

# 8 REGIONAL TRANSPORTATION TOOLBOX AND PERFORMANCE MEASURES

## INTRODUCTION

An important step in identifying commuter service strategies in Central Minnesota was to define the types of services deemed appropriate for the region. Key services include vanpools, transit routes, rideshare matching, a District 3 guaranteed ride home program, and a series of potential employer-based incentives and supportive programs. This chapter presents the various commuter service concepts for District 3, and also provides guidance for where specific transportation programs and services might be successful based on proposed performance-based measures and standards.

## TRANSPORTATION TOOLBOX

### Employer-Sponsored Regional Commuter Service Options

A wide array of options exist, but in Central Minnesota, only some of them are appropriate. One of the challenges for defining commuter service options in Central Minnesota is that some of the tools to leverage commuter options — primarily traffic congestion and a limited parking supply — are not factors for commutes to jobs within District 3. With a few exceptions, parking is generally plentiful and free, and traffic congestion plays a factor only for commutes to the southern part of District 3 and into the Twin Cities. These factors alone often encourage employers to find alternatives to keep their facility expenses low and to get their employees to work on time. As a result, where these conditions exist, some transportation demand management (TDM) options can be employed, among which include two key ones:

- **Parking cash-out**, where an employer gives employees an option to take a cash payment and give up their parking space, effectively subsidizing their transit or carpool commute and offering a financial reward which is significantly lower for the employer than building new parking facilities.
- **Transit pass subsidies** or on-site pass sales, which encourage employees to opt to use transit for purposes of reducing travel times (in congested areas) and minimizing parking requirements.

Without congestion and limited parking capacity, these programs can be offered but their effectiveness is reduced because there are few incentives for most employers to implement them.

Employer incentives and programs to reduce single-occupant automobile trips fall into three general categories: (1) financial incentives; (2) information and marketing; and (3) supportive

programs. Central Minnesota employers can achieve the most success in reducing employee single-occupant vehicle trips when incentives, marketing and supportive programs are implemented simultaneously as part of a comprehensive travel demand management program. In some cases, transportation management agencies or organizations provide certain incentives, marketing, and supportive programs (see Chapter 14), while individual employers provide others.

Financial and other incentives appropriate for development in District 3 include:

- **A direct employer subsidy of employee transportation costs (in addition to wages).** Employer subsidies for transit, bicycling and vanpools up to the federally allowed monthly limit are considered qualified transportation benefits under federal tax law and may be excluded from an employee's wages.<sup>1</sup> Consequently, neither the employer nor the employee is taxed on the benefit. At the focus group meetings about this study, direct employer subsidies enjoyed high levels of support by participants and said these subsidies would have a impact on their travel decisions.
- **Pre-tax salary withholdings to pay for qualified transportation expenses.** Federal tax law allows employers to also provide transportation benefits in place of pay (except for bicycling). This enables employees to save up to 40% on their pre-tax transportation expenditures, and it enables employers to have up to a 10% savings on payroll taxes. A few District 3 employers reported offering this benefit, and generally employer survey respondents and focus group participants indicated their interest in pre-tax transportation withholdings.
- **Preferential parking for carpools/vanpools.** Preferential parking allows those arriving to work via a ridesharing arrangement to have the "best" parking spots available and/or free parking (if employees must otherwise pay for parking). It is not a common practice among District 3 employers to offer this benefit, but it was one of the practices that employers indicated they might consider, based on survey responses.
- **Prizes or other rewards for those who take transit, rideshare, bike, or walk to work.** These can include monthly prize drawings or points and awards programs. Few incentives exist for Central Minnesota employers to offer prizes and rewards, but with assistance from MnDOT, a transit operator, the Tri-CAP TRC or another entity, rewards in combination with outreach efforts could be more widely offered.

Information and marketing programs include:

- **Employer assistance in forming carpools and vanpools.** This may consist of something as simple as an internal "ride board" on a company or organization's intranet site, or may be a more extensive program as described previously. There are a few informal efforts in place in District 3 at the Grand Casino Mille Lacs, St. Cloud State University, the VA Medical Center in St. Cloud and elsewhere.
- **Information about and promotion of commuter options (e.g., provide bus schedules, etc.).** Employers can easily provide information about commute options in employee lunch and break rooms as well as via intranet sites, periodic emails, and employee newsletters. In the employer survey, employers expressed a willingness to provide more information about commute options. Informational materials might discuss the various tools described in this chapter, as well as others.

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<sup>1</sup> For further details about qualified transportation benefits, see the current IRS Publication 15-B.

- **Events to promote use of alternatives to driving alone (e.g., transportation fairs, bike to work day, contests, etc.).** The TRC, MnDOT and St. Cloud Metro Bus support and participate in commuter information events and activities, and the TRC is actively soliciting employers to participate in outreach events to employees.
- **An employee transportation coordinator.** This is an individual whose responsibilities are to find transportation options and develop transportation programs for employees. Few employers offer an on-site coordinator, a practice which is common typically at only the very largest of employers.

Supportive programs include the following:

- **A commuter or daytime shuttle to/from the employment site.** No employer shuttles were identified in District 3, but they are a common practice elsewhere, whereby employers pick up employees at a regional bus stop or commuter rail station, and drive them to their workplace. Some employers also operate daytime shuttles, allowing employees to leave their jobsite for lunch or running errands, making it unnecessary for them to drive. Although no such shuttles are currently offered, some employers indicated that if they were to have difficulty recruiting employees, they might consider operating a shuttle to transport them to their jobs.
- **The ability to telecommute (work from home).** Telecommuting, also known as teleworking, allows employees to work from home or a satellite office near their home. Depending on their employer, some employees telecommute one day a week or more. Employers have seen benefits in encouraging their employees to telecommute because telecommuters can schedule their actual work time during their most effective periods and around the other demands in their lives; with shared office space and shared resources, some employers report up to a 30 percent reduction in overhead costs; and people who telecommute say they are more effective at home than at the office. In addition, telecommuting has been shown to make it easier to attract or retain valuable workers who are unable to make it to the office.
- **Flexible work hours.** Allowing employees to work an earlier or later shift, or a compressed work schedule (e.g., 4-10, 9-80, 3-36), has been found to reduce traffic congestion – significantly in some communities – and, like telecommuting, has seen increased levels of employee satisfaction because their work schedule can accommodate other demands. Regional and local governmental agencies could take a lead in introducing flexible work hours in Central Minnesota and promoting the benefits within District 3.

## **Agency-Sponsored Regional Commuter Service Options**

In addition to the employer-based incentives, information program, and supportive programs, a new regional rideshare agency, existing or new transit agency, or other entity could take the lead on commuter transportation programs, working either independently or in a collaborative arrangement with District 3 employers. Three of the potentially most effective programs for District 3 are described in the following sections.

### **Guaranteed Ride Home**

One of the biggest concerns for commuters who leave their personal vehicles at home is how they will travel home in case of an emergency or if they have to work late unexpectedly and

consequently miss their train, bus, carpool, or vanpool. Emergency or guaranteed ride home programs address this problem by providing commuters who travel to work without using their personal vehicles a free taxi or rental car ride home in case of unexpected events. It is a supportive program that enables a greater number of people to use ridesharing and transit for their commutes to work.

The Metro Transit Guaranteed Ride Home (GRH) Program provides commuters who ride the bus, light rail or Northstar, or carpool, vanpool, bicycle or walk to work or school at least three times per week a guaranteed ride home for unexpected events such as personal illness or having to pick up a sick child, having to work unexpected overtime, or if a commuter's regular carpool is not available to leave when needed. The program cannot be used for personal errands, appointments, business-related travel or non-emergency/personal trips. GRH Program registration is free, and registered participants can request reimbursements up to four times per year or \$100 in value, whichever comes first, for eligible trips with valid documentation. St. Cloud focus group participants commented about the existing GRH program as not meeting their needs because of their longer commutes and the limits on program costs.

Guaranteed or emergency ride home programs require a sponsoring agency and staff to administer and market them. Administrative costs range from \$50,000 to \$100,000 annually depending on the size of the program.

## **Vanpools**

Vanpools serve longer-distance commutes along corridors with very limited or no existing transit service. They consist of a group of five to 15 commuters who rideshare to and from work in vans leased from an outside operator who owns and maintains the vehicles and provides insurance and other support. In some cases, vans can be provided by an employer or can be owned by an individual. One of the vanpool participants serves as the primary driver and another as a backup driver. (Volunteer drivers usually ride free in exchange for their additional driving and coordination responsibilities.) The cost for participants depends on the size of the van, the length of the commute trip, the number of participants, and the availability of employer or government subsidies. Average costs are approximately \$100 per month per person.

Government agencies, transportation management organizations, or large employers typically provide administrative and ridematching assistance and financial incentives and subsidies. These may include an initial startup subsidy, a subsidy to help cover the fare of a lost participant, and an ongoing subsidy of van leasing costs.

In Central Minnesota, a new vanpool program could serve commute trips made within the region. The program could be modeled after the Metro Vanpool program currently serving Central Minnesota commuters who travel to work in the Twin Cities area.

Metro Vanpool (formerly Van-Go!) is the regional commuter vanpool program for the seven-county Twin Cities metropolitan area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington counties). The program is subsidized by the Metropolitan Council, and Metro Transit provides administrative support. Metro Vanpools must have five to 15 people sharing the ride to and from work an average of three or more days a week. Metro Vanpools that operate exclusively within the seven-county metropolitan area receive a 55% subsidy on the van lease, whereas those that start or are traveling to locations outside the seven-county metropolitan area receive only a 50% subsidy on the van lease.

Vans are leased monthly to the vanpool's primary driver. Rideshare by Enterprise (a leasing company contracted by the Metropolitan Council) establishes the lease rates and offers several types of vans (7-, 9-, 12- or 15-passenger vans). The lease covers the van, insurance, maintenance, repairs and 24-hour roadside assistance. Primary drivers ride free in exchange for driving and coordination responsibilities and can use the Metro Vanpool van for some personal trips (up to 250 miles per month). Primary drivers also receive \$100 after the first six months of driving and \$100 annually thereafter. One back-up driver receives \$50 after the first six months of driving and \$50 annually thereafter.

Establishing a vanpool program in Central Minnesota would require a government or other agency sponsor and staff dedicated to initiating, promoting, and providing ongoing administrative support for the program. It is likely that some level of subsidy would be required as well, in order to incentivize vanpool formation.

### **Rideshare Matching**

One of the greatest impediments to carpool and vanpool formation can be finding suitable partners with similar work schedules, origins and destinations. Facilitated rideshare matching can overcome this obstacle by enabling commuters who are interested in ridesharing to enter their travel preferences into a database and receive a list of potential rideshare partners. The success of these programs is largely determined by the number of participants and, in turn, the number of potential matches that can be made.

Many Central Minnesota commuters who travel to the Twin Cities region are already familiar with the rideshare matching services provided Metro Transit. This program could either be expanded or replicated to serve commuters who are traveling between origins and destinations within District 3.

Metro Transit's rideshare matching programs enable commuters to create an online account and provide their travel time, origin and destination information. After registering, participants receive an initial match list as well as updated lists as new participants continue to join the program. It is up to individual participants to contact potential partners and arrange carpools, although the program also provides advice and guidance on how to establish a carpool.

Once a carpool is formed, participants can then formally register their carpool with Metro Transit to receive certain benefits, including enrollment in the Guaranteed Ride Home Program and preferential or reduced-rate parking at certain locations. For these purposes, carpools must meet the following criteria (which are subject to change):

- Carpools must consist of two or more persons commuting from the same general area to the same general area in one vehicle three or more days per week.
- Parking facilities or employers may specify additional requirements (more than two commuters, employees only, no children, specific routes, etc.) to qualify for preferred parking in their facilities.
- Passengers must (a) live near the driver, (b) be on the driver's route to the destination or (c) be able to meet in a location that does not significantly increase the distance that anyone must travel to reach their destination.
- Carpools whose members each drive several miles from different directions and meet near their destination to ride in one vehicle are not considered qualified carpools. Those

who would meet at a District 3 park-and-ride, however, would be qualified for their trip to the Twin Cities.

A rideshare matching program requires creation of an online database and staff to oversee and maintain it. Promotion and marketing of the program is also critical, since its success depends largely on the number of participants enrolled. In some cases, large employers, instead of an external agency or organization, provide matching services for their employees. For example, St. Cloud State University operates its own Rideshare Board to facilitate rideshare matching between its students and employees.

## **Regional Transit Routes**

Transit services are most effective when they are tailored to the design and needs of the communities they serve. This discussion defines and categorizes the types of regional transit services that are most appropriate for implementation in District 3.

### **Regional Commuter Rail Services**

Regional commuter rail service is characterized as a bidirectional passenger rail service with limited stops, fast travel times, and stations in major population centers or at major employment destinations. Northstar commuter rail is currently the only regional commuter rail line that operates into District 3, and its service is limited, operating mostly directional commuter service to Minneapolis from District 3. Regional commuter rail typically operates as often as every 15 to 30 minutes in dense suburban areas, but can operate as infrequently as every hour during peak periods. Few corridors exist in the short-term for additional commuter rail service, with the most likely being an extension of the Northstar line to Becker and St. Cloud.

### **Regional Express Bus Services**

Northstar Link is an example of a regional express bus commuter service, and regional express bus services may be appropriate in other locations in District 3. They should offer fast service during peak commute hours, focusing on linking cities, park-and-rides or residential developments with high concentrations of workers traveling to a specific employment area or a major transit hub. Express bus services may take advantage of arterial and freeway HOV lanes, allowing them to provide a level of service that is comparable – or in some cases better than – automobile travel times. Opportunities for new regional express bus services are considered on the major highways in District 3.

### **Regional Arterial Routes**

No current services are operated in District 3 that would be categorized as regional arterial routes, but this type of service could be considered in the future. Unlike regional express bus services, regional arterial routes operate on regular arterials and rural highways and may have several stops within communities. For example, a bus might depart a park-and-ride at the outermost terminus, and then travel through a city or town, making stops every one-half mile or so before traveling on the highway to the next city or town. Although they should have a terminus at a major transit center, they may not necessarily focus on serving park-and-ride facilities. Effectively, these are urban fixed routes that operate between cities and communities.

## Local Feeder Routes and Community Circulators

Local fixed-route bus services are designed to provide access to regional commuter routes, allowing people to board a bus at or near their home and offering them a transfer to a regional commuter service. In some cases, distributor routes are also appropriate, allowing people who disembark a regional commuter route to have local transit access to nearby employment centers. For purposes of this study, feeders are an important consideration because there are currently no major employment centers within District 3 that are not currently served by local transit in St. Cloud or Brainerd. If planned office parks develop in the future, then distributor routes or shuttles may be necessary.

## PERFORMANCE-BASED MEASURES AND STANDARDS

Performance standards support goals and objectives, allowing MnDOT and existing or potential new transit or vanpool providers to monitor services and make decisions based on service performance. These standards also provide a baseline for the evaluation of various corridors for potential commuter service. These measures and standards also provide a valuable tool for allocating scarce resources. By providing a consistent set of design and performance standards, MnDOT and transit/vanpool agency staff will have consistent direction on how to allocate, prioritize and deploy services. Their use in the service planning and allocation process will avoid potentially inequitable, and possibly inefficient, allocations of service. Without such standards, there is little rationale for telling constituents “yes” or “no” when necessary.

Service design standards also assist in creating consistency and predictability of responses to emerging community needs. As decision-makers reach conclusions about various aspects of growth in their communities, they will have some frame of reference to know how commuter transportation services -- and especially transit services -- will respond to those changes. When asked whether a particular development will be served, planners will have a policy basis for their response. Standards can also provide insights on where to focus investments (including reductions or reallocations) when those subjects inevitably arise as demographics shift, services underperform, or available funding changes.

While this discussion makes use of research that has been conducted at transit agencies across the country, the following sections adapt best practices to Central Minnesota's unique operating conditions.<sup>2</sup>

Two terms are used: measures, which identify what factor is being evaluated, and standards, which set the bar for performance against that measure:

- A **measure** is a basis for comparison; a reference point against which other factors can be evaluated. For this project, an example of a measure would be the population or employment density along a regional commuter corridor.
- A **standard** is defined as a recommendation that leads or directs a course of action to achieve a certain goal. A standard is the expected outcome for the measure that will allow a service to be evaluated.

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<sup>2</sup> From data collected by Nelson\Nygaard of operators in similar commuter corridors; “Transit Capacity and Quality of Service Manual,” Transit Cooperative Research Program (TCRP) Report 100, 2nd Edition. Washington, D.C., 2003; “A Guidebook for Developing a Transit Performance-Measurement System,” Transit Cooperative Research Program (TCRP) Report 88, Washington, D.C., 2003; Best workplaces for commuters: <http://www.bestworkplaces.org>; VPSI

## Proposed Service Standards for Transit and Vanpool Services

Proposed performance-based standards look at a five-year time horizon in order to establish short-term operating characteristics for Central Minnesota services.

Five primary performance measures are proposed to look at the efficiency and effectiveness success characteristics of regional commuter services:

- **Passengers per revenue hour.** This is calculated by dividing the total number of passengers (unlinked trips) by the total number of vehicle revenue hours. The number of passengers per hour is a good measure of service productivity and critical to the establishment of design standards and benchmarks for the expansion of transit service; it is also a useful tool for assessing the potential effectiveness of a vanpool operation. Because it is so commonly employed and often provides a snapshot of overall performance, this measure is suggested for the evaluation of existing and proposed services.
- **Service to total hours ratio.** This measure is most important for transit services, which have a goal of reducing vehicle-deadheading to/from a bus route or layover. For vanpools, it is assumed that deadheading is not required.

Ratios for transit routes that are higher than those of other routes may point to operating issues such as schedules that cannot be cost-effectively broken into vehicle assignments or routes with distant or inefficient terminus points. Non-revenue hours include deadheading between the garage and the location where the buses go in and out of service. Non-revenue hours can also include paid operator time before and at the end of their shifts (vehicle checks, sign in time and time spent refueling buses etc.) and the time to deliver replacement buses when a bus is taken out of service because of an accident or breakdown.

- **Passengers per mile.** This can be a beneficial measure in adjusting for the longer distances that commuter buses and vanpools would need to travel in Central Minnesota and is a standard regional service productivity measure.
- **Passenger miles per revenue hour.** This measure is for transit services only. Although every passenger boarding is important, passengers who travel longer distances generally entail greater cost but in many ways also produce greater public benefit when they use public transportation for their trip. By monitoring how many passenger miles are recorded during an hour of revenue service this considers whether both the number of people riding and the distances they are traveling is increasing.
- **Farebox recovery ratio.** The farebox recovery ratio is calculated by dividing all farebox revenue (or participation costs for vanpools) by total operating and administrative costs. Farebox recovery evaluates both efficiency (through operating costs) and productivity (through boardings). Farebox recovery ratio benchmarks are critical to the establishment of passengers per revenue hour benchmarks. No regional commuter service should operate at lower than 10% farebox recovery, and farebox recovery for regional routes can often be higher than for local bus services (some regional routes achieve 30% to 50% and higher farebox recovery ratios). For vanpools, federal and local subsidies can cover some costs, although some vanpools require 100% cost recovery by the participants.

Several other measures provide guidance on service quality and reliability. One of the most important is on-time performance because measuring an individual transit service's schedule or vanpool schedule adherence provides information about whether a customer can count on a service being there as scheduled. Other measure are established for maintenance, complaints, etc. This information is presented in Figure 8-1.

**Figure 8-1 Service Quality and Reliability Performance Benchmarks for District 3 Commuter Transit Services**

Performance Measure	Proposed Commuter Transit and Vanpool Service Standards
<b>Efficiency and Effectiveness Measures</b>	
<b>Boarding Passengers per Revenue Hour</b>	Regional Commuter Rail Services – 25 passengers/hour Regional Express Bus Services – 15 passengers/hour Regional Arterial Routes – 15 passengers/hour Local Feeder Routes/Circulators – 10 passengers/hour Vanpools – 8 passengers/hour
<b>Service to Total Hours Ratio</b>	Regional Commuter Rail Services – 1.0 Regional Express Bus Services – 1.3 Regional Arterial Routes – 1.3 Local Feeder Routes/Circulators – 1.15 Vanpools – 1.0
<b>Passengers per Mile</b>	Regional Commuter Rail Services– 1.25 passengers/mile Regional Express Bus Services – 1.0 passengers/mile Regional Arterial Routes – 1.0 passengers/mile Local Feeder Routes/Circulators – 0.7 passengers/mile Vanpools – 0.6 passengers/mile
<b>Passenger Miles per Revenue Hour</b>	Regional Commuter Rail Services– 500 Regional Express Bus Services – 300 Regional Arterial Routes – 150 Local Feeder Routes/Circulators – 40 Vanpools – No standard
<b>Farebox Recovery</b>	Regional Commuter Rail Services – 15% Regional Express Bus Services – 25% Regional Arterial Routes –15% Local Feeder Routes/Circulators – 10% Vanpools – 50%
<b>Quality and Reliability Measures</b>	
<b>On Time Performance</b>	Transit: No bus or train shall depart a formal time point before the time published in the schedule. 90% on-time performance for all services  Vanpools: Should always depart on-time; notice should be provided to riders in unusual weather circumstances

Performance Measure	Proposed Commuter Transit and Vanpool Service Standards
<b>Passenger Complaints/ Boardings</b>	<p>Transit: The number of complaints shall not exceed 0.01% of the total boardings. The benchmark is 7.5 complaints/100,000 boardings.</p> <p>Vanpools: No benchmark exists; a formal process should be established for resolving problems/complaints.</p>
<b>Accidents /Vehicle Miles Operated</b>	<p>Transit: Fewer than 2 accidents/100,000 revenue miles Fewer than 1 preventable accident/100,000 revenue miles. Fewer than 1.5 major accidents per million bus miles</p> <p>Vanpool: Fewer than 1 accident/500,000 miles</p>
<b>Maintenance</b>	<p>Transit: The number of road calls should not exceed 0.06% of total revenue miles operated. The benchmark is 1 road call/7,000 revenue miles.</p> <p>Vanpools: No benchmark exists.</p>
	<p>Transit: At least 85% of all regular fleet vehicles should be available for operations at all times.</p> <p>Vanpools: Vehicles should be operable at all times; an inoperable vehicle will be replaced immediately by the vanpool provider.</p>
	<p>Transit: The ratio of spare vehicles to regular fleet vehicles should be less than at 20%.</p> <p>Vanpools: Vanpool providers should be able to secure a spare vehicle within one business day.</p>
	<p>Transit: 95% of vehicle inspections shall be completed on time.</p> <p>Vanpools: No benchmark exists.</p>
<b>Trips Cancelled</b>	No bus, rail, or vanpool trips should be cancelled. The benchmark is zero tolerance.

Poor performance suggests that a service should be modified or eliminated. Exceptional performance suggests the service could be expanded, larger vehicles could be used, or transit headways can be improved.

Collecting the data needed to support the monitoring of these measures should be handled relatively easily by any transportation provider. In some cases, equipment can be installed on board transit vehicles to facilitate data collection and performance monitoring (e.g., automated farebox revenue data and automated passenger counting equipment) .

## **Service Design Standards**

Service design standards are critical planning tools that are used to guide the expansion of service to new areas and potential markets. They will help justify this study’s regional commuter services decisions to regional partners and outside interest groups.

### **Commuter Transit Service**

Typically, organizations and agencies that operate commuter transportation services need to consider a full range of interrelated social, political and economic factors when they make major decisions to implement service. While ridership is critically important, issues of equity and broader community impacts cannot be ignored. Because, at their core, service design standards

identify strategies for maximizing ridership, they may not fully address policymakers' concerns but experience suggests that the **most successful regional commuter transportation services are developed with high value placed on increasing ridership**. Several general design principles should guide the planning and potential operation of regional commuter transit routes in Central Minnesota:

1. **Directness.** Routes should be as straight as the highway or street pattern allows. These direct paths make for the fastest possible trip, and therefore tend to be useful to more people than circuitous routes. Even if a trip requires changing vehicles (feeder service to a commuter bus or a regional bus to a commuter rail line), it is likely to be more direct and faster than a trip using circuitous service. One other factor is simply the human factor. Humans prefer to maintain orientation.
2. **Frequency.** In most urban high-density corridors, the elapsed time between consecutive buses or trains on a route is one of the most important determinants of ridership. More frequent service attracts more passengers assuming a market is present. A very infrequent route requires customers to plan trips around the bus schedule, which works for many regional commuter trips, but not for all. A goal for a successful transit line is to improve frequency over time to allow for more trip options, and thus greater flexibility for potential users. Although high frequency routes are unlikely to be feasible in most District 3 corridors, a peak-only route with four inbound and outbound trips is likely to attract more riders than a route with a single inbound and outbound trip. Typically, two trips is recommended in each direction at a minimum for daily commuter service, because it provides riders a small amount of flexibility – something not offered when only one run is scheduled. It should be noted that with the availability of real-time information for buses and trains via kiosks, web pages and mobile applications, the lack of certainty that used to exist around limited schedules is somewhat diminished because riders can plan their travel around actual departures, but frequency is still a priority, as indicated in the results from the District 3 household survey.
3. **Consistency.** A consistent pattern to a regional commuter schedule is strongly recommended. If the bus or train can maintain clockface headways, customers can remember the schedule easily, because the same pattern of times is repeated each hour. If a route runs every 60 minutes, the customer can remember that the bus comes at :40 past each hour. By contrast, if the bus runs every 75 minutes, few customers can remember the schedule, and therefore, must consult a timetable – or seek assistance from customer service – in order to catch any trip that they don't use routinely. Irregularity will often convince customers that they have missed a bus, or that the bus is "always late." Using frequencies such as 30, 60, and 120 minutes offers greater ease in scheduling timed connections between routes that occur consistently. This is especially important for less frequent feeder routes because they rely on connections for much of their ridership. Timed connections permit passengers on these feeders to complete their trips much more quickly.
4. **Simplicity.** Straight routes are also easily associated with one or two major arterials. The naming, presentation, and planning of such routes should encourage the idea that the route is an integral part of the street or highway. Simplification is a key value in creating networks that people can navigate easily to make many kinds of trips.
5. **Access Distances.** Although opinions differ about how far one should be asked to walk to a transit boarding location, the industry experience overwhelmingly indicates that the vast majority of riders will walk up to ¼ mile, and the park-and-ride survey data shows

people will drive in excess of 10 minutes for rail service. For simplifying assumptions to develop relatively conservative ridership estimates, this study assumes, that the greatest concentration of potential users of new commuter serves in Central Minnesota would reside within a three-mile radius of a new transit stop or park-and-ride facility, assuming most would drive and park.

6. **Minimum Stop and Park-and-Ride Design.** All stops should be clearly marked with proper signage. Benches and shelters should be considered for individual stops where the average daily boardings exceed 30 passengers.
7. **Recovery Time.** All route schedules should include a minimum of 10% recovery time to ensure on-time performance.

### Design Standards for Commuter Transit Services

This section identifies the specific service design standards for each service category. Figure 8-2 details the specific design and operating standards applicable to each fixed route classification.

**Figure 8-2 Commuter Transit Design Standards**

	Regional Commuter Rail Services	Regional Express Bus Services	Regional Arterial Routes	Local Feeder Routes/Circulators
Location Characteristics <i>Dwelling Units per Acre</i>  <i>Employees per Acre</i>	Along major corridors	Along major corridors	>4  >1	Neighborhood Feeder >5 Employment Center Feeder >10
Frequency of Service <i>Weekday Commute Periods</i>	15-30 min	30-60 min	30-60 min	Typically to match regional service headways
Travel Time Ratio to Autos*	1.1	1.3	1.3	3.0
Stop Spacing <i>Urban Areas</i> <i>Suburban Areas</i> <i>Rural Areas</i>	+5 miles +5 miles +5 miles	1 mile +5 miles +5 miles	½ mile ½ - 2 miles 2 -5 miles	¼ mile ¼-½ mile As needed
Scheduling Practices	Meet Demand Clockface Timed Transfer with feeder and distributor buses	Meet Demand Clockface Timed Transfer with feeder and distributor buses	Meet Demand Clockface Timed Transfer with feeder and distributor buses	Meet Demand Clockface Timed Transfer with other regional routes
Target Route Speed – Average speed that the route should achieve	>30 mph	>25 mph	>20 mph	>12 mph
Guideline for Amenities Along Route	Shelters at all stops	Shelters at stops with at least 20 boardings per day	Shelters where needed	At major transfer points and high boarding locations only

\*The travel time ratio to autos compares the travel time for a bus to travel from one end of the route to the other end with the time the same trip can be accomplished during afternoon commute periods when traveling by auto.

## Vanpool Services

Proposed vanpool standards (Figure 8-3) are service design standards to help District 3 entities determine where vanpool services are most likely to have success in terms of ridership and cost-effectiveness. Although similar to commuter transit standards, they offer more flexibility for the development of vanpools based on an array of characteristics.

**Figure 8-3 Vanpool Service Design Standards**

Performance Measure	Proposed Standard
Pick-up Location Characteristics <i>Dwelling Units per Acre</i>	>4
Maximum Number of Pick-up Locations	4
Drop-off Location Characteristics <i>Employees per Acre</i>	>10
Maximum Number of Drop off Locations	2-4 (Must be along the route to the final destination)
Travel Time Ratio to Autos*	<1.25
Cost Ratio to Single-Occupant Vehicle**	<.20
Monthly cost to vanpool user	<\$150

\*The travel time ratio to autos compares the travel time for a vanpool to travel from an individual's pick-up location to his or her workplace with the travel time for the same direct trip by car.

\*\*The cost ratio shows the actual full costs of a single vanpooler's commute costs compared with a single occupant commute's cost.

## CONCLUSION

Goals, objectives and performance standards provide a basis for regional commuter services system design and operations policies, offer a methodology for evaluating services, and provide a rationale for service expansions, reductions and eliminations.

While both performance and design standards need to reflect the best thinking of MnDOT and stakeholders, it is critically important that they be understood and adopted by representatives of regional planning agencies and transit providers. Once adopted, these policies give decision-makers a rationale for supporting or rebuking proposed regional commuter transportation investments; they also offer transparency for District 3 residents, allowing them to understand the basis for commuter service decision-making and why not all potential service options are feasible. By having adopted standards, they can be written into approved service and operating policies, and offer District 3 providers a good justification for implementing new services or not approving funding for others. The adoption process can sometimes be eased when elected officials understand that standards inform, but do not dictate, decisions.

Standards will need to be periodically revisited and updated as operating conditions change, District 3 priorities evolve, and financial conditions vary. While there are benefits from maintaining a consistent set of standards, it is a good idea to consider whether they continue to reflect the region's priorities about every three years.

