3 Vehicular Traffic

The proposed BLRT Extension project would have an indirect impact on the roadway network. The areas of indirect impact on roadways and traffic include additional vehicle traffic from the anticipated new development surrounding the light rail stations, and a modest decrease in auto trips on the surrounding roadway network as people switch from auto to transit.

The traffic assessment described in **Section 3.3.4.1**was based on the regional travel demand model (refer to **Section 3.3.1** for a description of the methodology) which includes 2040 population and employment forecasts that include current and reasonably foreseeable future actions, such as station-area development. Based on this information, the proposed BLRT Extension project includes capacity upgrades and improvements in locations that could realize the indirect impact of increased traffic generated in station areas.

### 6.2.1.4 Pedestrians and Bicyclists

The proposed BLRT Extension project would result in long-term indirect impacts to pedestrian and bicycle facilities and travel patterns. Generally, the introduction of light rail transit into a transportation system results in increased pedestrian and bicycle activity as some light rail users walk or bike to access the new light rail stations. In this manner, the proposed BLRT Extension project is likely to create additional demand for pedestrian and bicycle facilities. Over time, this could result in the need for new or expanded pedestrian and bicycle facilities, in order to provide adequate non-motorized access to proposed light rail stations.

This increased demand for pedestrian and bicycle facilities would be concentrated around the stations. In particular, the proposed BLRT Extension project would increase pedestrian and bicycle demand at the following locations:

- Near the Plymouth Avenue and Golden Valley Road stations where the existing Theodore Wirth Regional Park and Sochacki Park trail systems are adjacent to the stations
- Near the Robbinsdale, Bass Lake Road, and 63rd Avenue stations where the Crystal Lake Regional trail is adjacent to or within two to three blocks of the stations
- Near the 85th Avenue Station, which is adjacent to North Hennepin Community College

Biking and walking trips to these stations may use existing trails to access the stations. Over time, additional capacity may be needed on these trails to address this demand.

### 6.2.1.5 Parking

The proposed BLRT Extension project could affect the supply of and demand for off-street parking in the areas surrounding the proposed new light rail stations as a result of station-area development/redevelopment. Light rail lines can advance the timing and increase the intensity of development surrounding proposed station areas. Any development would be required to comply with the parking requirements of the local jurisdiction, which would tend to ensure a long-term balance of parking supply and demand.

The proposed BLRT Extension project could also lead to indirect impacts related to "spillover" parking in neighborhoods adjacent to proposed light rail stations. Spillover parking is unwanted parking by light rail riders in off-street parking lots or at on-street parking spaces adjacent to a light rail station. Spillover parking can result from a lack of park-and-ride lot capacity relative to demand for park-and-ride lot spaces, and can affect both businesses and residences by limiting available parking spaces for residents, visitors, customers, and employees. Spillover parking could occur at stations where there are no park-and-ride lots planned or if there is a shortage of park-and-ride spaces along the light rail alignment or at a particular station.

## 6.2.2 Community and Social Analysis

### 6.2.2.1 Land Use Plan Compatibility

While development and redevelopment in the land use study area is regulated by the affected local jurisdictions and is driven by regional and local economic conditions, light rail lines can advance the timing and increase the intensity of development, within the limits allowed by local comprehensive plans, particularly in areas surrounding proposed stations. To fully leverage this development potential and to support local land use goals, Hennepin County, in partnership with the cities of Minneapolis, Golden Valley, Robbinsdale, Crystal, and Brooklyn Park, undertook or is undertaking station-area planning efforts. These efforts identify short- and long-term infrastructure needs and land use plans for the proposed BLRT Extension project station areas.

These station-area plans are intended to help coordinate the proposed BLRT Extension project design with the plans and decisions of local jurisdictions and adjacent property owners. These plans are part of an ongoing process that will continue through the Engineering phase and into construction and operation. The station-area planning process has featured public workshops and meetings designed to help identify local area goals and the potential for redevelopment near proposed stations. As the proposed BLRT Extension project continues toward construction, similar outreach and community involvement effort is anticipated. The Council recognizes that local governments control the decisions about land use, including zoning and specific development approvals.

Because the proposed Brooklyn Park Operations and Maintenance Facility (OMF) would be used to perform light maintenance on light rail vehicles and is not a light rail station, the OMF is not anticipated to attract transit-oriented development nor it is anticipated to negatively affect planned growth and development on adjacent land. Because the proposed OMF and the uses that would occur within it are compatible with existing and planned adjacent land uses, it would not limit future development of adjacent parcels.

Because future potential developments would require the actions of others and are influenced by market forces, they are considered potential indirect impacts to land use and not necessarily probable. See **Figure 2.5-1** for an illustration of the proposed light rail station locations. The anticipated development and density surrounding the proposed BLRT Extension project station areas would promote employment by creating new permanent jobs and supporting access to employment opportunities. Commercial, office, and industrial uses would benefit from this improved transit access, as employers would be able to draw from a larger pool of potential

employees. Businesses also may be influenced by transit service when selecting new sites, resulting in increased intensity of these land uses.

The expected increase in development density around light rail stations resulting from the construction of the proposed BLRT Extension project is consistent with regional and local plans. These plans acknowledge the value of transit in supporting efficient land use development and the value of transit-oriented development around light rail stations.

#### 6.2.2.2 Community Facilities/Community Character and Cohesion

Long-term indirect impacts related to the proposed BLRT Extension project that could affect access to community facilities, community character, and community cohesion generally include property conversion related to station-area development, and increased demand for parking in the neighborhoods surrounding proposed stations.

The proposed BLRT Extension project has the potential to result in indirect impacts related to property conversion in the areas surrounding proposed light rail stations. In particular, light rail lines can advance the timing and increase the intensity of private and public development surrounding proposed station areas. Any development/redevelopment would be in accordance with applicable city plans and policies, which were developed, in part, based on the desires of neighborhood and community residents. As a result, potential property conversion surrounding proposed station will not have an adverse effect on community facilities, community character, or community cohesion.

The proposed BLRT Extension project could also affect the supply of and demand for off-street and on-street parking in the areas surrounding the proposed light rail stations, as a result of station-area development/redevelopment. Any development would, however, be required to comply with the parking requirements of the local jurisdiction, which would tend to ensure a long-term balance of parking supply and demand.

In addition, planned park-and-ride lots under the proposed BLRT Extension project have been sized to cumulatively meet forecast (2040) demand for park-and-ride spaces, which will help to minimize "spillover" or unwanted parking in neighborhoods adjacent to proposed light rail stations. Therefore, no adverse effects to community facilities, community character, or community cohesion related to changes in the supply of vehicle parking are expected.

#### 6.2.2.3 Displacement of Residents and Businesses

There is potential for increased development and redevelopment in areas surrounding proposed light rail stations because of improved transit access. While development and redevelopment is regulated by the affected local jurisdictions and is driven by regional and local economic conditions, light rail lines can advance the timing and increase the intensity of development, within the limits allowed by local comprehensive plans, particularly surrounding proposed station areas. This increased redevelopment could indirectly lead to acquisitions and displacements in situations where property ownership is transferred from one party to another.

### 6.2.2.4 Cultural Resources

Development and redevelopment associated with the proposed transit stations could change the setting, context, and land use in the station areas (typically within a ½-mile radius or less from the transit station).[3] Such changes could have indirect impacts on existing historic resources, such as changing the visual quality of the setting by adding a new (modern) building, adding a transportation facility (other than those proposed in the proposed BLRT Extension project), or increasing the density of the area. The induced development might also directly affect historic properties through demolition, changes in property values, or other impacts.

### 6.2.2.5 Visual/Aesthetics

Some indirect visual impacts are possible in the long term because the improved accessibility of the areas around the stations will create potential opportunities for new development, including higher residential densities and, in some cases, new or expanded commercial activities. In areas where this occurs, the built environment is likely to appear more intensively developed and possibly more urbanized in character than what exists at present. The extent to which this development will have visual effects will depend upon the effectiveness of planning, development control, and urban design policies and regulations of the communities in which the development takes place. Further, as discussed in **Section 6.2.2.1**, new development would also be subject to a zoning/permitting process before proceeding.

### 6.2.2.6 Economic Effects

The proposed BLRT Extension project is likely to have the long-term indirect impact of increased development and redevelopment in the areas surrounding proposed light rail stations.[4]

Because future potential developments would require the actions of others and are influenced by market forces, they are understood to be indirect impacts to land use. Development that is consistent with local land use plans and policies would not result in adverse long-term impacts.

Transit investments have proven to yield net positive effects on property values (Diaz, 1999). Research conducted by the Center for Transportation Studies at the University of Minnesota (Goetz et al., 2010; Ko and Cao, 2010) on the impacts the METRO Blue Line (Hiawatha Line LRT) has had on residential, commercial, and industrial properties suggests that light rail has an overall positive effect on property values. Proximity to station areas was a major factor in the positive effect on

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[3] In 2011 the Minnesota Historic Preservation Office (MnHPO) concurred that the architecture/history Area of Potential Effects (APE) around each station was 0.25-mile radius from the center point of each station. MnHPO also concurred that the APE for archaeology was a 500-foot radius from the center point of each station.

[4] Research on the impacts associated with light rail systems indicates that light rail is one of many factors that can influence development. In a study titled "Public Transportation: Multiple Factors Influence Extent of Transit-Oriented Development" (Wise, 2014), the U.S. Government Accountability Office (GAO) reviewed six federally funded transit projects and found a wide range in the amount of transit-oriented development (TOD) near transit stations since transit operations began. The findings of the GAO study are consistent with a study conducted by the Center for Transit-Oriented Development (2011) that reviewed the development patterns along three light rail transit projects in the United States.

residential and multifamily properties. The overall strength of the economy, local government policies, and land availability, are also critical factors in determining the value of the property.[5]

Light rail also has the potential to cause environmental impacts ("nuisance effects") that could reduce the value of an area for some existing or planned uses and/or lower the revenue of local businesses over the long term. These potential nuisance effects include disruptive noise levels; significant visual impacts; and significant reductions in vehicular access and parking. The rate and timing of such impacts would depend on the location of the business relative to the new station, changes in business activity during construction and operation of the system, business visibility, and local land use plans and development standards. For the proposed BLRT Extension project, the potential nuisance effects are expected to be minimal. Mitigation measures for visual quality, noise, and vibration, and parking impacts are discussed in **Sections 4.5, 5.6, 5.7,** and **3.5,** respectively.

The proposed BLRT Extension project may indirectly lead to new development and/or redevelopment of land surrounding some of the proposed light rail stations, which could have the effect of increasing property tax revenues for the affected local jurisdictions. While development is regulated by the affected jurisdictions and is driven by regional and local economic conditions, light rail lines can advance the timing and increase the intensity of development, within the limits allowed by local zoning, particularly surrounding proposed station areas. To fully leverage this development potential and to support local land use goals, Hennepin County, in partnership with the cities of Minneapolis, Golden Valley, Robbinsdale, Crystal, and Brooklyn Park, undertook or is undertaking station-area planning. These efforts identify short- and long- term infrastructure needs and land use plans for the station areas included in the proposed BLRT Extension project, with the intent of supporting the local and regional vision for increased transit oriented development.

To the extent the proposed BLRT Extension project leads to new private development around light rail stations, new jobs could be created in the region as employees gain easier access to businesses, residential housing units, and other facilities. The creation of these jobs would provide a net benefit to the local economy.

#### 6.2.2.7 Safety and Security

The increased development density and intensity anticipated by the Council around the new transit stations could affect law enforcement and security providers. New planned concentrations of residential, commercial, and other uses would put more transit riders, pedestrians, and bicyclists in proximity with transit vehicles, tracks, crossings, and freight rail, potentially creating safety conflicts. This could in turn place greater demands on security providers and/or require changes in current patrol routes, schedules, and equipment needs.

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[5] The impact to residential and commercial property values of light rail projects has been studied in other markets throughout the nation. While impacts to property values have varied depending on the community, residential and commercial properties located closer to light rail stations experienced greater increases in property values. In a report for the American Public Transportation Association entitled "Economic Impact of Public Transportation Investment" (2009), a number of studies in other cities were summarized and generally concluded a positive effect to property values.

## 6.2.3 Physical and Environmental Analysis

### 6.2.3.1 Utilities

No adverse long-term indirect impacts to utilities are anticipated because conflicting utilities will be relocated and services maintained. Site-specific conflicts will be addressed by design measures such as relocating utilities, as appropriate.

The light rail overhead catenary system will operate by supplying electrical energy to the train with the return current flowing through the rails. This return current can also flow through underground metal utility pipes and cable lines near the LRT alignment. The potential for long-term indirect impacts, such as corrosion of existing metal utility pipes and cables due to stray current from the light rail electrification systems was evaluated. The proposed BLRT Extension project will include measures to minimize stray current and reduce the amount of corrosion due to stray current in accordance with proposed BLRT Extension project's design criteria.[6] Therefore, no long-term indirect impacts related to stray current are anticipated.

The increased development density and intensity anticipated around new transit stations could affect utility providers. New planned concentrations of residential, commercial, and other uses could change the patterns and level of demand for utilities in the area. Typically, utility fees charged to users offset net new costs to provide more service. In some cases, such changes could be beneficial to providers because higher-density land use typically results in more-efficient distribution of services.

### 6.2.3.2 Floodplains

Light rail lines can advance the timing and increase the intensity of development, within the limits allowed by local comprehensive plans, particularly surrounding proposed station areas. Long-term indirect impacts to floodplains may occur if new development occurs within the proposed station areas. Future development will be subject to the laws and regulations in place at the time of development. New development induced by the proposed BLRT Extension project might adversely affect hydrology and floodplains (reduces water quality and floodplain storage) if best management practices (BMPs) are not implemented.

### 6.2.3.3 Wetlands

Light rail lines can advance the timing and increase the intensity of development, within the limits allowed by local comprehensive plans, particularly surrounding proposed station areas. Long-term indirect impacts to wetlands may occur if new development occurs within the proposed station areas. Future development will be subject to the laws and regulations in place at the time of development.

The proposed BLRT Extension project may induce new development which could cause wetland impacts. These impacts could include filling for development, dredging to increase stormwater

[6] Cathodic protection is a way to prevent corrosion of a pipeline by using special cathodes and anodes to circumvent corrosive damage caused by electrical current.

treatment capacity, or diminished wetland function and value because of increased pollutant loading from runoff. These impacts are less likely if impact avoidance and minimization efforts are used, and typical BMPs are followed.

#### 6.2.3.4 Geology, Soils, and Topography

Light rail lines can advance the timing and increase the intensity of development, within the limits allowed by local comprehensive plans, particularly surrounding proposed station areas. If new development occurs within the proposed station areas, no indirect impacts to soil or bedrock are expected because of the existing disturbed soils underlying these areas.

#### 6.2.3.5 Hazardous Materials Contamination

The anticipated development and redevelopment induced by the proposed BLRT Extension project around transit stations could affect hazardous materials sites if proper BMPs (which are legally required) are not implemented. Contaminated sites would require cleaned-up as development occurs.

A potential beneficial long-term indirect impact of properties being on or in the vicinity of proposed light rail stations is that known and unknown hazardous and contaminated properties may be cleaned up as redevelopment occurs. Areas encountered during construction of the proposed BLRT Extension project that contain hazardous and contaminated materials that are within the limits of disturbance will be cleaned up as part of the proposed BLRT Extension project, in accordance with the Response Action Plan and Construction Contingency Plan (see **Section 5.5.5**). See **Appendix E** for the engineering drawings that illustrate the proposed BLRT Extension project's limits of disturbance.

#### 6.2.3.6 Noise

Some indirect noise impacts are likely to occur in the long term because of the anticipated increase in development density anticipated around the light rail stations. Local jurisdictions will likely take advantage of better transportation and access following completion of the project by encouraging transit-oriented development/redevelopment of land around the stations, which will result in noise exposure produced by light rail equipment and park-and-ride facilities. The anticipated development induced by the proposed BLRT Extension project around stations would expose more people to noise from transit and associated park-and-ride facilities. Automobile-related noise levels could change by area with induced changes in mode and trip choices.

#### 6.2.3.7 Vibration

Some indirect changes in vibration levels are likely in the long term with the proposed BLRT Extension project due to the anticipated increase in development density around light rail stations. Local jurisdictions will likely take advantage of better transportation and access following completion of the proposed BLRT Extension project by encouraging transit-oriented development/redevelopment of land around the stations, which will result in exposure to vibrations produced by LRT and freight rail. The anticipated new development induced by the

proposed BLRT Extension project around transit stations would expose more people to ground-borne vibration from LRT.

#### 6.2.3.8 Biological Environment (Wildlife Habitat and Endangered Species)

The proposed BLRT Extension project could cause indirect impacts to habitat and endangered species if proper BMPs are not implemented. Indirect impacts could occur if development induced around the station areas were to cause direct impacts to natural habitat. However, the amount of these habitat effects would be limited, since the station areas are located in urban and suburban areas, and the species present tend to be generalized species that are adapted to urban conditions. In addition, any such new development would be required to follow applicable permitting and other regulatory requirements related to protecting natural resources.

#### 6.2.3.9 Water Quality and Stormwater

There is potential for increased development and redevelopment in areas surrounding proposed light rail stations because of improved transit access. To the extent that the proposed BLRT Extension project increases development and redevelopment intensity, long-term indirect impacts will result as commercial, transportation, and industrial activities in the proposed BLRT Extension project's vicinity increase new point and non-point sources of water pollutants. Water quality impacts can include:

- Increased export of pollutants from impervious surfaces and compacted soil
- Decreased pollutant filtration
- Increased water temperatures as a result of riparian vegetation removal
- Export of pollutants from motor vehicles using park-and-ride lots and other associated infrastructure

The anticipated development and redevelopment induced by the proposed BLRT Extension project in station areas likely will temporarily disturb soil and potentially increase the area of impervious surfaces, both of which could directly affect water resources. However, these activities would be subject to current water quality regulations, and installation of required BMPs would protect water quality.

#### 6.2.3.10 Air Quality/Greenhouse Gases

The proposed BLRT Extension project will provide more options for public transportation; therefore, the reliance on passenger cars for daily work commute and recreational trips will be reduced as people choose transit instead of driving. The marginal reduction vehicle travel on highways and local streets contribute to indirect air quality improvements. Conversely, the induced development that could result from the proposed BLRT Extension project could increase motor vehicle travel thereby indirectly increasing air pollutant emissions.

#### 6.2.3.11 Energy

The proposed BLRT Extension project will result in minor shifts from single-occupant vehicles to transit (see **Section 3.1**). As a result, a potential benefit from that mode change would be a projected annual reduction in passenger vehicle miles traveled of 49,724,000 with a resulting reduction in annual energy consumption of 119 billion British thermal units (BTUs) in the proposed BLRT Extension project area and the region over the long term.

New development and redevelopment in the proposed light rail station areas could result in greater demand for electricity in these locations; however, this type of new urban development (e.g., buildings) is typically more energy efficient than existing or less dense development. Conversely, the induced development that could result from the proposed BLRT Extension project could increase motor vehicle travel thereby indirectly increasing energy consumption.

### 6.2.4 Environmental Justice

See **Section 7.4.6** for the discussion of indirect impacts and cumulative effects for environmental justice.

### 6.2.5 Parklands and Open Space

Parks and open spaces are important community resources and are considered an asset in the indirect impacts study area. Regional parks (such as Theodore Wirth Regional Park, which will be directly accessible by the proposed BLRT Extension project) are also potential generators of new transit trips. Greater levels of activity at parks and open spaces could result from the increased accessibility provided by the proposed BLRT Extension project and by new populations who could be attracted to the proposed BLRT Extension project area as a result of the implementation of the proposed BLRT Extension project. Greater use of parks and open spaces could, in turn, strain facilities and increase maintenance levels.

## 6.3 Cumulative Effects Assessment

This section describes the potential for cumulative effects from the proposed BLRT Extension project in combination with past trends and the reasonably foreseeable future actions described in **Section 6.1.2**. The discussion is summarized in **Table 6.4-1**.

Planned transportation and other governmental development and private development in the cumulative effects study area will occur independently of the proposed BLRT Extension project. These developments are located in communities along the proposed BLRT Extension project alignment. Projections of anticipated land development are based on current local and regional land-use and growth-management objectives and regulations, which already consider the implementation of the proposed BLRT Extension project.

The proposed BLRT Extension project will have an incremental effect on resources of interest in the context of other past, present, and reasonably foreseeable actions in the cumulative effects study area. In general, the direct and indirect adverse impacts of the proposed BLRT Extension project will be localized, and the Council does not anticipate that the proposed BLRT Extension project will

result in substantial cumulative effects for the resource categories evaluated. The Council's assessment of the cumulative effects of the proposed BLRT Extension project and other past, present, and reasonably foreseeable actions is presented by each resource of interest in the following sections.

## 6.3.1 Transportation

### 6.3.1.1 West Broadway Avenue Reconstruction Project

Continued development of transit and transportation facilities in the proposed BLRT Extension project area over time, including the West Broadway Avenue Reconstruction project, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project will increase the demand for transportation as a whole as activity and development density increase. The reconstruction of West Broadway Avenue will increase roadway capacity and thus could attract additional traffic from adjacent congested roads. The proposed BLRT Extension project will increase the capacity to move people along the proposed BLRT Extension project corridor by introducing LRT service.

The combination of the West Broadway Avenue roadway improvements and the proposed BLRT Extension project will draw additional vehicle traffic associated with passenger drop-off locations and additional pedestrian and bicycle traffic near and around the West Broadway Avenue stations (85th Avenue and 93rd Avenue). The roadway environment with the two combined projects will have lower travel speeds than what exists today because of passenger drop-off, pedestrian, and bicycle activity around the transit stations and because of the narrower 11-foot lanes that are being proposed in the West Broadway Avenue Reconstruction project.

This Final EIS includes an analysis of the effects of the proposed BLRT Extension project on intersection operations as well as on the movement of all modes of traffic around the transit stations (**Sections 3.3 and 3.4**).

### 6.3.1.2 TH 169/101st Avenue North Interchange

With the No-Build Alternative, the roadway intersections in the area north of TH 610 are expected to have poor operating conditions in terms of delay and vehicle queuing. The projected traffic operation with the No-Build Alternative is a byproduct of the intense development that is planned for this area by 2040. However, no roadway projects have been programmed to improve the roadway network in this area, so the intersections are expected to operate over capacity.

In response to the anticipated 2040 traffic conditions north of TH 100, the city of Brooklyn Park studied a new full-access interchange at TH 169/101st Avenue North as a separate project not related to the proposed BLRT Extension project. The new interchange has not been programmed and is not shown in the Council's *2040 TPP*.

As a part of the scope of the proposed BLRT Extension project, the Council identified several roadway improvements in order to provide control of the light rail vehicles at intersections and to provide adequate infrastructure to accommodate buses, pedestrians, and park-and-ride traffic near the transit station. These infrastructure improvements include:

- Reconstruct 101st Avenue North and Oak Grove Parkway to accommodate the needs of the proposed BLRT Extension project OMF site
- Reconstruct West Broadway Avenue from TH 610 to north of Oak Grove Parkway to accommodate the desired location of the LRT alignment, station location, and park-and-ride parking structure
- Install a new traffic signal at West Broadway Avenue/Main Street to provide a second access point to the park-and-ride facility

The Council incorporated these elements into the proposed BLRT Extension project traffic modeling. With these improvements, all intersections north of TH 610 will operate at acceptable levels of service with the proposed BLRT Extension project in 2040, with three exceptions: Oak Grove Parkway/Xylon Avenue, West Broadway Avenue/Oak Grove Parkway, and West Broadway Avenue/Main Street.

The planned future interchange at TH 169/101st Avenue North would distribute this traffic demand between two interchanges and would result in all intersections operating at an acceptable level of service during the peak periods. Additionally, the Council expects that a future traffic signal would be needed at the Oak Grove Parkway/Xylon Avenue intersection to accommodate 2040 development-generated traffic volumes. The traffic signal installation would occur at the same time as construction of the TH 169/101st Avenue North interchange project or as development traffic warrants.

## 6.3.2 Community and Social Analysis

### 6.3.2.1 Land Use Plan Compatibility

Continued development of transit and transportation facilities in the proposed BLRT Extension project area over time, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project, could result in land-use changes and increased development or redevelopment in the cumulative effects study area. This most likely will be in the form of increased residential and commercial densities consistent with transit-oriented development (TOD). These trends likely will continue until demands for housing and retail, office, and/or industrial space are met.

### 6.3.2.2 Community Facilities/Community Character and Cohesion

Over time, continued development of transit and transportation facilities in the proposed BLRT Extension project area, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project, will place increased demands on community services and facilities while potentially changing community character. For locations where comprehensive plans call for dense, mixed-use development, such changes in character will be consistent with planned growth and development.

### 6.3.2.3 Displacement of Residents and Businesses

Past projects such as the construction of the Interstate system and expansion of the trunk highway system that accompanied Interstate construction and the resulting growth in the suburban ring around the Twin Cities relocated a substantial number of residences and businesses. In the more recent past, projects like the METRO Green Line (Central Corridor LRT) resulted in property acquisition and associated displacements, and present actions such as the Southwest Light Rail Transit Project will result in acquisitions and displacements.

Future projects such as the phased improvements for Bottineau Boulevard and the TH 610 extension to I-94 projects would require property acquisitions and have the potential to displace existing commercial and residential buildings.

As noted in **Section 4.3.4.1**, property acquisitions required for the proposed BLRT Extension project will affect 292 parcels with a combined area of 75.5 acres of permanent and temporary easements. Of the 75.5 acres, about 28.9 acres will be temporary easements, most commonly involving a strip of land needed to allow for construction activities to occur.

Because the proposed BLRT Extension project and other transportation projects that use federal funds are required by law to compensate property owners and renters for residences and businesses acquired by transportation improvements, the proposed BLRT Extension project and similar federal actions will not contribute to cumulative acquisition impacts after mitigation.

However, non-federally funded transportation facilities, such as the West Broadway Avenue Reconstruction project, in the proposed BLRT Extension project area over time, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project, could cumulatively result in displacements of residents and/or businesses. Additionally, the need for new transportation infrastructure to support new development could result in additional displacements.

### 6.3.2.4 Cultural Resources

Past transportation projects such as the early construction of the Interstate system and private development projects that predated the National Historic Preservation Act of 1966 and the National Environmental Policy Act of 1969 adversely affected architecture/history resources and archaeological resources. Because archaeological and architecture/history resources are widely distributed, present projects, such as the METRO Green Line Extension (Southwest LRT) also could affect cultural resources. Future projects may affect cultural resources, but because the historical significance of structures and the presence and significance of archaeological resources within the footprint of a project are generally not evaluated until a project is underway, it is difficult to reliably predict future projects' contribution to cultural resource cumulative effects. Depending on the funding source for future projects, cultural resources are afforded some level of protection by federal, state, and local cultural resource regulations.

Based on results of the effects assessments and implementation of the measures included in the Section 106 MOA, FTA has determined, in consultation with the MnHPO and other consulting parties, that the proposed BLRT Extension project will have No Adverse Effect on 11 historic resources and an Adverse Effect on six resources, including two individual properties and four

historic districts. Because of the proposed BLRT Extension project's adverse effect on these six resources—Wayman AME Church; Floyd B. Olson Memorial Statue; Osseo Branch Line of the St. Paul, Minneapolis & Manitoba Railroad/Great Northern Railway Historic District; Grand Rounds Historic District, Theodore Wirth Segment; Homewood Residential Historic District; and the West Broadway Avenue Residential Historic District —it has been determined that the undertaking will have an Adverse Effect on historic resources (see **Section 4.4.3**).

The proposed BLRT Extension project will implement appropriate measures identified in the Section 106 Memorandum of Agreement to minimize or mitigate the proposed BLRT Extension project's adverse cultural resource effects (see **Section 4.4.4**); however, future actions other than the proposed BLRT Extension project also have the potential to adversely affect cultural resources in the cumulative effects study area.

Over time, continued development of transit and transportation facilities in the proposed BLRT Extension project area, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project including new development induced by the proposed BLRT Extension project in the station areas, could result in changes that diminish the integrity of a historic property's or district's location, feeling, or association. Some properties could be converted or demolished to take advantage of development or redevelopment opportunities.

#### 6.3.2.5 Visual/Aesthetics

Past public and private actions in the Minneapolis Downtown Fringe landscape unit have transformed the visual environment by increasing the density and height of buildings in the downtown area. Outside of downtown Minneapolis, particularly areas closer to the proposed BLRT Extension project's northern terminus, past actions created a transition in the visual environment from rural to suburban/urban. While the visual impacts of more recent past projects, present actions, and reasonably foreseeable projects along the proposed BLRT Extension project alignment may be less visually transformative than past projects because they occur in a developed urban and suburban physical environment, they still have the ability to create visual impacts. However noting the severity of the visual impact is dependent on the scale and massing of the development.

The analysis conducted to evaluate the proposed BLRT Extension project's effect on visual quality and aesthetics included long-term direct and indirect impacts. The analysis evaluated 28 key viewpoints along the alignment in the cities of Minneapolis, Golden Valley, Robbinsdale, Crystal, and Brooklyn Park (see **Section 4.5.4.4**). Results of the analysis are summarized in **Table 6.3-1 and Table 6.3-2**.

The proposed BLRT Extension project will implement appropriate measures to avoid, minimize, and mitigate visual quality and aesthetics impacts (see **Section 4.5.5**); however, future actions other than the proposed BLRT Extension project have the potential to adversely affect visual quality and aesthetics in the cumulative effects study area.

### Table 6.3-1. Summary of Changes to Visual Quality and Character

| Degree of Visual Change in Quality and Character | Number of Key Viewpoints |
|---|---|
| Not substantially altered | 7 |
| Altered | 11 |
| Altered for visual quality;<br>not substantially altered for visual character | 7 |
| Substantially altered | 3 |
| **Total** | **28** |

### Table 6.3-2. Summary of Visual Impacts

| Level of Impact | Number of Higher Quality Visual Features/Primary Project Visual Features |
|---|---|
| Neutral | 29 |
| Potentially Adverse | 3 |
| Adverse | 31 |
| **Total** | **63** |

Continued development of transit and transportation facilities in the proposed BLRT Extension project area over time, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project, could cumulatively change views in the proposed BLRT Extension project area over time. Specifically, views could become more urbanized, and wide-open views could in some cases become more closed. These changes are consistent with adopted comprehensive plans for the communities in the cumulative effects study area, plans which call for continued development of transportation infrastructure and land.

#### 6.3.2.6 Economic Effects

Continued development of transit and transportation facilities in the proposed BLRT Extension project area over time, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project, could cumulatively strengthen the business climate by providing improved transportation access to customers and employees. Although individual businesses could be affected negatively, the overall (cumulative) result is expected to be positive.

#### 6.3.2.7 Safety and Security

The continued development of transit and transportation facilities in the proposed BLRT Extension project area over time, combined with future actions, natural population growth, and the direct and indirect impacts of the proposed BLRT Extension project, could cumulatively add to the demands

on law enforcement and security providers, potentially affecting staffing levels and budgets over the long term.

## 6.3.3 Physical and Environmental Analysis

### 6.3.3.1 Utilities

The continued development of transit and transportation facilities in the proposed BLRT Extension project area over time, combined with future actions, natural population growth, and the direct and indirect impacts of the proposed BLRT Extension project, could add to the demands on the customer base of utilities in the cumulative effects study area. The efficiencies of more-compact development patterns (anticipated in station areas) are expected to provide operating efficiencies to the utility providers over the long term.

### 6.3.3.2 Floodplains

Well before the start of Interstate construction in the proposed BLRT Extension project corridor, floodplains were being adversely affected by development activities, particularly in Hennepin County, the most populous county in the state. The conversion of the proposed BLRT Extension project corridor's original land cover, including maple and basswood forest, prairies, and wetlands, to agricultural land began the process of adverse impacts to hydrology and floodplains that intensified with the increase in urban development. The incomplete understanding of the inherent value of floodplains, and the lack of comprehensive environmental regulations at the local, state, and federal levels resulted in a generally degraded condition of floodplains through the first period of Interstate construction in the proposed BLRT Extension project corridor. The passage of legislation, such as the 1972 Clean Water Act and the 1991 Minnesota Wetland Conservation Act, increased protection of floodplains.

The proposed BLRT Extension project will add approximately 86 acres of impervious surface (including proposed ballasted track areas) that may adversely affect water quality. In addition, the operation of light rail transit may affect the hydrology and connectivity of public waters along the light rail alignment. If commercial, transportation, and industrial activities along the light rail alignment increase as a result of the proposed BLRT Extension project, there may be long-term indirect impacts on surface water resources as a result of new point and non-point sources of pollution. Finally, the proposed BLRT Extension project will place 17,000 cubic yards of fill into two locally regulated 100-year floodplains adjacent to the LRT alignment. Continued development of transit and transportation facilities in the proposed BLRT Extension project area over time, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project, could cumulatively affect hydrology and floodplains if BMPs are not implemented.

### 6.3.3.3 Wetlands

Well before the start of Interstate construction in the proposed BLRT Extension project corridor, wetlands were being adversely affected by development activities, particularly in Hennepin County, the most populous county in the state. The conversion of the proposed BLRT Extension project corridor's original land cover, including maple and basswood forest, prairies, and wetlands, to

agricultural land began the process of adverse impacts to wetlands that intensified with the increase in urban development. The incomplete understanding of the inherent value of wetlands and the lack of comprehensive environmental regulations at the local, state, and federal levels resulted in a generally degraded condition of surface water resources through the first period of Interstate construction in the proposed BLRT Extension project corridor. As an example of past actions on water resources, it has been estimated that Minnesota has lost approximately half of its original pre-settlement wetlands due to draining and filling for agriculture and development.[7] A similar level of impact would be expected to have occurred in the proposed BLRT Extension project corridor.

The passage of legislation, such as the 1972 Clean Water Act and the 1991 Minnesota Wetland Conservation Act, increased protection of wetlands however, impacts.

As a result of the proposed BLRT Extension project, 10.14 acres of natural wetland basins and 3.07 acres of stormwater ponds will be impacted. From a long-term indirect impact standpoint, the proposed BLRT Extension project may affect wetlands by facilitating future development. The proposed BLRT Extension project will add approximately 86 acres of impervious surface that may adversely affect water quality. In addition, the operation of light rail transit may affect the hydrology and connectivity of public waters along the light rail alignment. Continued development of transit and transportation facilities in the proposed BLRT Extension project area over time, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project, could cumulatively affect wetlands, particularly if BMPs are not implemented.

#### 6.3.3.4 Geology, Soils, and Topography

No geologic features or hazards were identified in the cumulative effects study area; however, a portion of the proposed BLRT Extension project is located in an area identified as active karst. Two springs were mapped 1 mile southwest of the cumulative effects study area. Though no karst features have been identified along the proposed BLRT Extension project, a small segment of the cumulative effects study area has a high probability for karst, as shown in **Figure 5.4-1**. The design and operation of the proposed BLRT Extension project infrastructure could be affected if subsurface features are encountered during construction. The presence of karst could also exacerbate the spread of contamination if spills or releases of hazardous materials were to occur in this area. Details regarding releases of hazardous materials in karst areas are discussed further in **Section 5.5.4.2**.

Past public and private projects have affected geology (soils) in a manner similar to the proposed BLRT Extension project. Compressible soils and other soils unsuitable for construction have been excavated and replaced with suitable fill. In addition, past projects have disturbed soil geology while constructing cuts and fills required to build roadways and private development projects. While past projects would have affected geology, they may have had adverse geology impacts, particularly in the Sochacki Park area where construction debris from TH 100 was purportedly

[7] *Status and Trends of Wetlands in Minnesota: Wetland Quantity Trends from 2006 to 2011*, Minnesota DNR, May 2013.

dumped. It is not possible to know whether past actions encountered karst conditions, which could be an adverse geology impact.

Recent past, present and reasonably foreseeable actions, whether state/federal transit (e.g., METRO Green Line Extension) or roadway projects or residential/commercial developments would be expected to have similar soil impacts to the proposed BLRT Extension project's impacts described below.

The generally compatible geologic conditions along the proposed light rail alignment will accommodate construction and operations thus limiting long-term direct geology impacts.

Constructing load transfer platforms, bridge abutments and piers in areas of compressible soils are not expected to create adverse geology impacts. No long-term indirect impacts to geology and soils will occur solely during construction of the proposed BLRT Extension project. No direct impacts to topography have been identified. Given that any impacts will be temporary, no cumulative effects to these resources are anticipated.

#### 6.3.3.5 Hazardous Materials Contamination

Continued development of transit and transportation facilities in the proposed BLRT Extension project area over time, combined with future actions and the direct and indirect impacts of the proposed BLRT Extension project, will contribute to the remediation of hazardous materials sites, because such sites will be required to be cleaned up as a condition of development or redevelopment.

#### 6.3.3.6 Noise

Although noise data for past transportation projects is not readily available, it is expected that past transportation actions such as the early construction of the Interstate system and associated expansion of the US highway and trunk highway systems resulted in noise levels approaching or exceeding the FHWA Noise Abatement Criteria for sensitive receptors adjacent to the transportation improvements.

It is also expected that more recent past transportation projects, present actions, and reasonably foreseeable transportation projects have or will also result in noise impacts to sensitive receptors without evaluating and or constructing noise barriers.

The proposed BLRT Extension project will implement appropriate measures to avoid, minimize, and mitigate noise impacts (see **Section 5.6.5**), as appropriate; however, future actions other than the proposed BLRT Extension project have the potential to adversely affect noise in the cumulative effects study area.

#### 6.3.3.7 Vibration

The proposed BLRT Extension project will contribute to increases in ground-borne vibration events along its alignment, and cumulative effects could occur where this transitway is near other public transportation vibration sources in downtown Minneapolis, sources such as at the Target Field multimodal transportation hub where other LRT and commuter rail lines are planned to converge.

### 6.3.3.8 Biological Environment (Wildlife Habitat and Endangered Species)

Past public and private actions, particularly during the first period of Interstate construction (1956–1969) with associated expansion of the US highway and trunk highway and early residential and commercial suburban development, generally would have had a greater impact on ecosystems because the projects would have affected better quality habitat in more rural areas. Because the concept of protecting threatened and endangered (T&E) species was in its very early days between 1956 and 1969, the Endangered Species Preservation Act of 1966 was the predecessor to the Endangered Species Act of 1973, and it is difficult to speculate on public transportation and private development projects' impact on T&E species during that period. Public transportation and private development projects after 1969 continued to adversely affect ecosystems, but in general as habitat areas became smaller and more disturbed, the projects' impacts on the function and value of the ecosystems have been less pronounced.

The proposed BLRT Extension project will be located mostly in areas that have been previously disturbed or developed with impervious surfaces and buildings. Portions of the proposed BLRT Extension project will be within or near limited pockets of aquatic habitats and natural or open areas with vegetative cover that may provide foraging, migrating, or nesting habitat for wildlife. Long-term impacts to habitat include removal, conversion, degradation, or fragmentation of existing habitat. In addition, 22.23 acres of notable terrestrial and aquatic habitats will be impacted by the proposed BLRT Extension project. The proposed BLRT Extension project is not expected to result in long-term direct or indirect impacts on state or federal protected T&E species or migratory birds because the proposed BLRT Extension project will utilize appropriate best management practices to avoid impacts on listed species that have the potential to occur in the proposed BLRT Extension project area. The proposed BLRT Extension project will implement appropriate measures to avoid, minimize, and mitigate ecosystem impacts (see **Section 5.8.5**); however, future actions are anticipated to have minor effects on habitat and endangered species, similar to the indirect impacts from the induced development, because they would be located in urban and suburban areas. The planned projects are expected to use to BMPs during construction in order to limit indirect impacts to aquatic habitats, and no adverse cumulative effects are anticipated.

### 6.3.3.9 Water Quality and Stormwater

Well before the start of Interstate construction in the proposed BLRT Extension project corridor, water quality and stormwater were being adversely affected by development activities, particularly in Hennepin County, the most populous county in the state. The conversion of the proposed BLRT Extension project corridor's original land cover, including maple and basswood forest, prairies, and wetlands, to agricultural land began the process of adverse impacts to water quality and stormwater that intensified with the increase in urban development. The incomplete understanding of the inherent value of water quality and stormwater, and the lack of comprehensive environmental regulations at the local, state, and federal levels resulted in a generally degraded condition of water quality and stormwater through the first period of Interstate construction in the proposed BLRT Extension project corridor. The passage of legislation, such as the 1972 Clean Water Act and the 1991 Minnesota Wetland Conservation Act, increased protection of water quality and stormwater.

The proposed BLRT Extension project will add approximately 86 acres of impervious surface (including proposed ballasted track areas) that may adversely affect water quality. If commercial, transportation, and industrial activities along the light rail alignment increase as a result of the proposed BLRT Extension project, there may be long-term indirect impacts on water quality and stormwater as a result of new point and non-point sources of pollution.

Cumulative effects from future actions in the proposed BLRT Extension project area watersheds could include increased sediment and pollutant loads. However, future actions are subject to the same water quality regulations as the proposed BLRT Extension project and would use similar BMPs during construction and operation. Thus, no cumulative adverse effects to water quality are anticipated.

#### 6.3.3.10 Air Quality/Greenhouse Gases

Continued transportation and land development in the proposed BLRT Extension project area could result in increased air pollutant emissions. When combined with the proposed BLRT Extension project, which is expected to reduce the overall air pollutant load because of less automobile use, the cumulative effect on air quality could be an improvement over the conditions without the proposed BLRT Extension project.

#### 6.3.3.11 Energy

Continued transportation and land development in the proposed BLRT Extension project area could result in increased energy use. When combined with the proposed BLRT Extension project, which is expected to use 119 billion British thermal units (BTUs) less energy than the No-Build Alternative, the cumulative effect on energy use will likely be an improvement over conditions without the proposed BLRT Extension project (see **Section 5.11.4**).

### 6.3.4 Parklands and Open Space

Past federal and state transportation projects, particularly those constructed before the implementation of the Section 4(f) regulations (1966) and the National Environmental Policy Act (1969), and private development would have adversely affected parks and recreation areas. Even after the passage of Section 4(f) regulations, present publicly and privately funded projects still have the potential to adversely affect parks and recreation areas; however, at least for projects using federal funds, there is the potential for minimizing or mitigating adverse effects.

Currently, the reasonably foreseeable projects in **Table 6.1-3** are not expected to adversely affect parks or recreation areas. As described in **Section 8.7.1** and summarized in **Table 8.7-2**, the following parks, recreation areas, and open space properties will be affected as a result of the proposed BLRT Extension project:

- Theodore Wirth Regional Park – *De minimis* use
- Glenview Terrace Park – *De minimis* use
- Sochacki Park: Mary Hills Management Unit – Temporary occupancy
- Sochacki Park: Sochacki Management Unit – Temporary occupancy
- South Halifax Park – Temporary occupancy
- Becker Park – Temporary occupancy
- Park Property Adjacent to Rush Creek Regional Trail – Temporary occupancy

Population growth in the cumulative effects analysis area caused by new residential development surrounding the proposed light rail stations may increase demand and capacity pressure on public parks and recreation facilities. Because of limited land availability and funding for acquisitions, the City of Minneapolis and other communities are limited in park expansion opportunities to meet recreational demands. These limitations have the potential to result in a long-term shortfall in the ratio of parks and recreation areas to population.

The proposed BLRT Extension project will not contribute to substantial cumulative park and recreation area impacts directly related to acquisitions because the magnitude of the acquisition impacts is low (approximately 2 acres), as compared to the size of the parks in the cumulative effects study area (approximately 852 acres; see **Table 8.7-2**). The proposed BLRT Extension project will implement appropriate measures to avoid, minimize, and mitigate other park, recreation areas, and open space impacts not related to acquisitions (see **Section 8.7.3**); however, future actions other than the proposed BLRT Extension project have the potential to adversely affect parks, recreation and open space in the cumulative effects study area.

## 6.4 Mitigation and Summary of Effects

This section includes a review of mitigation needs for the indirect impacts and cumulative effects to each resource of interest as well as a summary of effects. **Table 6.4-1** presents this information.

## Table 6.4-1. Summary of Indirect Impacts, Cumulative Effects, and Associated Mitigation

| Resource | Indirect Impacts | Cumulative Effects | Mitigation |
|---|---|---|---|
| **Transportation** | Travel by transit, pedestrian, and bicycle modes will increase, and the number of single-occupant vehicles will decrease, as a result of the proposed BLRT Extension project.<br>The proposed BLRT Extension project could also lead to indirect impacts related to "spillover" parking in neighborhoods adjacent to proposed light rail stations. | The proposed BLRT Extension project in combination with the reasonably foreseeable future actions, including the West Broadway Avenue Reconstruction project, will increase overall transportation demand. The combination of the roadway improvements and the proposed BLRT Extension project will draw additional vehicle traffic associated with passengers accessing the proposed BLRT Extension project stations. | Because the indirect impacts and cumulative effects identified are consistent with the comprehensive plans of the communities affected, as well as with county and regional plans, no mitigation is required.<br>To address the potential for spillover parking in neighborhoods adjacent to proposed LRT stations, the Council will complete a Regional Park-and-Ride System Report on an annual basis, which tracks facility use and emerging travel patterns to identify the appropriate mitigation, as needed and where feasible. |
| **Land Use Plan Compatibility** | Market-driven development could lead to increased density and intensely used spaces along the proposed BLRT Extension project corridor. | Reasonably foreseeable future actions will likely increase the density and intensity of development in the proposed BLRT Extension project corridor. | The cities in the corridor have planned for future growth and development with their individual comprehensive plans. Potential indirect impacts and cumulative effects on land use are compatible with these plans and plans for the region, which state the agencies' desire for transit to alleviate traffic and congestion. No mitigation is required. |
| **Community Facilities/ Community Character and Cohesion** | New businesses and residential development could be attracted to station areas, likely leading to denser land-use patterns and increased demand on community services and facilities. Increased development could affect access to community facilities. | The proposed BLRT Extension project in combination with the reasonably foreseeable future actions could change the character of neighborhoods by increasing mixed-use development in the cumulative effects study area. | The types of indirect impacts and cumulative effects identified are typically consistent with and governed by applicable land-use plans. No mitigation is required. |
| **Displacement of Residents and Businesses** | New station-area development could result in displacements of existing uses, limited by zoning, comprehensive plans, and local economic conditions. | Additional transportation investments in the proposed BLRT Extension project corridor to service induced development, in combination with the reasonably foreseeable future actions, could lead to the acquisition of right-of-way and the relocation of residents and businesses. | Although there could be cumulative effects from the acquisition and displacement of residents and businesses, induced development, along with available housing in the proposed BLRT Extension project corridor, will likely create more jobs and housing opportunities than what will be lost. No mitigation is required. |

## Table 6.4-1. Summary of Indirect Impacts, Cumulative Effects, and Associated Mitigation

| Resource | Indirect Impacts | Cumulative Effects | Mitigation |
|---|---|---|---|
| **Cultural Resources** | More-dense and -intense development could affect the context of cultural resources. Induced development could directly affect historic properties through demolition, change in property values, or other impacts. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions could cumulatively diminish the integrity of a historic property's or district's location, feeling, or association cultural resources. | All indirect impacts and cumulative effects are subject to the protections and regulations of Section 106 of the National Historic Preservation Act of 1966. Committed mitigation has been documented in the Section 106 Memorandum of Agreement. |
| **Visual/Aesthetics** | Induced development around the transit stations will likely change the views of the area. Specifically, a new building that is in keeping with the scale and character of the existing neighborhood will typically be seen as a positive impact on visual resources, whereas a new building that does not fit in with the existing character could be seen as a negative impact. | Induced development associated with the proposed BLRT Extension project and additional transportation facilities in combination with the reasonably foreseeable future actions will change the views in neighborhoods.<br>Specifically, views could become more organized and urbanized, and wide-open views could in some cases become more closed. | Development that occurs in response to the proposed BLRT Extension project and future actions will likely have a visual impact on the proposed BLRT Extension project corridor. All development is regulated through applicable municipal codes. No additional mitigation is required. |
| **Economic Effects** | To the extent the proposed BLRT Extension project leads to new private development around light rail stations, new jobs could be created in the region as employees gain easier access to businesses, residential housing units, and other facilities. The creation of these jobs would provide a net benefit to the local economy. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions will likely increase the number of customers in the proposed BLRT Extension project corridor. | Development that occurs in response to the proposed BLRT Extension project and the reasonably foreseeable future actions might increase access to businesses in the area and expand the base of local consumers. No additional mitigation is required. |
| **Safety and Security** | Increased development densities around transit stations could place greater demands on safety and security personnel and systems. | Increased development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions could require more service personnel and could cumulatively strain local providers' capacity to deliver services. | Safety and security measures to address induced development and future actions would be planned for by cities, counties, and emergency service providers. Metro Transit will provide security at and around the transit stations. Transit rider, pedestrian, and bicycle safety features will be incorporated into design and maintained and enforced over time. No additional mitigation is required. |

## Table 6.4-1. Summary of Indirect Impacts, Cumulative Effects, and Associated Mitigation

| Resource | Indirect Impacts | Cumulative Effects | Mitigation |
|---|---|---|---|
| **Utilities** | No long-term indirect impacts related to stray current are anticipated. Induced development will put a greater demand on the existing utilities in the proposed BLRT Extension project corridor. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions will likely put a greater demand on utilities in the proposed BLRT Extension project corridor. | To meet any increased demand for utilities from induced development and future actions, utility providers will plan appropriately through their regular planning processes. No additional mitigation is required. |
| **Floodplains** | Induced development could adversely affect hydrology (increased impervious surfaces) and floodplains storage if BMPs are not implemented during the development process. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions could have a cumulative effect on increased sediment and pollutant load if BMPs are not implemented. | All permanent impacts to hydrology and floodplains caused by induced development and future actions will be mitigated according to applicable regulations. No additional mitigation is required. |
| **Wetlands and Other Aquatic Resources** | Induced development could adversely affect wetlands if new developments were to cause wetland impacts and BMPs are not implemented. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions could have a cumulative effect if new developments were to cause wetland impacts and BMPs are not implemented. | All permanent impacts to wetlands caused by induced development and future actions will be mitigated according to applicable regulations. No additional mitigation is required. |
| **Geology, Soils, and Topography** | No indirect impacts are anticipated. | No cumulative effects are anticipated. | Not applicable (no indirect impacts or cumulative effects are anticipated). |
| **Hazardous Materials Contamination** | If BMPs are followed, no adverse indirect impacts should occur; beneficial impacts will occur through remediation. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions will have a positive effect by contributing to the remediation of hazardous materials sites, because such sites will be required to be cleaned up as a condition of development or redevelopment. | Parties involved will be required to follow all state and federal laws concerning hazardous materials. No additional mitigation is required. |

## Table 6.4-1. Summary of Indirect Impacts, Cumulative Effects, and Associated Mitigation

| Resource | Indirect Impacts | Cumulative Effects | Mitigation |
|---|---|---|---|
| **Noise** | Changes in development density and intensity will bring more people into contact with noise produced by LRT. Mode shifting could lead to a reduction in noise related to automobile traffic in the proposed BLRT Extension project corridor. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions will likely result in more people and traffic in the area.<br>Although the proposed BLRT Extension project will add a new noise source to the cumulative effects study area, the combined effects of the proposed BLRT Extension project and the West Broadway Avenue Reconstruction project will result in lower noise impacts to sensitive receptors. | Noise impacts caused by development or other future actions will be assessed for mitigation on a project-by-project basis. No additional mitigation is required. |
| **Vibration** | Changes in development density and intensity will bring more people into contact with vibration produced by LRT. | Cumulative vibration impacts could occur at the Target Field multimodal transportation hub in downtown Minneapolis. | No mitigation for impacts to induced development is identified. Mitigation for vibration impacts associated with other LRT or commuter rail lines and the Target Field multimodal transportation hub are documented in each project's environmental clearance commitments. |
| **Biological Environment (Wildlife Habitat and Endangered Species)** | New development induced by the project, with implementation of proper BMPs, is unlikely to result in impacts on habitat and endangered species. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions will not likely have a cumulative effect on habitat or endangered species because of the urbanized nature of the proposed BLRT Extension project corridor. | No additional mitigation is required. The Council assumes that BMPs would be followed for any new development. |

## Table 6.4-1. Summary of Indirect Impacts, Cumulative Effects, and Associated Mitigation

| Resource | Indirect Impacts | Cumulative Effects | Mitigation |
|---|---|---|---|
| **Water Quality and Stormwater** | No indirect impacts are anticipated if BMPs are implemented. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions could increase the amount of impervious surfaces in the proposed BLRT Extension project corridor and have a cumulative effect on increased sediment and pollutant loads if BMPs are not implemented. | BMPs will be implemented to reduce potential cumulative effects from induced development. No additional mitigation is required. |
| **Air Quality/ Greenhouse Gas Emissions** | The mode shift away from automobiles with the proposed BLRT Extension project will result in fewer cars on local roads and marginally less congestion, resulting in a positive impact on air pollution.<br>Conversely, the induced development that could result from the proposed BLRT Extension project could increase motor vehicle travel thereby indirectly increasing air pollutant emissions. | The proposed BLRT Extension project's positive contribution to air quality will improve cumulative conditions over what they would be without the proposed BLRT Extension project. | No mitigation is required. |
| **Energy** | The mode shift to LRT with the proposed BLRT Extension project will likely lead to an operational efficiency in passenger transport and reduced energy use. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions could increase the amount of transit riders and cumulatively reduce the amount of energy consumed for transportation. | No mitigation is required. |
| **Parklands and Open Space** | Greater accessibility could lead to higher usage rates of parks and open spaces along the proposed BLRT Extension project corridor. Greater use of parks and open space could strain facilities and increase maintenance levels. | Induced development associated with the proposed BLRT Extension project in combination with the reasonably foreseeable future actions and natural population growth would likely place a greater demand on parks and open spaces and could result in a cumulative adverse effect. | The Council and the municipalities in the proposed BLRT Extension project corridor have plans to expand and enhance parks and open spaces in the area to meet the demands of population growth. No additional mitigation is required. |

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