Evaluation of Regional Transit Connections to Downtown

The local transit system in Minneapolis is affected in many ways by the design of planned regional transit corridors. Downtown, in particular, must accommodate existing and future regional transit corridors in planning the street grid. The previous reports, on the Primary Transit Network and Alternative Downtown Transit Circulation Concepts, have considered the regional corridors as inputs.

Based on that work, this report provides feedback to the various regional corridor projects, regarding ways that those projects can fit better with the Minneapolis primary transit network and can best connect into downtown, thus improving the "win-win" benefits for both city and region.

Downtown connections for the following regional corridors are discussed in this report:

- Central Corridor (Light Rail Transit)
- I-35W South Corridor (Bus Rapid Transit)
- Bottineau Boulevard (Bus Rapid Transit)
- Southwest Corridor (Light Rail or Bus Rapid Transit)
- Northstar Corridor (Commuter Rail)

Central Corridor

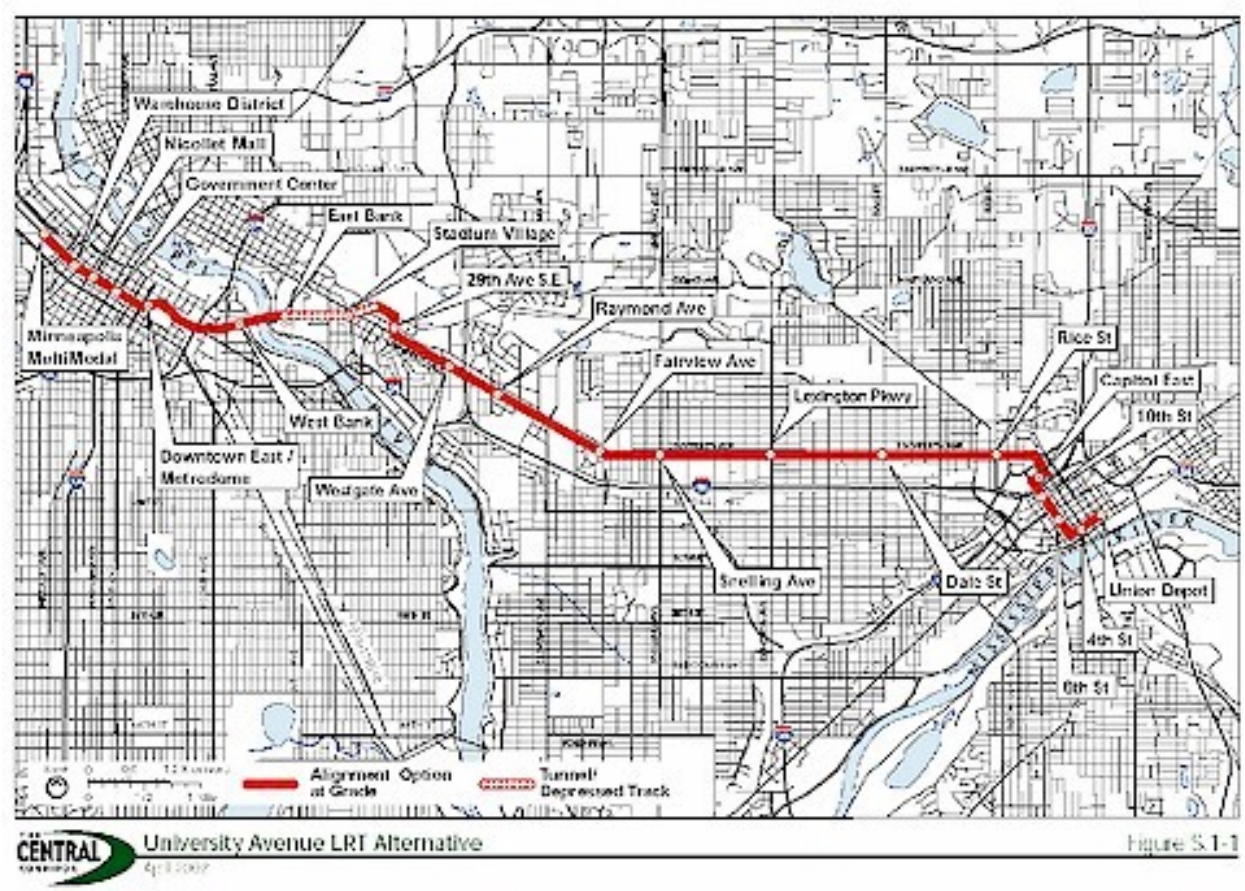
The Central Corridor LRT project will link downtown Minneapolis and downtown St. Paul, as shown in Figure 1. The proposed light rail line will branch off 5th Street's Hiawatha line near I-35W, proceeding through the University of Minnesota campus and Stadium Village and generally following University Avenue to downtown St. Paul. LRT has been identified as the locally preferred alternative for the Central Corridor and a Draft Environmental Impact Statement (DEIS) has been approved by FTA. Preliminary engineering is expected to begin in early 2007 and expected to be completed within approximately two years.

The Central LRT Corridor creates an essential link in the region's rapid transit system, combining the three largest destinations (the two downtowns and U of M) as well as the State Capitol complex on the same line. Accommodating this project should be a very high priority for the city of Minneapolis.

Downtown Impacts

The Central LRT Corridor will be easy for Minneapolis to accommodate in downtown. It requires no new right-of-way in downtown, since the new line would share the tracks of the Hiawatha line along 5th Street.

Figure 1 Central Corridor LRT



Source: Central Corridor Study (www.centralcorridor.org)

I-35W South BRT Corridor

Facilities for Bus Rapid Transit (BRT) are gradually being implemented along the I-35W corridor, with flyer stops already in place at Lake Avenue and 46th Street. A subsequent stage is expected to extend a median HOV lane north to the edge of downtown.

Outside of downtown, this corridor, like all of the all-day regional corridors, is an important part of the Primary Transit Network. In particular, the Lake and 46th flyer stations will be the fastest means of reaching downtown from the primary crosstown lines on those streets. From the City's standpoint, it would be desirable to have flyer stops at the other two points where primary crosstown lines intersect I-35W: Franklin and 38th Street. Due to its close proximity to downtown, further study is needed to determine the value of a flyer stop at Franklin.

The I-35W BRT Corridor would flow into the North-South Spine, further reinforcing the need for two-lane transit facilities on these streets, to move high volumes of buses with adequate speed (average of at least 10 mph) and reliability.

A center HOV lane on I-35W raises one other important operational issue in downtown. Currently, I-35W bus services enter into downtown via 11th Street and exit downtown via a HOV on-ramp off 12th Street. This works well from the downtown perspective, since it provides for direct access to the southern part of the core, and the turning movements are far enough out of the core that they have a manageable traffic and delay impact.

It is recommended that the HOV on-ramp connection at 12th Street be retained because it provides the best downtown access, the least impact on turns, and the best separation of buses and auto traffic. The high bus volumes on 11th and 12th Streets, west as far as the N-S spine, will continue to need at least peak-period bus/HOV lane. Much more significant preferences would be needed if buses faced greater interaction with auto traffic as a result of the I-35W project and/or the I-94 downtown freeway project.

Bottineau Boulevard BRT Project

The Bottineau Boulevard BRT project extends northwest from Minneapolis along County Road 81/Bottineau Boulevard to Osseo, Maple Grove, and possibly to Rogers. Metro Transit's 2006 map of the corridor options is shown in Figure 2.

Bottineau Blvd. BRT buses will approach downtown along three alignments: (1) I-394 HOV lane via Hwy 100 bus shoulder lanes, (2) West Broadway Avenue via Lyndale Avenue, and (3) Lowry Avenue via Washington Avenue. It is assumed that the I-394 buses would enter/exit downtown via 6th/10th Streets and the Broadway and Lowry buses would enter/exit downtown via 7th Street as shown on the project map (Figure 2).

Downtown Impacts

The bus volumes associated with the Bottineau Blvd. BRT have been counted in the figures used to develop the downtown transit alternatives. The Broadway and Lowry buses entering downtown via 7th Street would flow into the 8th Street spine. The I-394 buses would also flow into the 8th Street spine via the off-ramp at 6th Street (and either 1st or 2nd Avenue North) and the on-ramp at 10th Street (at 3rd Avenue North). As buses with common destinations, the I-394 routes and the Broadway and Lowry buses should be on the same street, stopping at the same stops. Use of the 6th/10th Street ramps, rather than the 12th/13th Street ramps as used by other express service on I-394, would allow the three different branches of the Bottineau BRT to operate on the same street in the Downtown. The Bottineau BRT would increase the sensitivity of 8th Street services to congestion, and could add to the case for eventually expanding 8th Street to two-lanes each way for transit.

North Minneapolis Issues

The current Bottineau BRT options for North Minneapolis reflect a long process of consultation between the project and the community. The Bottineau Boulevard alignments, as currently defined, would have the following impacts with respect to the Primary Transit Network, and these must be considered in evaluating those options:

- West Broadway/Lyndale would eliminate the possibility of primary local service in this same corridor. This would result in a loss of service to points lying between the BRT stations.

Figure 2 Bottineau Boulevard BRT Alignments

- Lowry/Washington would eliminate the demand for a primary corridor on Fremont. Instead, a primary line would probably follow Lyndale from downtown to Lowry, then cut over to Fremont and continue north via Fremont, 44th, etc. to Brooklyn Center and Brooklyn Park. While this routing is possible, it is always preferable to run continuous service along the entire length of a major corridor such as Fremont. Doing so helps people to perceive the service is simple, and as an intrinsic part of the street.

If a decision is made to route the Bottineau BRT on only one route through North Minneapolis, the preferred alignment for the BRT, from the standpoint of the Primary Transit Network, may be Washington/Lowry, for several reasons:

- BRT is a service with widely spaced stations. As a result, it is better suited to serving a series of distinct nodes, rather than a long, linear business district. BRT on West Broadway requires the community to select certain points on West Broadway that will be stations, and hence have excellent transit access, while others get little or nothing. The result would probably be a lessening of service at points on West Broadway between the BRT stops.
- Whereas West Broadway already has a linear-commercial form, Lowry is less defined by current development. It will be easier to redevelop the Lowry corridor into nodes that focus on stations, which is the development form that fits best with BRT's limited stops.
- Lyndale cannot support primary service, if there is also primary service on Fremont, because it is too close to Fremont and its catchment area is constrained by the freeway. BRT would provide an appropriate form of high-frequency service to a few points on Lyndale, providing an alternate means of access to downtown. Otherwise, while Lyndale is a candidate corridor for primary service, it will probably have service well below primary levels.

Southwest Corridor

The Southwest Corridor between Minneapolis and Hopkins is proposed to provide a high-frequency all-day rapid transit service like Hiawatha LRT and is the subject of a corridor study which is currently underway. Its alignment has a number of options in the suburban areas, but there are two main groups of options within Minneapolis as shown in Figure 3:[1]

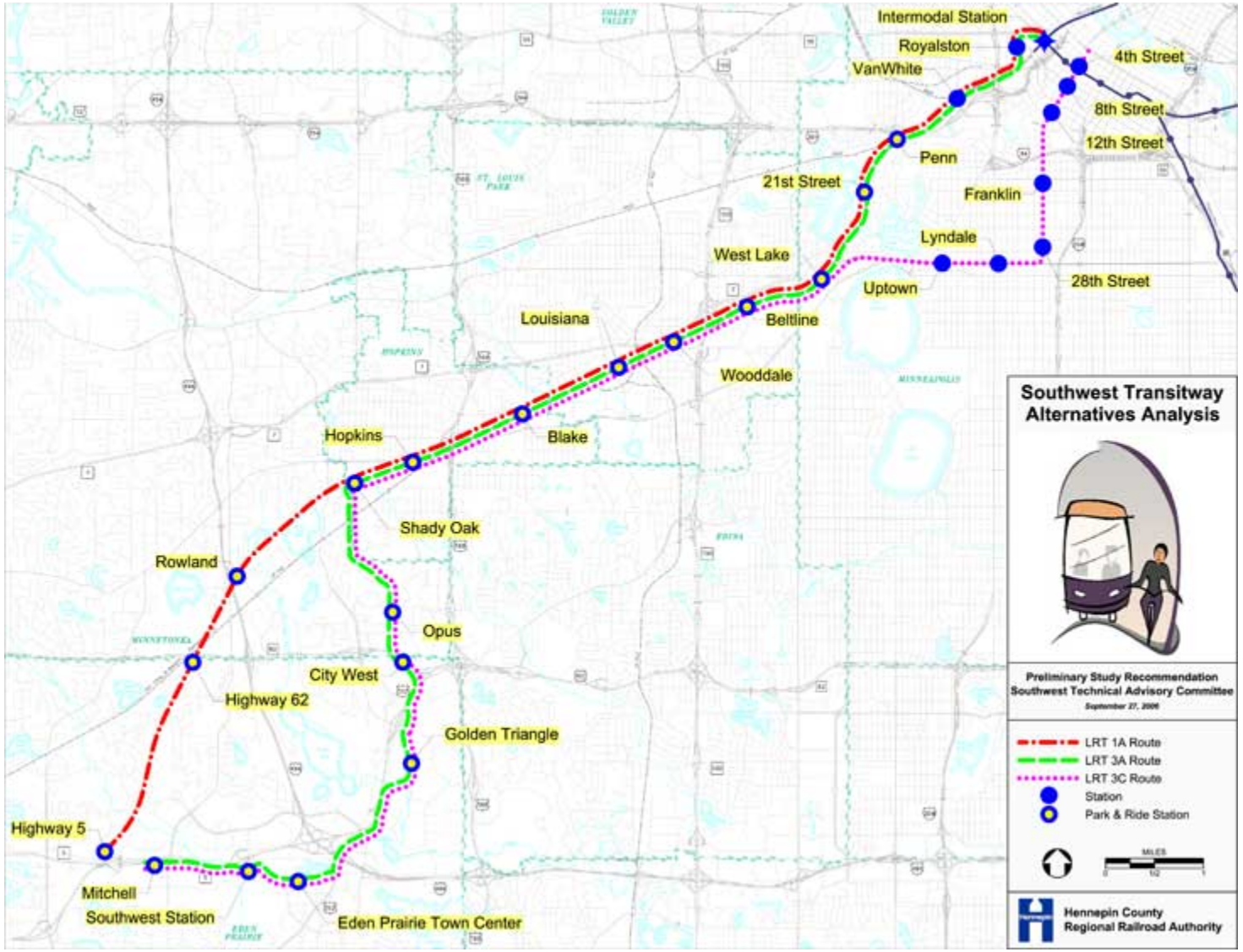
- The Kenilworth alignment approaches downtown along the Cedar Lake Trail and then branches north into Royalston to join the Hiawatha line. With a Royalston alignment, the Southwest corridor trains would probably flow through to the Hiawatha or Central lines. There is also an alternative that branches east and comes into downtown via Dunwoody Avenue and Hennepin Avenue.
- The Midtown alignment follows the Midtown Greenway to Nicollet Avenue South, then turns north and follows Nicollet, for a short distance in a tunnel, into downtown. This alignment would run along Nicollet Mall in downtown. An alternate alignment would use Marquette and 2nd Avenues South.

Citywide Perspective

The Midtown alignment arose in part out of the desire to make the Southwest Corridor LRT line more useful to Minneapolis, by serving the Uptown business district, Lyn-Lake area, Whittier, Loring Park, Stevens Square/Loring Heights and other dense nodes. It would clearly have this value.

1 Information in this section is primarily from the project website, http://www.southwesttransitway.org/

Figure 3 Southwest LRT



Both alignments are generally consistent with the Primary Transit Network, and would require little modification to the PTN. The Kenilworth alignment does not overlap the Primary Network. The Midtown alignment does overlap the PTN along Lake and Nicollet, but not for long enough segments to eliminate the need for Primary service along both Lake and Nicollet.

If LRT (or other rail service) is provided along the Midtown Greenway Corridor to the Hiawatha LRT station, this would entail some loss of through-movement. Currently, Lake Street primary service flows east into St. Paul, thus providing direct St. Paul service from Uptown and other Lake Street destinations. It would be desirable to retain these direct connections between St. Paul and Lake Street destinations.

Downtown Considerations

From the standpoint of downtown, there are at least four possible outcomes for the Southwest Corridor that include:

- LRT entering from the west and flowing into the 5th Street LRT alignment across downtown. This is the option for the Kenilworth alignment that uses Royalston Avenue.
- LRT on Hennepin Avenue, this is the option for the Kenilworth alignment that uses Dunwoody Avenue.
- LRT on Nicollet Mall, the option for the Midtown alignment.
- LRT on Marquette/2nd, an option for the Midtown alignment.

Each has different impacts on the downtown circulation system.

LRT into 5th Street alignment

This is the easiest alignment to incorporate into downtown because it does not add any transit vehicles to the downtown core. Instead, Hiawatha LRT (and/or Central LRT) trains would continue west into the Southwest Corridor. This would make better use of LRT's existing downtown infrastructure, and would avoid creating a new transit right-of-way need in the core.

LRT in this alignment could help solve another significant problem. The high volumes of buses entering downtown along 7th Street North, possibly including Bottineau BRT buses, would all need a connection with LRT on 5th Street, near the Intermodal Station. The closest connection point is at the site of the proposed Twins Stadium. Therefore, a strong pedestrian connection is needed between the stadium and the Intermodal Station (See Northstar section below). Another solution is for the proposed Royalston station to be as far north as possible, with emphasis on providing a good pedestrian connection from 7th Street North.

LRT on Hennepin

The Hennepin option is very problematic. LRT on the Kenilworth alignment would not serve any points on Hennepin except downtown and, therefore, would not eliminate the need for any of the primary bus service in this crucial corridor. There would be two possible outcomes, both problematic:

- Fully accommodating the needs of the Southwest Corridor service and the Primary buses would require two transit lanes in each direction, virtually eliminating Hennepin's usefulness to

automobiles. In such a concept, 1st Avenue North would need to become two-way. In this scenario, it would be more logical to put all the transit on 1st Avenue North, taking all the capacity on that street, and restore two-way general purpose traffic on Hennepin. Neither alternative is attractive from the standpoint of current development in that area, especially the identity as an entertainment and cultural district.

- If transit speed and reliability were compromised, for example, by combining Hennepin Primary buses and Southwest Corridor trains or buses in a single lane in each direction, the buses might all fit. However, the result would be an LRT operation that would be no faster than the current buses in contraflow lanes downtown, i.e. below 5 mph during peak hours. The reliability problems of contraflow operation downtown would become a major barrier to reliability on the entire Southwest Corridor, since a transit line is only as reliable as its least reliable point. The Hennepin Primary buses would also be slowed to below 5mph as a result.

In many ways, Hennepin is the worst of both worlds for the City. First, as part of the Kenilworth alignment, it offers relatively little local service to City neighborhoods. Secondly, it requires a major new commitment of scarce downtown street space to transit, which would involve major sacrifices for businesses along Hennepin and compromise the flow of other modes.

One possible solution is to move all Hennepin buses to a parallel north-south corridor through downtown (eg. Nicollet or the Marquette/2nd transit lanes). While this would free up Hennepin (in the core of downtown) to exclusive LRT operation, it would create additional capacity requirements on a parallel corridor – effectively transferring rather than eliminating the need for additional downtown street space. On Nicollet, there simply is not capacity for the Hennepin buses. On Marquette/2nd, there may some capacity in the short term, but long-term this could create issues. Additionally, mixing local and regional express buses on Marquette/2nd is generally problematic due to different dwell times of the two types of services. For these reasons, when comparing the various Southwest Corridor alignment options, Hennepin is the least desirable alignment.

LRT on Nicollet Mall

As noted at the end of the Downtown Transit Circulation report, surface LRT on Nicollet Mall is a reasonable but expensive option. It would provide intense pedestrian activity to the mall without the noise and fumes of buses, and it would certainly make the mall a centerpiece of the transportation system. However, given the current geometrics of Nicollet Mall, the Mall would need to be completely reconstructed and straightened to accommodate LRT.

In this scenario, local buses currently operating on the Nicollet Mall would be relocated to a parallel street, either Hennepin or the Marquette/2nd transit spine. Neither of these scenarios is ideal, as there will be capacity issues on Hennepin and the Marquette/2nd spine if local Nicollet buses are relocated. Likewise, mixing local and regional express buses on Marquette/2nd is problematic due to different dwell times of the two types of service.

LRT on Marquette or 2nd

Introducing LRT on Marquette or 2nd, on the surface, could take several forms. If introduced into the same two lanes used by North-South spine buses, it would reduce the capacity of the spine from 180 buses each direction to below 100. This would be very problematic given the

demand for north-south bus trips through the core that will continue to exist even after the Southwest LRT line is complete.

Alternatively, LRT could be introduced into lanes not used by the North-South bus spine. For example, if the bus spine runs south on Marquette, north on 2nd, then the LRT could do the opposite. Any such outcome, however, would remove most of the general purpose auto capacity on the affected streets.

In general, LRT on the Midtown alignment, but routed into Marquette or 2nd rather than Nicollet Mall, would set up a conflict between the LRT system (which is attractive but serves only one corridor) and the Primary bus service (which may be more prosaic but is designed to serve the entire city).

On balance, the Midtown alignment would seem to work best in downtown if LRT were to become Nicollet Mall's transit service.

Northstar Commuter Rail and Intermodal Station

Northstar is a commuter rail service extending north and northwest of Minneapolis to Big Lake. Unlike the LRT and BRT corridors under development, Northstar would have relatively little frequency and would focus mainly on the peak period commute into Minneapolis in the morning and out in the evening. As a result, it represents a concentrated peak market but relatively little midday market.

Northstar service is planned to terminate at a new Intermodal Station located generally between 4th Street North and 7th Street North, and northwest of 3rd Avenue North. This project would also build a one-station extension of the Hiawatha LRT line to the station. A Twins Stadium is proposed immediately south of the Intermodal Station.

Connections to the Intermodal Station have been a consideration throughout the development of the Downtown Transit Circulation alternatives. Attention needs to be given to two issues in the development of the Intermodal Station:

- **Integration of 5th Street Garage Transit Center.** The Downtown Transit Circulation Concept proposes several improvements to allow frequent buses from the 8th Street Spine to terminate at the 5th Street facility, with the intention that this will provide an easy point of pedestrian access to the Intermodal Station. ***This connection needs to be assured.***
- **Access to the Intermodal Station from 7th Street bus corridor.** The 7th Street North corridor is emerging as a crucial bus corridor, potentially serving Bottineau Blvd. BRT as well as much of the local service to/from North Minneapolis. It must be possible to walk, easily and comfortably, from a stop on 7th Street North through the Twins Stadium site to the Intermodal Station. Unless the Southwest Corridor project chooses the Royalston alignment and builds a Royalston station with good access to 7th Street North buses, the closest point of connection between these buses and LRT will be at the stadium and the Intermodal Station. Further east, the buses will flow into the 8th Street spine, and most cannot turn back north to touch LRT because they are flowing through to St. Paul or Southeast Minneapolis lines.

If the Intermodal Station and stadium are to support appropriate commercial activities such as restaurants, they need pedestrian activity beyond game times and peak periods. This connection could be an important part of keeping the site active when neither the stadium nor the Intermodal Station is drawing crowds.

Summary

As discussed in this report, the local transit system in downtown Minneapolis will be affected in various ways by planned regional transit corridors. A summary of major impacts of each regional transit corridor, and major issues identified in this report, are summarized below.

Central Corridor (Light Rail Transit)

This corridor presents no major issues in downtown since it will be using the existing right-of-way along the Hiawatha LRT corridor on 5th Street.

I-35W South (Bus Rapid Transit)

Buses using this corridor will flow into the North-South spine (Marquette/2nd). It is recommended that the HOV on-ramp connection at 12th Street be retained, as well as a peak-period bus/HOV lanes on 11th and 12th Streets as far west as Marquette/2nd.

Bottineau Corridor (Bus Rapid Transit)

Bottineau BRT buses entering downtown would flow into the 8th Street spine. This alignment, however, would increase the sensitivity of 8th Street services to congestion, and could eventually add to the case for expanding 8th Street to two-lanes each way for transit. So that buses entering downtown from 7th Street and I-394 can both use 8th Street, a transit preferential route is envisioned between 8th Street and the 6th Street off-ramp from I-394.

The preferred alignment for Bottineau BRT in North Minneapolis is Washington/Lowry – primarily because Broadway is lined with commercial uses and will generate much greater local stop activity. Lowry Avenue is less developed except at major nodes where BRT stations are envisioned.

Southwest Corridor (Light Rail Transit)

The Southwest Corridor LRT line has the greatest potential to create conflicts on downtown transit operations, depending on which alignment is chosen. Currently, two basic alignments are being considered along with a variation on each:

- Kenilworth to Royalston to 5th or
- Kenilworth to Dunwoody to Hennepin
- Uptown to Nicollet to Nicollet Mall or
- Uptown to Nicollet to Marquette/2nd

Tradeoffs between each of the alignments were evaluated in terms of their impact on transit operations, traffic, and other modes. Because it does not require new right-of-way on downtown streets, the Kenilworth/Royalston alignment clearly presents the least number of traffic and

transit conflicts for the City when compared to the other alignments. This alignment, however, primarily serves a suburban market and offers the least amount of benefit to the City.

It should be noted that the Southwest Corridor LRT alignment will also impact the outcome of the streetcar study. LRT in the Midtown Greenway to Nicollet, for example, would eliminate the need for a streetcar connection west of Nicollet.

Northstar Corridor (Commuter Rail)

The alignment of the Northstar Commuter Rail line presents few issues in terms of transit operations in downtown Minneapolis. The main issues are related to access to the new intermodal transit facility, which will be located along the Northstar corridor between 5th and 7th Streets North. It is recommended that a pedestrian connection be secured between the 5th Street Garage and the new intermodal transit facility. In addition, a strong pedestrian connection should be assured between 7th Street North and the intermodal transit facility.