

Appendix B

Operating Plans

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Nicollet-Central Transit Alternatives

.....October 31, 2013



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1. Overview

This memorandum describes the operating plans developed for the Nicollet-Central Transit Alternatives. Operating plans were developed for the No Build alternative as well as three Build alternatives:

- **Enhanced bus** for the full length of the Nicollet-Central corridor, from 41st Avenue NE to 46th Street S
- **Modern streetcar** for the full length of the Nicollet-Central corridor, from 41st Avenue NE to 46th Street S
- **Preliminary modern streetcar starter** line between E Hennepin and Lake Street, approximately 3-1/2 miles long.

A detailed description of the operating plan for each alternative is provided below. The operating plans are the basis for the Operating and Maintenance costs (described in the *Operating and Maintenance Cost Estimation – Methodology and Results* memorandum) as well as the ridership estimates (described in the Appendix A Travel Forecasting Results).

2. Operating Plans

The operating plans were a collaborative effort between members of the consulting team, the City of Minneapolis and Metro Transit staff. A workshop was held in late 2012 to review key assumptions associated with each alternative and develop conceptual operating plans. The primary goal in the workshop was to ensure that the different service types in the corridor complemented each other rather than compete with each other. For example, the modern streetcar and enhanced bus services were intended primarily to serve local trips within the corridor (per the Purpose and Need), while the limited stop bus services in the corridor were intended to serve longer regional trips that originate in the corridor but terminate outside of the corridor. Local bus service was generally provided only for trips originating and terminating outside of the corridor but connected with enhanced bus or streetcar services within the corridor.

The operating plans were reviewed and discussed extensively with the Project Management Team and other City of Minneapolis and Metro Transit staff. The final operating plans were refined for the three build alternatives (Enhanced Bus, Streetcar, and Streetcar Preliminary Starter Line Concept) and are presented in Figure 1 and described in more detail below.

2.1. No Build Operating Plan

The operating plan for the No-Build alternative only includes one key modification to one of the three primary routes currently operating in the Nicollet-Central corridor. This single key change is on the Route 10, where frequencies for both mid-day and peak periods would increase from existing 10 minutes to 7.5 minutes. There are no assumed key changes to Routes 18 and 59 for these time periods. (Route 59 only currently operates in the peak periods in the peak direction; there is no mid-day or reverse commuter service in the peak period.) Changes to the peak and mid-day periods (when ridership is highest) are considered significant because they affect bus fleet requirements and drive operating and maintenance costs.

2.2. Enhanced Bus Alternative Operating Plan

The Enhanced Bus alternative would revamp existing bus service to better meet the diverse travel needs of different parts of the corridor. Essentially, enhanced bus would become the local service and replace the two local routes (10 and 18) as well as the limited-stop Route 59. Other local routes such as Route 17 and Route 25 would remain unchanged. The new proposed transit service in the corridor would be a combination of bus routes as described below.

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- **Enhanced bus service** would operate from Central Avenue/41st Avenue NE to Nicollet Avenue/46th Street S as shown as the green dashed line in Figure 1. This route would continue to provide local service north and south of the study corridor, terminating at 53rd Avenue NE and 66th Street S. This configuration is shown as solid blue lines on Figure 1. The enhanced bus service would operate every 7.5 minutes during peak periods and 10 minutes mid-day. The enhanced bus service would be the primary transit service for trips within the study corridor.
- **Limited-stop bus service** (depicted as dashed blue lines on Figure 1) is intended to serve trips that either begin or end beyond the study corridor. This service has two parts:
 - On Central Avenue, the limited-stop service would operate between Nicollet Mall and the Columbia Heights Transit Center, and continue on to Northtown via University Avenue. This service would operate every 15 minutes during the peak and mid-day periods.
 - On Nicollet Avenue, the limited-stop service would operate between Nicollet Mall and 104th Street S in Bloomington every 30 minutes in the peak and mid-day periods.
- **Local bus service** on Central Avenue north of 41st Avenue NE is depicted as a solid blue line on Figure 1. This new route would operate between 41st Avenue NE and Northtown every 30 minutes during the peak and mid-day periods.
- **The Grand Avenue circulator** is shown as a solid orange line on Figure 1. It would be a new circulator route operating on Grand Avenue between Lake and 46th Street S every 30 minutes during the peak and mid-day periods. It would connect the Lake and 46th Street S stops/stations on both the enhanced bus service and Orange Line (I-35W BRT).

2.3. Modern Streetcar Alternative Operating Plan

As with the Enhanced Bus alternative, the Modern Streetcar alternative includes streetcar as the primary local service, replacing Route 10 and Route 18. Route 59 would also be discontinued. Other local routes such as Route 17 and Route 25 would remain unchanged. The new proposed transit service in the corridor would be a combination of modern streetcar and bus as on Figure 1 and described below.

- **Modern streetcar service** would operate from Central Avenue/41st Avenue NE to Nicollet Avenue/46th Street S and is shown as a dashed green line on Figure 1. The modern streetcar service would operate every 7.5 minutes during the peak and 10 minutes mid-day. The modern streetcar service would be the primary transit service for trips within the study corridor.
- **Limited-stop bus service** (depicted as dashed blue lines on Figure 1) is intended to serve trips that either begin or end beyond the study corridor. This service has two parts:
 - On Central Avenue, the limited-stop service would operate between Nicollet Mall and the Columbia Heights Transit Center, and continue on to Northtown via University Avenue. This service would operate every 10 minutes during the peak and 15 minutes mid-day periods.
 - On Nicollet Avenue, the limited-stop service would operate between Nicollet Mall and 66th Street S in Bloomington every 30 minutes in the peak and mid-day periods.
- **Local bus service** under the modern streetcar alternative is depicted as a solid blue line on Figure 1 and has the following elements:
 - Central Avenue: A new local bus route would operate between 41st Avenue NE/Columbia Heights Transit Center and the Northtown Transit Center via Central Avenue every 30 minutes during the peak and mid-day periods.
 - Nicollet Avenue: A new local bus route would operate along Nicollet Avenue between 46th Street S and 104th Street S every 30 minutes during the peak and mid-day periods.

- **The Grand Avenue circulator** is shown as a solid orange line on Figure 1. It would be a new circulator route operating on Grand Avenue between Lake and 46th Street S every 30 minutes during the peak and mid-day periods. It would connect the Lake and 46th Street S stops/stations on both the enhanced bus service and Orange Line (I-35W BRT).

2.4. Modern Streetcar – Preliminary Starter Line Concept Operating Plan

The service plan associated with the preliminary modern streetcar starter line is summarized as follows and includes its potential integration with the background bus network. Because of its shorter length, its service plan is substantially different from the full 9.2-mile modern streetcar alternative.

- **Modern streetcar** as depicted as a green dashed line in Figure 1 would operate from Hennepin/Central Avenues to Lake Street S every 7.5 minutes during the peak period and every 10 minutes in mid-day. The modern streetcar service will be the primary transit service for trips occurring within this portion of the corridor.
- **Bus service** would have the following elements:
 - On Central Avenue, bus service would be the same as in the No-Build alternative, i.e.:
 - **Route 10**, as shown as a solid blue line in Figure 1 would have increased frequency from the current 10 minutes to 7.5 minutes during both peak and mid-day periods.
 - **Route 59**, as shown as solid and dashed blue lines, would not change from existing operations during the peak period. No service would be provided during mid-day or reverse commute peak period.
 - Nicollet Avenue
 - **Limited-stop bus service** as shown as a dashed blue line in Figure 1 would operate between Washington Avenue and 66th Street S. This service would operate every 20 minutes between downtown and 66th Street S in the peak and mid-day periods.
 - **Local bus service** as shown as a solid blue line in Figure 1 would operate between Lake Street S and 104th Street S every 30 minutes during the peak and mid-day periods.
 - **The Grand Avenue circulator** as shown as a solid orange line in Figure 1 would be a new route on Grand Avenue between Lake and 46th Street S every 30 minutes during the peak and mid-day periods. It would connect the Lake and 46th Street S stops/stations on both the enhanced bus service and Orange Line (I-35W BRT).

3. Operating Characteristics

Table 1 below provides a summary of the service frequency and service span assumed for each of the three build alternatives during the different time periods (AM peak, Midday, PM peak, Early Evening and Late Evening). Saturday and Sunday service frequencies and service spans were adjusted from the weekday service assumptions by evaluating operating characteristics for the existing primary bus service in the corridor (Routes 10 and 18).

Table 1: Operating Characteristics for the Build Alternatives

	Weekday Frequency					Weekday Service Span					Saturday Frequency					Saturday Service Span					Sunday Frequency					Sunday Service Span				
	AM	Mid	PM	EE	LE	AM	Mid	PM	EE	LE	AM	Mid	PM	EE	LE	AM	Mid	PM	EE	LE	AM	Mid	PM	EE	LE	AM	Mid	PM	EE	LE
Streetcar Alternative																														
Streetcar Long (41st to 46th)	7.5	10	7.5	15	30	3	6	3.5	5.5	4	10	15	10	20	30	3	6	3.5	5.5	2	15	15	15	30	0	3	6	3.5	5.5	0
Nicollet/66th to Nicollet/3rd (Ltd)	30	0	30	0	0	3	0	3.5	0	0	30	0	30	0	0	3	0	3.5	0	0	60	0	60	0	0	3	0	3.5	0	0
Lyndale/104th to Nicollet/46th (Local)	30	30	30	30	0	3	6	3.5	5.5	0	30	30	30	60	0	3	6	3.5	4	0	30	60	30	60	0	3	6	3.5	2	0
Grand Avenue Circulator	30	30	30	30	0	3	6	3.5	4	0	30	30	30	30	0	3	6	3.5	2	0	30	30	30	0	0	3	4	3.5	0	0
Northtown to Nicollet/13th - Via University (Ltd)	10	15	10	15	30	3	6	3.5	5.5	2	15	15	15	30	0	3	6	3.5	4	0	15	30	15	30	0	3	6	3.5	3	0
Northtown to Centra/41st	30	30	30	30	0	3	6	3.5	5.5	0	30	60	30	60	0	3	6	3.5	3	0	60	60	60	60	0	3	6	3.5	3	0
Enhanced Bus Alternative																														
Enhanced Bus (53rd to 66th)	15	20	15	20	60	3	6	3.5	5.5	4	20	20	20	40	60	3	6	3.5	5.5	2	30	30	30	40	0	3	6	3.5	5.5	0
Enhanced Bus (53rd to 46th)	15	20	15	20	60	3	6	3.5	5.5	4	20	20	20	40	60	3	6	3.5	5.5	2	30	30	30	40	0	3	6	3.5	5.5	0
Northtown to Centra/41st	30	30	30	30	0	3	6	3.5	5.5	0	30	60	30	60	0	3	6	3.5	3	0	60	60	60	60	0	3	6	3.5	3	0
Northtown to Nicollet/13th - Via University (Ltd)	15	15	15	30	60	3	6	3.5	5.5	2	30	30	30	30	0	3	6	3.5	5.5	0	30	30	30	60	0	3	6	3.5	3	0
Lyndale/104th to Nicollet/3rd (Local/Ltd)	30	30	30	30	0	3	6	3.5	5.5	0	30	30	30	60	0	3	6	3.5	4	0	60	30	60	60	0	3	6	3.5	2	0
Grand Avenue Circulator	30	30	30	30	0	3	6	3.5	4	0	30	30	30	30	0	3	6	3.5	2	0	30	30	30	0	0	3	4	3.5	0	0
Preliminary Starter Line Alternative																														
Streetcar Short (7th St SE to Lake)	7.5	10	7.5	15	30	3	6	3.5	5.5	4	10	15	10	20	30	3	6	3.5	5.5	2	15	15	15	30	0	3	6	3.5	5.5	0
Lyndale/104th to Nicollet/Lake (Local)	20	20	20	30	0	3	6	3.5	4	0	20	30	20	30	0	3	6	3.5	4	0	30	30	30	60	0	3	6	3.5	2	0
Nicollet/66th to Nicollet/3rd (Ltd)	20	20	20	30	0	3	6	3.5	4	0	30	20	30	30	0	3	6	3.5	4	0	30	30	30	30	0	3	6	3.5	4	0
10H: 53rd/Central to Nicollet/13th	30	15	30	30	60	3	6	3.5	5.5	2	30	30	30	60	0	3	6	3.5	5.5	0	60	30	30	60	0	3	6	3.5	2	0
10N: Northtown to Nicollet/13th (via Central)	20	30	20	30	60	3	6	3.5	5.5	1	30	60	30	60	0	3	6	3.5	5.5	0	60	60	60	60	0	3	6	3.5	4	0
10U: Northtown to Nicollet/13th (via University)	20	30	20	30	60	3	6	3.5	5.5	1	30	60	30	60	0	3	6	3.5	5.5	0	60	60	60	60	0	3	6	3.5	4	0

