Appendix G: Regional Transit Standards

Transit Market Areas

While several factors influence the propensity to use transit, the primary predictors of transit productivity are density of development at the origin and destination of trips. Transit markets in the seven county region are identified using the Transit Market Index, which is calculated using three primary factors: 1) population density, 2) employment density, and 3) transit dependent population. This Transit Market Index measures the potential market for transit services in a given area. Different types and levels of transit services are appropriate for each transit market area.

The Transit Market Index for an area is expressed in relative units of expected transit demand per acre and is calculated as follows:

$$\text{Transit Market Index} = \frac{\text{(Total Population)} + \text{(Total Employment / 3)} + \text{(Population Over 16 – Available Automobiles)}}{\text{Acreage of populated land uses (including industrial, institutional, commercial, and residential uses)}}$$

For the purposes of this plan, Transit Market Index is calculated at the Census block group level.

The region has five distinct Transit Market Areas that are determined based on the Transit Market Index for a given location. The Transit Market Area for a location is determined not only based on the Transit Market Index for that location, but also on the Transit Market Index of surrounding areas.

Table G-1: Transit Mark Area Characteristics

Transit Market Area	Transit Market Index
Area I	Transit Market Index above 20.0
Area II	Transit Market Index between 10.0 and 20.0
Area III	Transit Market Index between 5.0 and 10.0
Area IV	Transit Market Index between 1.0 and 5.0
Area V	Transit Market Index below 1.0

Transit Market Area I has the highest density of population, employment, and people who depend on transit. Because of this, Market Area I is able to support intensive transit service.

Transit Market Area II has high to moderately high population and employment densities yielding a market area that is conducive to fixed route transit operations, but not as intensive as in Market Area I.

Transit Market Area III has moderate density and can support a variety of transit services, but at lower intensity than areas I and II. In some cases, general public dial-a-ride services may be appropriate in Market Area III.

Transit Market Area IV has lower concentrations of population and employment. This market can support peak-period express bus services, if a sufficient concentration of commuters likely to use transit service is located along a corridor. Some areas may have sufficient den-

sity for Market Area IV, but may not have sufficient aggregate commuter demand to justify extension or improvement of express service. General public dial-a-ride services are appropriate in Market Area IV.

The low population and employment densities of Transit Market Area V increase the complexity and challenge of matching transit service to transit need. General public dial-a-ride service may be appropriate in Market Area V, but due to very low-intensity land uses, these areas cannot support regular route transit.

In the longer term to meet transit needs in suburban and rural settings, intensification of land use with a minimum 'critical mass' of increased intensity is necessary to provide and sustain increased transit service.

Transit Markets/Service Options

The table below identifies transit strategies that appear to be most appropriate for the different transit market areas. The service types presented are general descriptions for each market area; specific implementation of transit services will depend on available resources, specific analysis of transit demand, complementary and competing services, and other factors. Detailed analysis of specific communities within the metropolitan area may generate additional transit service delivery strategies.

Table G-2: Market Areas - Suggested Service Types

Transit Market Area	Suggested Service Type
Area I	Primary emphasis on regular route service. Downtown area circulators possible.
Area II	Primary emphasis on regular route service. Crosstown routes and limited stop services are appropriate to link major destinations.
Area III	A mix of regular route and community circulator service complemented by dial-a-ride service in specific cases. Community circulators should tie into regular route regional service at a transfer point.
Area IV	Peak period express service, if potential demand for service is sufficient to support at least three peak-period trips. General public dial-a-ride services are appropriate.
Area V	Primary emphasis on general public dial-a-ride services
ADA Paratransit Services	Paratransit service as determined by state and federal regulation. See ADA section of this appendix for additional details.
Transitways	Transitway service is unique to each transitway corridor, and is determined through detailed planning and study unique to individual transitway corridors.

Transitways

Transitways are unique transportation corridors with specific, detailed planning processes that result in appropriate levels of service for specific corridors. The detailed planning work on transitway corridors leads to unique applications of transit service design standards and specific types of service unique to each corridor.

ADA Paratransit Services

ADA paratransit service is public transportation for certified riders who are unable to use the regular fixed-route bus due to a disability or health condition. In the Twin Cities region, the Metropolitan Council oversees all ADA Paratransit Services. Metro Mobility contracts with ADA Paratransit service providers, who provide customers with "first-door-through-first-door" transportation.

ADA Eligibility

Eligibility is determined using federal guidelines established by the Americans with Disabilities Act

(ADA). A person may be eligible for ADA Paratransit Service if any of the following conditions apply:

- He/she is unable to independently navigate the fixed-route transit system because of a health condition or disability (OR)
- He/she is unable to independently board or exit fixed-route vehicles due to a health condition or disability (OR)
- He/she is unable to propel to or from a bus stop within the fixed-route service area due to a health condition or disability.

ADA Service Span and Coverage

The ADA Paratransit Service coverage area and hours of service is determined by several factors including Federal and State requirements. Per the Federal requirements, ADA paratransit service must operate at a minimum within ¾ of a mile of the local fixed route network during the same hours of the day as the fixed route transit service operates.

Metro Mobility achieves this by analyzing the fixed routes hours of service delivery for weekday, Saturday and Sunday/Holiday service in each community where service is provided and then matches that service level.

Beyond the federal requirements, the State requires Metro Mobility to provide service to all communities within the transit taxing district. Metro Mobility is available to these eligible residents living outside of the federally mandated service area by currently providing 12 hours of service on weekdays, and on an as space is available basis on Saturday's and Sundays/Holidays.

Transit Service Design Standards

A consistent set of transit service design standards ensures regional coordination and consistency. Regional design standards are custom-tailored for each transit market area. These standards represent typical design guidelines for transit service, though exceptions often exist based on specific circumstances and conditions.

Transit Service Options

This table outlines what type(s) of service are appropriate for each Transit Market Area.

Table G-3: Transit Service Options

Services Considered:	Area I	Area II	Area III	Area IV	Area V
Express	Yes	Yes	Yes	Yes	No
Urban Radial	Yes	Yes	Yes	No	No
Urban Crosstown	Yes	Yes	No	No	No
Suburban Local/ Circulator	Yes*	Yes	Yes	No	No
General Public Dial-a-Ride	No	No	Specific	Yes	Yes

**Area I circulators applicable for downtown or other employment areas over 30,000*

Service Span

Service Span is the number of hours during the day between the start and end of service on a transit route

Table G-4: Service Span

Days and Times of Service:	Area I	Area II	Area III	Area IV	Area V
Express	PMENW	PMENW	PME	P	n/a
Urban Radial	PMENOW	PMENOW	PMENW	n/a	n/a
Urban Crosstown	PMENW	PMENW	n/a	n/a	n/a
Suburban Local/ Circulator	PMENW	PMENW	PMENW	n/a	n/a
General Public Dial-a-Ride	n/a	n/a	Up to 18 hours	Up to 14 hours	Up to 14 hours

A trip's service period is determined by the time the route crosses its maximum load point. This standard represents the upper limit of service. For example, owl service is allowable but not required in Area I for an urban local route.

Peak: 6:00am-9:00am and 3:00pm-6:30pm; **M**idday: 9:00am-3:00pm; **E**vening: 6:30pm-9:00pm; **N**ight/Early AM: 9:00pm-1:30am and 5:00am-6:00am and **O**wl: 1:30am-5:00am. **W**eekend is Saturday, Sunday/Holiday. Times do not necessarily correspond with fare structure times.

Table G-5: Minimum Frequency					
	Area I	Area II	Area III	Area IV	Area V
Express	30” Peak	30” Peak	3 Peak Trips	3 Peak Trips	N/A
Urban Radial	15” Peak/ 30” Offpeak	30” Peak/ 60” Offpeak	60” Peak/ 60” Offpeak	N/A	N/A
Urban Crosstown	30” Peak/ 30” Offpeak	30” Peak/ 60” Offpeak	N/A	N/A	N/A
Suburban Local/ Circulator	N/A	30” Peak/ 60” Offpeak	60” Peak/ 90” Offpeak	N/A	N/A
Additional service may be added as demand warrants. Applies primarily to peak travel direction					

Minimum Frequency

Service frequency is expressed as the average number of minutes between transit vehicles on a given route or line, moving in the same direction. This table shows the recommended minimum service frequency for each service type in a given market area.

Route Spacing

Maximum desired distance between bus routes, in miles.

Table G-6: Maximum Route Spacing					
	Area I	Area II	Area III	Area IV	Area V
Express	Subject to availability and demand of a highway corridor				n/a
Urban Radial	0.5	1	Specific	n/a	n/a
Urban Crosstown	1	2	n/a	n/a	n/a
Suburban Local/Circulator	n/a	2	Specific	n/a	n/a
“Specific” means the route structure will be adapted to demographics, geography and land use that impact route spacing.					

Route Deviations

Route deviations are departures from a route’s primary street to serve a specific transit generator. The route then returns and continues on the primary street.

- The number of riders served on the deviation must be greater than thru riders (deviation rides > thru rides).

Other factors, such as bus stop siting, access, and operational feasibility, are also involved in determining whether a route deviates.

Minimum Branch or Extension Productivity

Some transit routes serve multiple destinations at the end of a route using route "branches". In addition, some routes are extended to serve additional destinations. To ensure that any route branches or extensions carry enough riders to justify the added cost of operation, the following productivity standards apply. Productivity is measured by passengers per in-service hour, as defined by the number of passengers getting on or off on a specific route segment, divided by the additional time required to operate the segment.

Table G-7: Minimum Branch or Extension Productivity*

	Area I	Area II	Area III	Area IV	Area V
Express	25	25	15	9	n/a
Urban Radial	25	20	15	n/a	n/a
Urban Crosstown	25	20	n/a	n/a	n/a
Suburban Local/Circulator	n/a	15	9	n/a	n/a

* As measured by passengers per in-service hour for boardings/alightings

Travel Time Competitiveness Guidelines

To be successful in attracting riders who have access to automobiles, transit service must provide travel times that are competitive with comparable auto travel times.

- Local bus travel time should generally not exceed 2.0 times average auto time.
- Express bus travel time should generally not exceed 1.35 times average auto time.

Network Transfer Connectivity

Transit network connectivity is the ability to travel anywhere the transit network reaches with minimal waiting time for transfers between the trips. Ideally, all transfers are designed to occur within 5-15 minutes at the transfer point. In specific situations where connections are less than 5 minutes, timed transfers should be arranged with specific transit operator instructions to "meet" the other bus.

Transit Stop Service Area

Standard walking distance to access transit services is ¼ mile for local bus service and ½ mile for limited stop bus or transitway stations.

Recommended Bus Stop Spacing

Bus stops that are close together reduce walking distance and access to transit, but tend to increase bus travel time. This recommended spacing seeks to achieve a balance.

- 6-8 stops per mile for local service
- 1-2 stops per mile for limited stop service

An allowable exception to standards may be central business districts and major traffic generators. These guidelines are goals, not a minimum nor a maximum.

Bus Stop Siting

- Near side stops are preferred in most areas.
- Far-side/mid-block stops are preferred in high density commercial areas, where traffic movements impede bus operations, or in applications of transit signal priority.
- Individual stop sites must be evaluated for:
  - Traffic conditions in area (i.e., right turns, merging, etc.)
  - Curb availability (see stop dimensions table below)
  - General suitability for bus stop (i.e., curb cuts, ADA considerations, obstructions, etc.).

Bus Stop Dimensions

The length of the bus stop, in feet, needed in order for a bus to safely pull into and out of a bus stop.

Passenger Waiting Shelters

A standard shelter location may be appropriate if the following ridership target is met at a proposed stop.

- Minneapolis and St. Paul: ≥40 boardings per day
- All other areas: ≥25 boardings per day

Heaters are occasionally installed in shelters with a warrant of 80 or more passenger boardings per day.

Custom Shelters

Custom shelters will meet a warrant of 100 boarding passengers per day, if one of the following criteria is met:

- Part of a larger project such as a bus corridor
- Transit Centers
- Park-and-Ride lots owned and maintained by regional transit providers
- Downtown bus stops

Table G-8: Bus Stop Dimensions

Bus Stop Dimensions*	Standard Bus Stop	Small Bus Only Stop
Near-side Stop	100 ft.	75 ft.
Far-side Stop	120 ft.	90 ft.
Mid-Block Stop	150 ft.	110 ft.

**Bus stops which have multiple buses stopping at the same time require more space.*

Facility Amenities

Regional transit providers offer a range of amenities at bus stops, transit centers and other facilities for the comfort, convenience and safety of our customers. The following table identifies the standard amenities that are included with various facility types. Some amenities are always provided and others are occasionally provided, depending on the specific size, location or use of the facility.

Table G-9: Facility Amenities

Facility Type	Lights	Heaters	Trash Receptacles	Stand Alone Benches	Cameras	Electronic Customer Information Displays
Transit Centers	Y	Y	Y	Y	O	O
Park & Ride Lots	Y	O	O	O	O	O
Rail Stations	Y	Y	Y	Y	Y	Y
Standard Shelters	O	O	N	N	N	O
Custom Shelters	O	O	N	O	O	O

Y = Yes, always provided; **N** = No, not provided; **O** = Occasionally provided

Note that this guideline applies only to public transit agency-owned facilities. Providers also lease park & ride lots, and some shelters are owned and maintained by other entities. In those cases, providers do not normally offer customer amenities, although some may be included in certain situations.

Transit Vehicle Load Guidelines

The number of riders on board the vehicle as a percentage of the number of seats. This value is used to determine when is the bus is overloaded and additional service is needed. If the result is greater than 100%, then some standees are acceptable.

Table G-10: Peak Periods

	Area I	Area II	Area III	Area IV	Area V
Express*	70-100%	70-100%	70-100%	70-100%	n/a
Urban Radial	85-125%	85-125%	85-125%	n/a	n/a
Urban Crosstown	50-125%	50-125%	n/a	n/a	n/a
Suburban Local/ Circulator	n/a	50-125%	50-125%	n/a	n/a
Light Rail Transit	200%	200%	200%	n/a	n/a
*Limited stop routes traveling less than 4 miles on freeways have a maximum load standard of 115%. Limited stop routes that do not travel on freeways have the same guidelines as urban radial or urban crosstown routes.					
Guidelines are based on the number of seats on the vehicle, measured at the maximum load point of route. These standards are flexible on the fringe of peak period.					
Maximum customer load average over a 15 minute period on a consistent basis					

Table G-11: Off Peak Periods

	Area I	Area II	Area III	Area IV	Area V
Express	65-100%	60-100%	50-100%	n/a	n/a
Urban Radial	60-100%	60-100%	n/a	n/a	n/a
Urban Crosstown	50-100%	30-100%	n/a	n/a	n/a
Suburban Local/ Circulator	n/a	30-100%	30-100%	n/a	n/a
Light Rail Transit	200%	200%	200%	n/a	n/a
Limited stop routes that do not travel on freeways have the same guidelines as urban radial or urban crosstown routes.					
Guidelines are based on maximum load point of route.					
Maximum customer load average over a 30 minute period on a consistent basis.					

Transit Performance Standards

The primary performance standards to measure service performance are Subsidy per Passenger and Passengers per In-Service Hour. Performance standards are used to evaluate the relative productivity and efficiency of the services provided. To be responsible and dynamic, a transit system must consistently measure and adjust service in unproductive routes and address insufficient service in productive areas. The use of two regional performance standards provides better insight into the operational and financial performance of individual routes and services.

Revision of Transit Performance Standards

The Metropolitan Council will complete a review of these transit performance standards. Working with regional transit providers, the Council will review and potentially modify the standards listed below. Following this review and potential revision, all providers will review their transit service annually based on the regional transit performance standards. Providers will annually submit their performance reviews to the council for inclusion in a regional service performance review.

Table G-12: Passenger Subsidy

Threshold No.	Level of Subsidy per Passenger Performance	Monitoring Goal	Possible Action
1	20 to 35% over peer average	For Quick Review	Minor Modifications
2	36 to 60% over peer average	For Intense Review	Major Changes
3	More than 60% over peer average	For Significant Change	Restructure/ Eliminate

Subsidy per Passenger

Subsidy or net cost is the difference between the total cost of providing service minus revenue from passenger fares. Subsidy per passenger represents the net cost divided by the number of passengers using the service. This standard identifies services that are not operating within regional efficiency ranges and focuses corrective actions for those services. Subsidy thresholds are determined by calculating the non-weighted subsidy per passenger average within each service classification plus fixed percentage deviations from that average.

Table G-13: Passengers per In-Service Hour

Type of Service	Average Passengers per In-Service Hour	Minimum Passengers per In-Service Hour
Light Rail Transit	≥70	≥50
Big Bus Fixed Route – All Day	≥20	≥15
Big Bus Fixed Route – Peak Only	≥20	N/A
Small Bus Fixed Route	≥9	≥5
Small Bus Non-Fixed Route	≥3	≥2
Other/Rideshare/Shared Ride Taxi	≤2	N/A

Passengers per In-Service Hour

The passenger per in-service hour standard establishes a minimum threshold of performance for light rail transit, big bus fixed route service, small bus fixed route service and paratransit operations. Passengers per in-service hour represents the total passengers carried divided by the in-service time. This measure is most often calculated at the route level, but can also be used less formally at a route segment or trip level.