Dakota COUNTY

Kimley»Horn

2019

METRO

ORANGE LINE EXTENSION STUDY

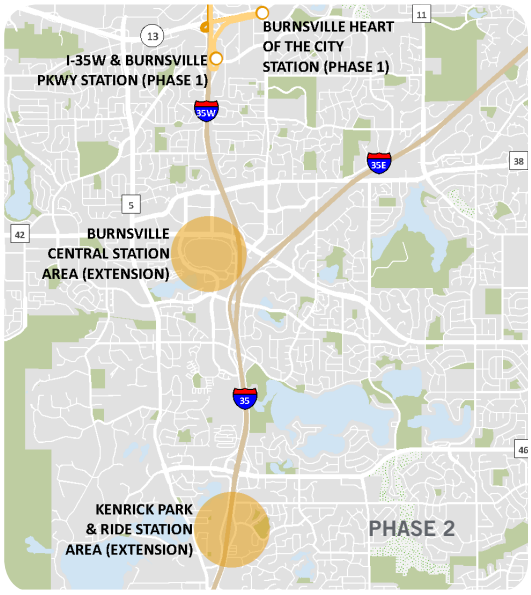
Executive Summary

Executive Summary Overview

The METRO Orange Line is a planned bus rapid transit (BRT) line that runs from downtown Minneapolis to Burnsville. The 17-mile highway route will utilize managed and MnPass travel lanes, and feature frequent, all-day service, and enhanced station amenities. Phase 1 of service is scheduled to be operational in late 2021.

The Phase 2 METRO Orange Line Extension (OLX) Study analyzed the implications of extending METRO Orange Line service south to the Kenrick Park & Ride in Lakeville, an extension that adds two or more stations and approximately five miles to the initial line (Figure 1). The OLX Study included a robust public involvement and communication process and an in-depth technical analysis. These efforts informed the the recommendation to develop an Orange Line transitway extension to Burnvsville Center Village. This extension should occur at the same time as public and private redevelopment activities in the area and based on the performance of Phase I and connecting local bus services, which are anticipated to start in late 2021.

Figure 1: *Phase 1 (above) aligment of Orange Line BRT; Phase 2 (below) areas studied for potential stations and extension of Orange Line BRT*



Project Management Structure

The OLX Study was commissioned and funded by Dakota County Regional Railroad Authority (DCRRA). Project committees included the Technical Advisory Committee (TAC) and Project Management Team (PMT). The TAC and PMT met regularly to discuss study progress and provide guidance on technical issues. The project team used these opportunities to further communicate with project stakeholders, both to share information and gather input.

The project management and organizational structure is illustrated in Figure 2. The Project Management Plan is detailed in **Appendix A: Project Management Plan**.

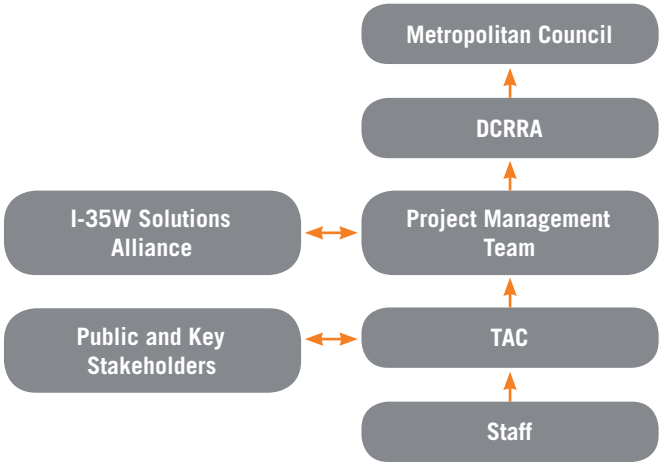


Figure 2: *Project Management & Organizational Structure*

Supporting Appendices

The information summarized in this Executive Summary is found in greater detail in seven supporting technical memorandums, included as appendices (see right).

Public Involvement & Communication

The OLX Study involved outreach and coordination with the public, businesses, civic organizations, and others interested in the project. A detailed decision-making process, communication strategy, and potential stakeholder list was created at the onset of the project, found in **Appendix B: Public Involvement Plan**.

Public Communications

The following methods and materials were used to maintain communication with stakeholders throughout the project:

- Project website
- Contact database
- Email updates
- In-person engagement (via open houses, pop-up events, and targeted meetings)

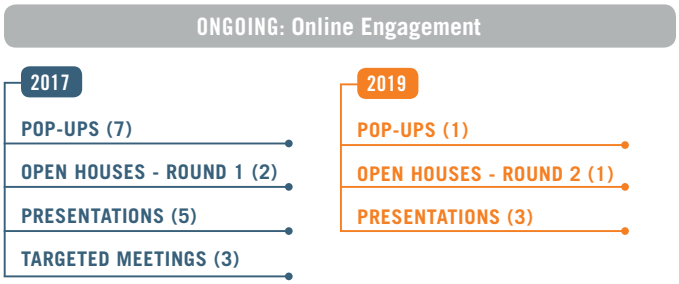


Figure 3: *Public Engagement Timeline*

Open Houses

Two rounds of open houses were held to engage stakeholders throughout the process, encourage continued involvement, and to share Study results. At open houses in round one, attendees were asked about the destinations they desire to access with transit and their preferences regarding station locations. The goal of the second round of open houses was to share the Study findings and to gather public comments on the initial recommendations.

Supporting Appendices:

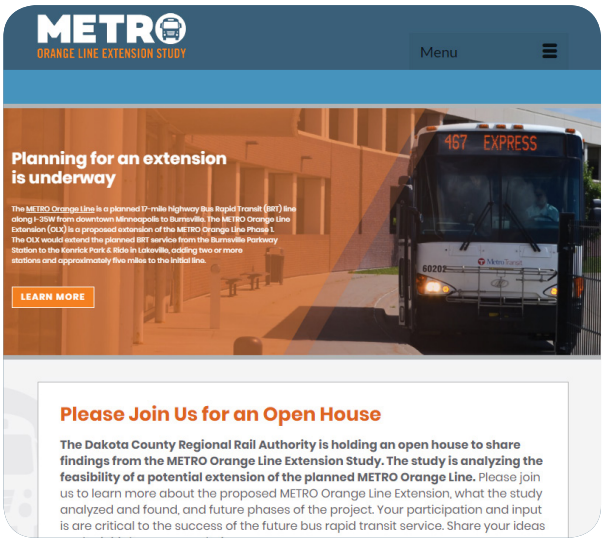


Figure 4: *Orange Line Extension Website*

Pop-Up Events

The Study team used eight pop-up events to collect input and educate community members in a spontaneous and casual context. Unannounced and at high-activity centers, these events enabled the team to interface with community members who may be unaware of the project or unable or unwilling to attend a traditional public meeting.

Figure 5: *Burnsville Fire Muster Pop-Up*

Targeted Meetings & Focus Groups

Three targeted stakeholder meetings were held to discuss specific issues and alternatives in one-on-one or small groups of stakeholders.

Online Engagement

A project website was developed to share updates, solicit input, and let the public know of ways they could participate in the project (https://www.orangelineextension.com/). People were directed to the website through social media posts, business cards, transit station posters and bus flyers. Website features included:

- A place to provide feedback about the project
- An overview of the OLX Study
- A library of project resources, including the latest open house display boards, the Review of Related Projects Memorandum, and the Public Involvement Plan (PIP)
- An overview of BRT and the METRO Orange Line (Phase 1)
- A section for event announcements such as upcoming open houses

The website also featured an interactive online mapping tool allowing users to provide feedback on station locations, opportunities, and constraints (Figure 6).

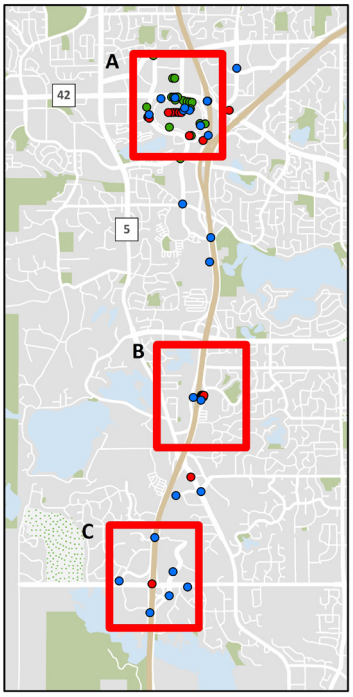


Figure 6: *Input collected through interactive mapping activities indicates areas of concentrated preference*

Response received via:

- Online
- Open House
- Pop-up

What We Heard

- **At Burnsville Center area, people prefer a station north or west of the Mall**
- **There is strong support for a station at Kenrick Park & Ride**
- **There is desire for express bus service south of Kenrick Park & Ride**

Related Projects

The project team reviewed past studies, existing transit conditions and characteristics of Orange Line Phase 1 to form a basis for the work conducted in the OLX Study. Findings from relevant past work and related projects can be found in **Appendix C: Orange Line Phase One Definition and Review of Related Projects**.

Findings from this review are broad and wide-ranging, depending on the specific project. Past work has substantiated the potential for improved north-south transit service in the southeast Twin Cities metropolitan area.

Ridership Estimation

Ridership demand estimates were forecasted in two separate phases in 2017 and 2019. Summaries of these two separate processes are shown in Figure 8. Details of the analysis and results are included as **Appendix D: Ridership Estimation Memorandum**.

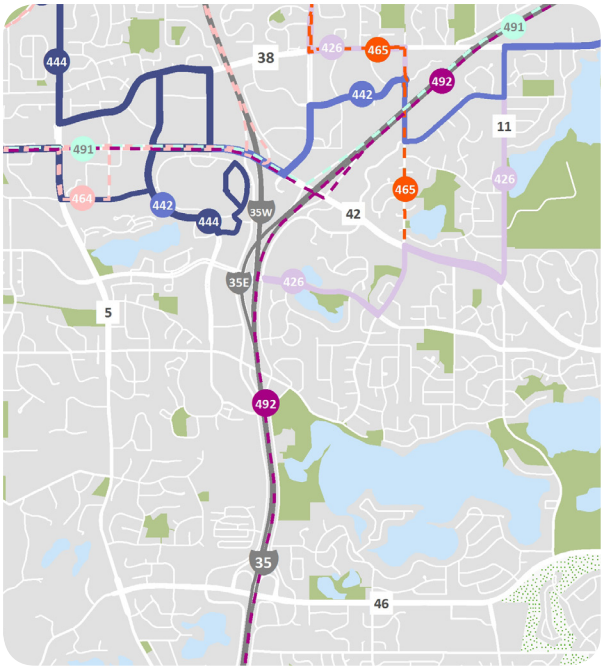


Figure 7: *Burnsville Central Station Area Existing Local Bus Routes*

2017

Purpose: Understand transit demand south of Kenrick Park & Ride

Methodology: Expand on an existing model (from the *2015 Cedar Avenue Transitway Implementation Plan Update*)

Finding: Low ridership demand south of Kenrick Park & Ride

Outcome: Further analysis to focus on transit service at/north of Kenrick Park & Ride

2019

Purpose: Look at current and future transit demand at Burnsville Central station and Lakeville Stations area

Methodology: Adapt an existing model (from Gold Line BRT project) with updated land use & regional transit service data

Finding: Ridership demand at Burnsville Central Station supportive of BRT

Outcome: Develop recommendation for a Burnsville Central station area station

Figure 8: *OLX Study Ridership Estimation Process*

Ridership Analysis

2017

- Ridership demand south of the Kenrick Park & Ride exists but is relatively small compared to Phase 1 ridership projections and OLX projections.
- Ridership south of the Kenrick Park & Ride comes from auto-access, and thus riders may be able to be accommodated without the extension beyond the Kenrick Park & Ride.
- Downtown Minneapolis work trips was the desired destination for nearly all potential riders south of Kenrick Park & Ride, suggesting express service should be considered first.

2019

- An Orange Line extension to Burnsville Center would add approximately 220 riders in 2020 and 250 in 2040
- An extension to Lakeville (including a stop at Burnsville Central) would add approximately 370 riders in 2020 and 450 riders in 2040 (Table 1).
- Riders boarding the Orange Line at Burnsville Central Station primarily accessed the station by walking to it; riders at the Lakeville Stations primarily drove and parked their car before boarding the Orange Line (Figure 9)
- The key destinations for riders boarding at Burnsville Central Station were downtown Minneapolis and 98th St and 35W – indicating a mix of long and short trips
- The key destinations for riders boarding at a Lakeville Station were downtown Minneapolis and 35W and Lake Street – indicating primarily long, commuting trips

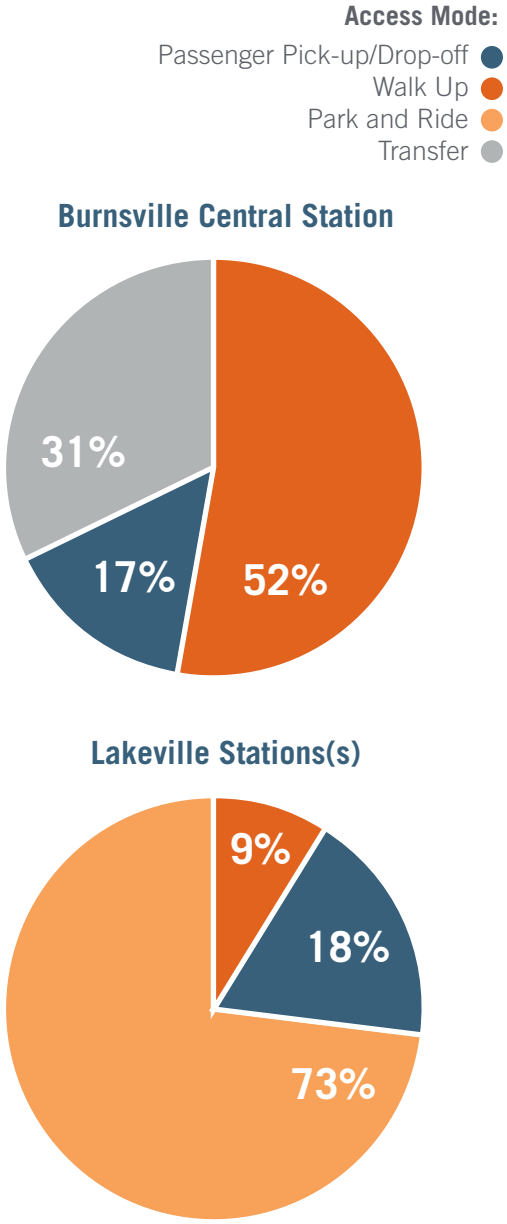


Figure 9: *OLX 2040 Boardings by Access Mode*

End of Line Location	Burnsville Heart of the City	Travelers Trail & Burnsville Parkway	Burnsville Central Station	Lakeville Station(s)
2020 Burnsville Central Station	500	100	220	N/A
2040 Burnsville Central Station	550	100	250	N/A
2020 Lakeville Station(s)	400	100	220	250
2040 Lakeville Station(s)	450	100	250	300

Table 1: *OLX Estimated Ridership (2020 & 2040)*

Station Analysis

This station analysis looked at potential OLX station location and concepts using two different methodologies, summarized in Figure 11. A detailed analysis was prepared in 2017 for those stations that would be located in the existing roadway network. In 2019, planning-level analysis was used for those stations that would be constructed in a future roadway network. Further details are included in **Appendix E: Station Analysis Memorandum**.

Key Findings

Burnsville Central Station

- A station north or west of Burnsville Center Mall would have the largest walkshed, easy connection with local bus service, and conveniently located to both commercial and residential land uses.
- A station would require one half- to one acre of space to accommodate pedestrian and bicyclist amenities, local bus service, and passenger pick-up and drop-off areas (Figure 10).

Lakeville Station(s)

- A Lakeville location located east of I-35, near the Kenrick Park & Ride would have the most residents and jobs within a half-mile.

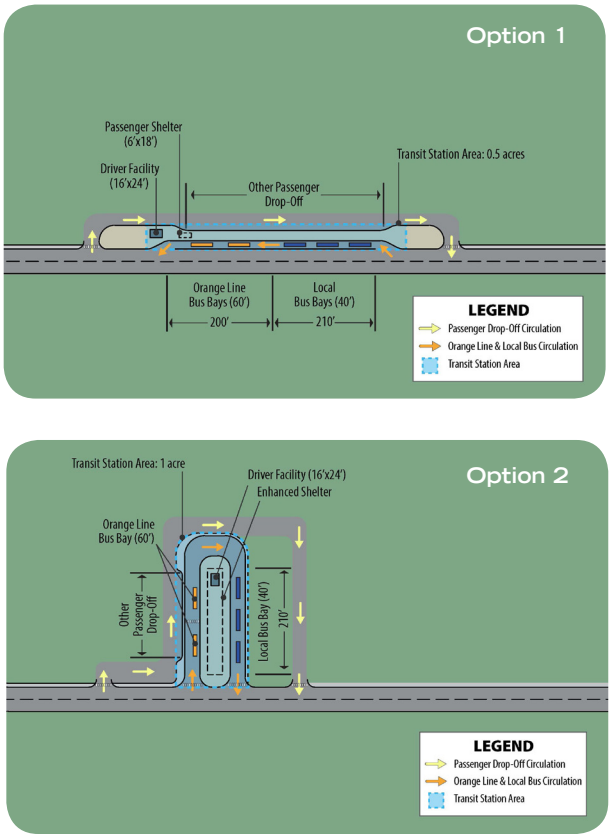


Figure 10: *Burnsville Central Station Layout Concepts*

2017

Purpose: Evaluate potential station locations at Bursville Central, Burnsville South, and Lakeville areas

Methodology: Looked at demographic and accessibility factors within the existing roadway network

Finding: Analysis of operations and accessibility recommend a station location on the north or west side of the mall

Outcome: Defined a set of OLX alignment and station location alternatives for further evaluation

2019

Purpose: Evaluate Burnsville Central Station space needs, cost estimates, and other design considerations

Methodology: Developed two, concept designs to be incorporated into future redevelopment in the Burnsville Center Village area

Finding: Inline and offline station concepts adequate for meeting pedestrian and local bus needs

Outcome: Detailed design and placement of a Burnsville Center Village station should occur at a later stage and depend on future public and private development decisions

Figure 11: *OLX Station Study Analysis Process*

Service Planning

Service planning details and definitions were developed for two potential OLX end of line locations (Burnsville Central and Kenrick Park & Ride areas) using a range of alignment and stop combinations, for a total of four alternatives. The following inputs were used:

- Travel speeds
- Travel times
- Service frequency
- Service schedule (weekday hours)

Travel times and bus requirements for each alternative are summarized in Table 2 and in greater detail in **Appendix F. Service Planning Memorandum**.

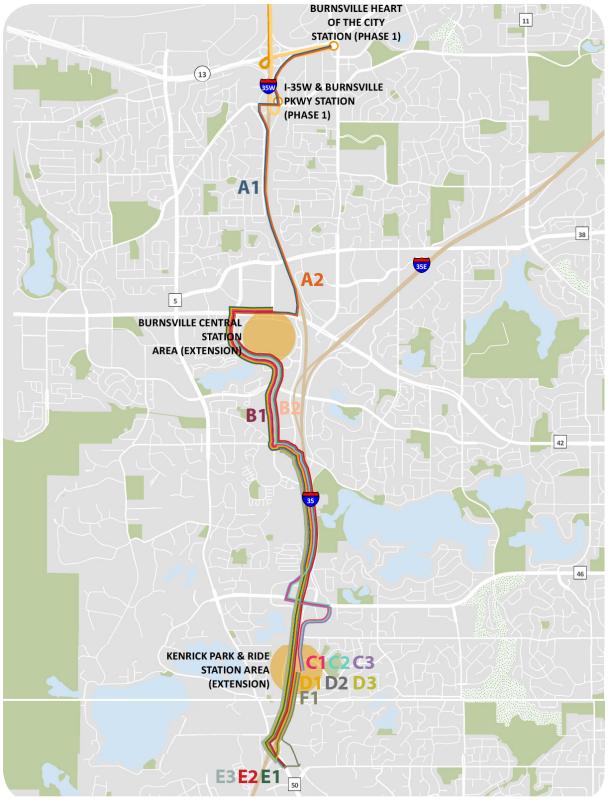


Figure 12: *Service Planning Route Alternatives*

Route Alignment Alternatives	One Way Peak-Period Running Time (min)	Schedule Cycle Time (min)	Additional Required Buses for Extension
Route Alternative 1: Burnsville Heart of the City to Burnsville Central Station	11	120	2
Route Alternative 2: Burnsville Heart of the City to Kenrick Park & Ride via CSAH 46	21	140	4
Route Alternative 3: Burnsville Heart of the City to Kenrick Park & Ride via I-35W	19	130	3-4
Route Alternative 4: Burnsville Heart of the City to Kenrick Park & Ride via a stop on CSAH 50	24	150	5

Table 2: *Peak Hour Travel Time and Cycle Times for 10-Minute Orange Line Frequency*

Capital and Operating Costs

Planning-level capital and operating costs were developed for the OLX. Capital costs were developed by station area, type, and – for Burnsville Central Station area – by transportation network (Table 3). Since road layouts and land uses in the Burnsville Center Village could look very different than they do today, two offline station layouts were developed and analyzed for cost to construct.

Operating and maintenance (O&M) costs were developed for the four alignment alternatives analyzed for service planning. Unit costs are from Metro Transit's BRT Office and are consistent with the cost drivers that were used for the METRO Orange Line Phase 1. Total capital costs by station area and total O&M costs by alignment are shown in Tables 4-5. Detailed costs and methodology are included in **Appendix G: Cost Estimation Memorandum**.

Figure 13: *Buckhill Road Existing Conditions*

Station Area	Transportation Network	Type
Burnsville Central Station Area	Existing Network	Offline Station
	Existing Network	Inline Station
	Burnsville Center Village Network	Offline Option 1 (0.5 acre)
	Burnsville Center Village Network	Offline Option 2 (1 acre)
Kenrick Park & Ride Station Area	Existing Network	Offline Station
	Existing Network	Inline Station

Table 3: *Station Areas and Types Analyzed for Capital Cost*

	Burnsville Central Station Area			Kenrick Park & Ride Station Area	
	Inline Station	Online Station	Offline Station	Inline Station	Offline Station
Total Capital Costs	$6,300,000	$25,470,000	$4,880,000 - $6,470,000*	$6,600,000	$9,300,000

Table 4: *Capital Costs for Burnsville Central Station Area and Kenrick Park & Ride Station Area (2019$)*
**Costs will vary based on transportation network and station layout*

	Route Alternative 1	Route Alternative 2	Route Alternative 3	Route Alternative 4
Annual Weekday & Weekend O&M Cost	$1,300,000	$2,610,000	$2,650,000	$3,240,000

Table 5: *Annual (Weekday and Weekend) O&M Costs by Alignment (2019$)*

Study Recommendations

Recommendations were developed based on public and stakeholder feedback and technical analysis.

- Develop an Orange Line transitway extension (generally **Alignment Alternative 1**) with an accompanying station at Burnsville Center Village (generally **Offline Option 1** or **Option 2**)
- Integrate the station in and supportive of the Burnsville Center Village area as public and private redevelopment occurs.
- Base the timing of OLX on:
  - the performance of the Orange Line and connecting local bus services, anticipated in late 2021 and
  - commitments and/or progress towards redevelopment at Burnsville Center.
- Monitor land uses, development densities, and transit demand over time to assess the feasibility of additional stations south of Burnsville Center Village.

Figure 14: *Where Would You Like to See a Station in Burnsville?*

Next Steps

At the conclusion of this study, the next actions to implementing OLX are shown in Figure 15.

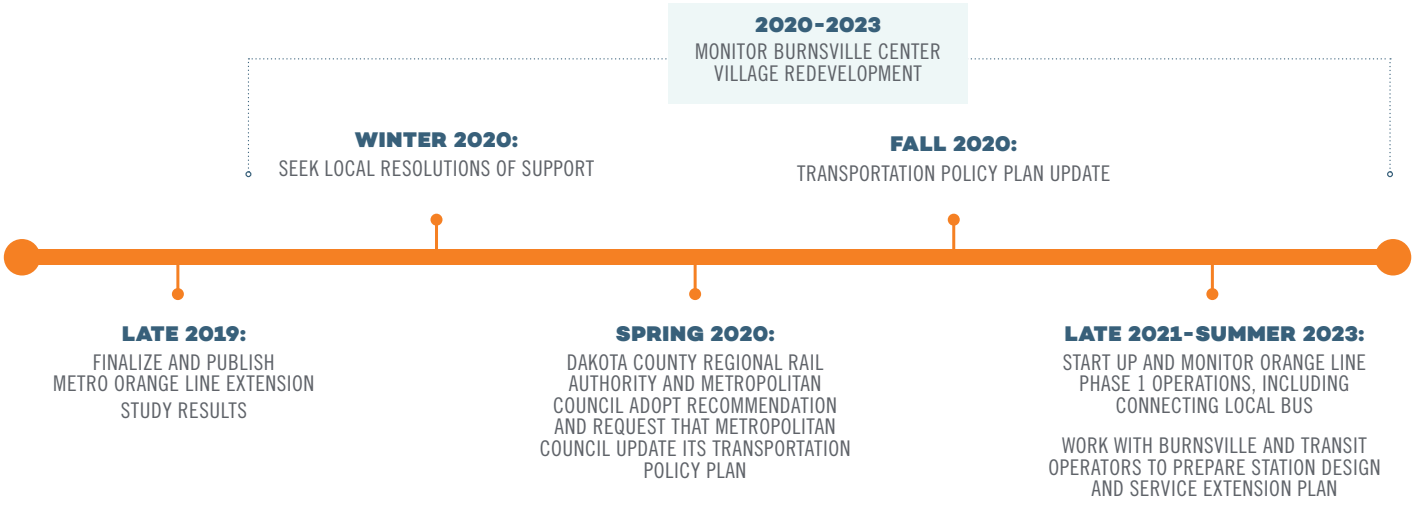


Figure 15: *Future Phases/Action Plan*