

## Chapter 9. Transitway Development

The 2030 *Transportation Policy Plan* (TPP) envisions the development of a network of transitways. A network of transitways will allow movement that avoids congested highways, connects regional employment centers and boosts the potential for transit-oriented development. The region will have four types of transitway modes: commuter rail, light rail, bus rapid transit, and express buses with transit advantages.

### Transitway Recommendations

#### Commuter Rail

Commuter Rail operates on freight railroad tracks. Commuter rail vehicles may use diesel multiple unit (DMU) vehicles or conventional diesel locomotives pulling passenger coaches. In many cases, commuter rail operates on existing freight railroad tracks that may also carry intercity passenger rail traffic operated by Amtrak, potentially using common stations. Lines are typically 20 or more miles long, with stations spaced much further apart than light rail, typically five miles apart. This spacing results in fewer stations than LRT to keep travel times fast. Station areas are primarily oriented to park-and-ride uses. Commuter rail services operate at 20- to 30-minute frequencies during peak periods, with limited or no midday or reverse-direction service.

#### Commuter Rail Recommendations

Ridership projections calculated for the *2030 Transit Master Study* indicated that under the current model and regional forecasts, no other commuter rail corridor than Northstar would have enough ridership to justify intensive investments. However, commuter rail ridership forecasts are hampered by the lack of data about travel patterns of commuter rail customers because the region currently does not have an operating commuter rail. With the Northstar Commuter Rail opening in late 2009, it will be possible to use observed data for commuter rail to calibrate the travel forecast modeling. Because of this, the region should look again at demand for commuter rail in 2010 when Northstar is operational and the rail line's impacts on travel patterns are more fully understood. If there are corridors that appear to be viable with this updated modeling information, they should undergo an alternatives analysis and then move into development if they prove to be cost-effective. In anticipation of this possibility, an additional commuter rail line is planned between 2020 and 2030 in the cost estimates in the TPP.

#### Light Rail Transit and Dedicated Busways

Light Rail Transit (LRT) operates on rails primarily in exclusive rights-of-way. Vehicles are powered by overhead electrical wires. Stations are typically spaced about one-half to one mile apart. Typical LRT lines are 10 to 15 miles long because they primarily serve densely developed areas and because trip times become too long if they are longer. LRT trains operate all day, with bidirectional service at frequencies of 10 minutes or better during peak periods. Hiawatha light rail is the one operating line currently in the Twin Cities.

Dedicated Busways are special roadways and lanes of roadways dedicated to the exclusive use of buses. Busways can operate service similar to LRT, with station spacing and other characteristics that mimic light-rail transit, except they use vehicles on rubber tires instead of electric trains on rails. Examples of this service in the United States include Los Angeles' Orange Line and Boston's Silver Line. The University of Minnesota busway is the one operating dedicated busway in the region. Dedicated busways also offer an additional flexibility that allows many different bus routes to use busway facilities, including local all-day service, limited-stop routes, and express bus routes. This results in all-day service with very high frequencies during peak and off-peak periods on core sections.

Light rail transit and dedicated busways function in similar ways. One operates on rails and is powered by electricity while the other operates on rubber tires and is powered by diesel engines. But most of the characteristics of busways and LRT—dedicated right-of-way, specialized stations and vehicles, off-board fare collection, signal priority and preemption—are the same. Trip times and passenger experience can be similar. For this reason, recommendations on these transitways are combined below.

### ***Light Rail Transit and Dedicated Busway Recommendations***

Currently the Twin Cities has one operational light rail line, Hiawatha light rail, which runs from downtown Minneapolis to the Minneapolis-St. Paul International Airport to the Mall of America. Because ridership on Hiawatha light rail has significantly exceeded projections, it is necessary to expand Hiawatha's capacity from two-car trains to three-car trains. This will require capital investments through 2020.

The Central Corridor is the primary east-west transportation route between downtown Minneapolis, the University of Minnesota and downtown St. Paul. The Council's *2030 Transit Master Study* showed two other corridors with high potential for light rail or a dedicated busway. The Southwest Transitway extends between Eden Prairie and Minneapolis, including the cities of Minnetonka, Hopkins, and St. Louis Park. Bottineau Corridor runs from Minneapolis along Highway 81 to either Maple Grove or Brooklyn Park.

In addition, five other corridors are recommended for mode and alignment studies, and may be determined to have potential for LRT, busway, or another mode:

- I-94 East
- TH 36 / NE
- I-35W North
- Central Avenue / TH 65 / BNSF
- Rush Line

Although many factors determine the viability and timing of implementation, the *Transportation Policy Plan* assumes that in addition to Central Corridor, one additional light rail or dedicated busway should be implemented by 2020 and work begun on a second. The Plan also anticipates the completion of the second LRT line shortly after 2020 and that a third will be completed by 2030.

### **Bus Rapid Transit**

Bus Rapid Transit (BRT) is a transitway mode that uses bus vehicles while incorporating many of the premium characteristics of light rail or commuter rail.

The federal government has identified seven characteristics that separate BRT from regular bus service:

- **Service Operations:** High frequency, all day service, typically 15 minutes or better on the main portions of the route, which provides a high level of service to customers. In addition, routes typically have limited stops except in downtowns, and have express service.
- **Running way:** These include dedicated busway, bus lanes, HOT lanes, HOV lanes, dynamic shoulder lanes, dynamic parking lanes, bus-only shoulders, or mixed traffic where other options do not exist. Dedicated running ways allow buses to avoid congestion and move more quickly and reliably than in mixed traffic.
- **Technology:** Signal priority and driver technology allow buses to move more quickly and reliably. Customer information displays and other technology can improve the customer experience.
- **Identity/Brand:** Unique branding of the BRT helps distinguish the line from regular-route services.
- **Stations:** Uniquely branded stops with more amenities than a standard local bus stop also differentiate the service from other bus routes and makes it easier for customers to know where the route runs.
- **Vehicles:** Vehicles can range from typical 40-foot transit buses to specialized vehicles with a unique look, low floors and additional doors for quicker boarding, automated docking, on-board arrival information, and other specialized features.
- **Fare Collection:** Off-board fare collection or fast fare collection where possible to speed boarding times.

BRT facilities are scalable and can be added or expanded as needed over time. For example, an express corridor could add a priced lane, and then improve stations and park-and-rides as demand increases. Queue jump lanes or ramp meter bypasses (lanes that allow buses to bypass congestion) can be added as congestion increases. If demand warrants, on-board fare collection can be upgraded to off-board fare collection to speed travel. Because of this, BRT corridors may continuously add new features as population growth and congestion increase demand in a corridor.

### ***Bus Rapid Transit Recommendations***

In the Twin Cities, there are two variations of BRT proposed: arterial street BRT and highway BRT.

#### *Bus Rapid Transit on Arterial Streets*

The *2030 Transit Master Study* and other studies screened high ridership arterial corridors for their potential for light rail or dedicated busways. These studies showed that substantial ridership growth could be achieved through faster and higher frequency service. These corridors are all in highly developed areas with very limited right-of-way available, meaning that light rail or dedicated busways are most likely not feasible. Bus Rapid Transit service on arterial streets could provide limited-stop

service and use technology improvements to provide a fast trip in these corridors and use branding to differentiate the service from regular bus routes.

Candidate corridors are shown on page 114. The *Transportation Policy Plan* recommends a comprehensive study of corridors for this service, and assumes six arterial bus rapid transitways will be implemented by 2020 and three more by 2030. The proposed corridors include:

- American Boulevard
- Central Avenue
- Chicago Avenue
- East 7<sup>th</sup> Street
- Nicollet Avenue
- Robert Street
- Snelling Avenue/Ford Parkway
- West 7<sup>th</sup> Street
- West Broadway

Some of these corridors are proposed to be studied for other modes in addition to bus rapid transit. Detailed corridor analyses will determine if rail improvements are viable in the near or long term. In some corridors, BRT improvements could provide improved transit service in the interim before rail improvements.

### ***Bus Rapid Transit on Highways***

Bus Rapid Transit (BRT) also operates on limited access roadways. It can use bus-only shoulders, HOV/HOT lanes, ramp meter bypasses, priced dynamic shoulder lanes and other running way advantages. In addition to peak express service, Highway BRT also incorporates high frequency, all-day service, branded vehicles, and improved stations, including park-and-ride facilities and online stations. BRT improvements can also be used by other types of bus service like regular express buses, limited stop service, or routes that are partly local service and partly express. Some of these facilities will have on-line stations, allowing boarding of buses in the highway right-of-way.

The I-35W BRT line will run north from Lakeville to downtown Minneapolis. The Cedar Avenue BRT is a 16-mile corridor that runs between Lakeville and Mall of America, with express service continuing to downtown Minneapolis using TH 62 and transit advantages related to the I-35W BRT corridor.

The *Transportation Policy Plan* calls for two additional highway bus rapid transitways beyond Cedar and I-35W to be implemented by 2020 and two more highway BRTs between 2020 and 2030. Currently, five corridors are recommended for study for their appropriate mode and alignment. Some express bus corridors with transit advantages, described below, could also become highway BRT corridors in the future, if demand is high enough.

### **Express Bus Corridors with Transit Advantages**

Express corridors with transit advantages provide express bus service with an alternative to congestion. These advantages could be bus-only shoulders, HOT or HOV lanes, ramp meter bypasses or other

advantages for transit. These services primarily connect commuters from suburban markets to employment in the central business districts, University of Minnesota and other major employment centers. Services in these corridors typically operate non-stop between a park-and-ride and the destination. One example of this type of service is on I-394, where buses originating from park-and-rides use the HOT lanes to avoid congestion. Many other routes use bus-only shoulders to avoid congestion. Highway improvements such as bus-only shoulders, HOV lanes, priced dynamic shoulder lanes and priced lanes benefit all the express bus service operating within the corridor. Improvements at specific intersections, like queue jump lanes, timed signals, and signal priority also provide transit with important advantages that can benefit specific service. Express service also benefits from highway and street improvements at the terminus of corridors such as bus-only and contraflow transit lanes, which allow express service to avoid congested local streets.

### ***Express Bus Corridors with Transit Advantages Recommendations***

Express bus service will need to double for the region to remain on track to increase transit ridership by 100% by 2030. Each express bus corridor will have sufficiently sized and conveniently located park-and-ride facilities. In some corridors, community and circulator networks will support service to these park-and-rides. Additional garage bus capacity will need to be constructed to house this expanded bus fleet.

By 2030, the region's urbanized area will grow, necessitating the expansion of highway transit advantages. In addition, there are gaps within the existing network of transit advantages that should be closed for the system to function optimally. As a result, it will be necessary to expand the bus-only shoulder network by up to 135 miles, depending on the reconstruction schedule for the highway system.

The I-394 HOT lane will continue to provide a substantial advantage to express buses on the western end of the region, as will the new lanes being added on I-35W south of downtown Minneapolis. Expanded highway pricing may be used as a tool to manage congestion as well as providing an advantage for transit. Decisions about any proposed priced lanes or high-occupancy lanes should consider and prioritize benefits to transit services.

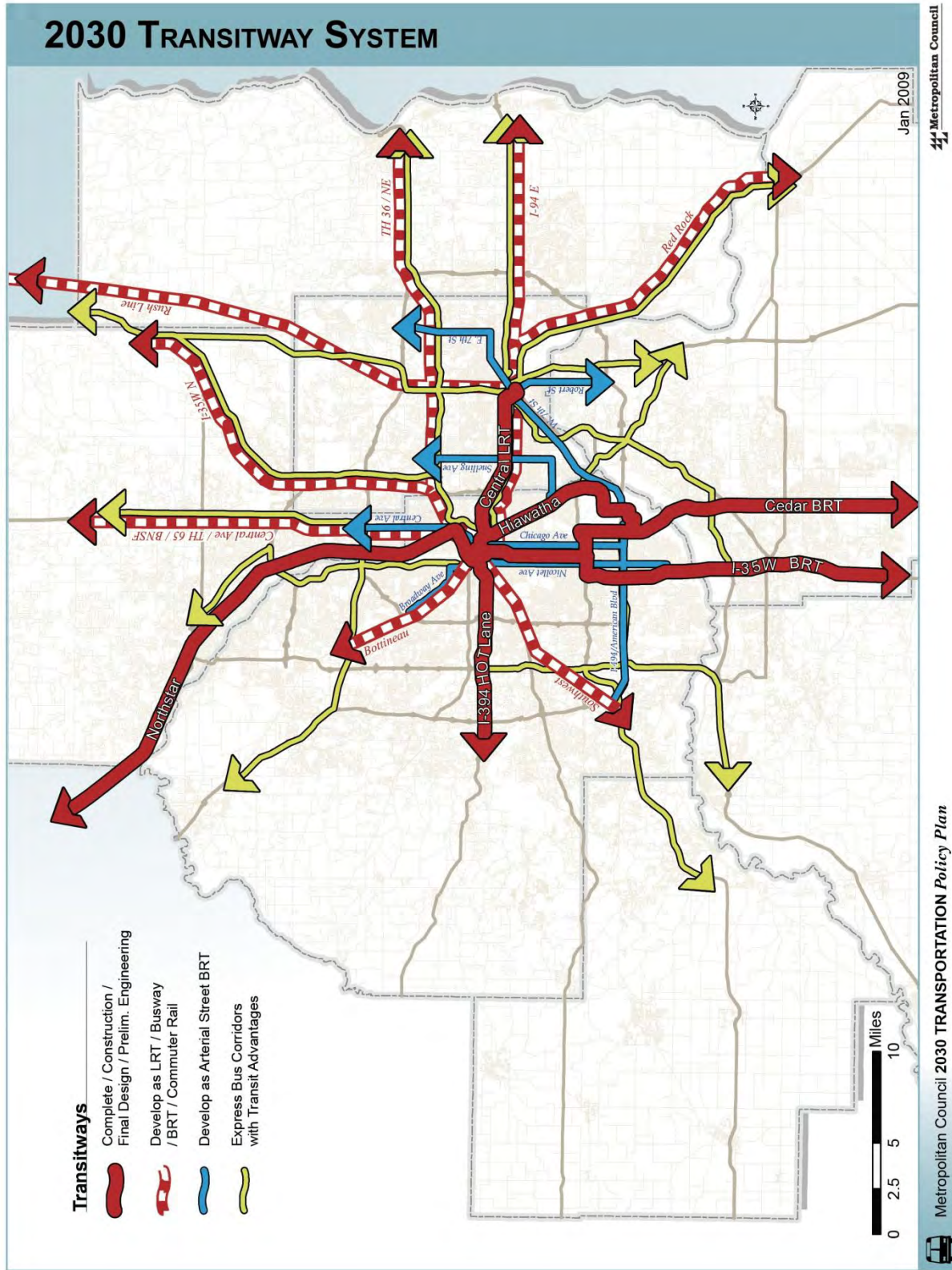
### **Transitway Corridors to Study for Mode and Alignment**

Modes and alignments have not been determined for a number of corridors. Promising corridors have been identified as needing more intensive study. All modes should be considered including LRT, busway, BRT, and commuter rail. The studies should include an initial screening to determine corridor potential, an alternatives analysis, a draft and then final environmental impact statement, and preliminary engineering. Four corridors were identified in the *2030 Transit Master Study* for initial screening and possible alternatives analysis studies. These corridors are:

- I-35W north of downtown Minneapolis
- Trunk Highway 36/NE Corridor
- Trunk Highway 65/Central Avenue/BNSF
- I-94 east of downtown St. Paul

In addition, the Rush Line Corridor is currently undergoing an alternatives analysis and should continue in study to determine the appropriate mode and alignment.





## Transitways Status Update

In the 2030 *Transportation Policy Plan*, the Metropolitan Council adopted a plan to develop a network of transitways throughout the Twin Cities. The plan identified corridors for further study. The status of the following corridors is:

**Bottineau (Northwest):** Bottineau is a 13-mile light rail or bus rapid transit line. Hennepin County RRA is leading an Alternatives Analysis (AA) study. The AA includes 21 alternatives. A series of public open houses have been held to share the results of the study. Hennepin County is continuing to develop the project as alternatives are analyzed.

**Cedar:** The Cedar Ave. BRT project is implementing Phase 1 of the Implementation Plan scheduled to be complete in 2010. Transit stations and park-and-rides were completed at the Apple Valley Transit Station, Cedar Grove Transit Station, and Lakeville Cedar park-and-ride during late 2009/early 2010. Final design of the roadway improvements is expected to be completed in 2010 with construction commencing late in the year. Operational start-up of the BRT service is expected in late 2012 or early 2013.

**I-35W:** Part of Phase I construction includes the Highway 62/I-35W interchange that began construction in the summer of 2007. This work includes the 46<sup>th</sup> Street on-line transit station. The Urban Partnership Agreement (UPA) funded the construction of a park-and-ride facility in Lakeville that opened in September 2009. This service represents the preemptive BRT express service in the corridor. The 46<sup>th</sup> Street on-line station is anticipated to open in December 2010, accompanied by pre-BRT service restructuring.

**Central Corridor:** Light rail transit (LRT) along University Avenue was selected as the locally preferred alternative (LPA) in June 2006. The Final Environmental Impact Statement (FEIS) was released for public comment in June 2009. Final Design began in late 2009 with the Federal full funding grant agreement expected in 2010. Construction is scheduled over four years, with operations starting in 2014.

**Southwest:** The Hennepin County Regional Rail Authority (HCRRRA), in partnership with the Federal Transit Administration (FTA), conducted a Draft Environmental Impact Statement (DEIS) for the proposed Southwest LRT project. HCRRRA recommended an LRT route on the Kenilworth-Opus Golden Triangle alignment (known as 3A) as the LPA in late 2009. The project will transition from Hennepin County to Metropolitan Council in 2010 for the preparation of the preliminary engineering application to the FTA and the Council will adopt the LPA into the *Transportation Policy Plan*.

**I-94 East:** Planning is expected to move forward on an AA for the I-94 East corridor in 2010. Washington County Regional Rail Authority (WCRRRA) is leading the AA effort using a combination of federal and local funds. The AA is expected to be completed in late 2011.

**Rush Line:** Phase I interim improvements, including park-and-pool and park-and-ride facilities, were implemented. Currently, Ramsey County Regional Rail Authority (RCRRRA) is completing an AA for the corridor to determine what long-term transit investment is best suited for it. A short-range commuter

bus study was completed in 2007 and work is advancing on two additional alternatives: BRT along I-35E between downtown St. Paul and Forest Lake and LRT between downtown St. Paul and White Bear Lake.

**Red Rock:** A commuter rail feasibility study was completed in 2001. In July of 2004, the Alternatives Analysis Study (AA) was begun for the Red Rock Corridor. The AA identified and analyzed commuter rail, bus rapid transit, and express bus as transit modes that could meet the purpose and need for the corridor. Work has begun on Station Area and Site Master Planning to identify four station sites along the corridor in anticipation of express bus, BRT, or commuter rail.

**Robert Street:** The Dakota County Regional Rail Authority (DCRRA) is conducting a transit feasibility study in partnership with cities along the corridor. The feasibility study began in early 2007 and was completed July 2008. The next phases may include an Advanced Feasibility Study that will refine ridership and cost estimates.