

Appendix M. Regional Transit Standards

Transit Market Areas

While several factors influence the propensity to use transit, the primary predictors of transit productivity are density of origination and destination. There are four categories of transit markets in the metropolitan area. Transit markets in the Twin Cities are identified using four primary criteria: 1) population density, 2) employment concentration and job density, 3) trip volumes and patterns, and 4) transit dependent segments of the population. Different types and levels of transit services should be used for each transit market area.

The region has four distinct market areas. Transit Market Area I has the highest density of population and employment, and is able to effectively support frequent regular route transit service. Because this is the most productive transit service area in the region, it should also be the area that receives a prioritized investment of transit resources.

Transit Market Area	Area Characteristics
Area I	Population Density = 15 or more persons/acre (or) Job Density = 50 or more jobs/acre <u>and</u> 10,000 more contiguous jobs
Area II	Population Density = 9 to 14.9 persons/acre augmented by contiguous High Transit Dependency areas
Area III	Population Density = 5 to 8.9 persons/acre (excluding isolated pockets) augmented by: (a) Contiguous areas with Job Density = 10 to 49 jobs/acre <u>and</u> 3,000 or more contiguous jobs Or (b) Contiguous areas with Major Travel destinations: 50 or more non-home bound trips/acre
Area IV	Population Density less than 5 persons/acre
Pockets	Areas meeting at least one of the following: 1. Population Density = more than 5 persons/acre (isolated pockets only) 2. Job Density = 10 to 49 jobs/acre <u>and</u> 3,000 or more contiguous jobs (isolated pockets only) 3. Major Travel destinations: 50 or more non-home bound trips/acre (isolated pockets only) 4. High Transit Dependency areas (isolated pockets only)

Transit Market Area II has high to moderate population and employment densities yielding a market area that is conducive to regular route operations and also other forms of transit service delivery.

The lower population and employment densities of Transit Market Areas III, IV, and Pocket areas increase the complexity and challenge of matching transit service to transit need. Due to the lower concentrated demand, it becomes more difficult to provide efficient transit service at reasonable costs in these areas. In the longer term to meet transit needs in suburban and rural settings, we need to promote the right type of land use and development densities that can sustain transit operations.

Transit Markets/Service Options

The table below identifies transit strategies that appear to be most appropriate for the different transit markets that are in the metropolitan area. The service delivery strategies presented are only illustrative and not exhaustive. Detailed analysis of specific communities within the metropolitan area may generate other creative means of delivering effective transit services.

Transit Market Area	Suggested Service Type	Suggested Service Characteristics
Area I	Primary emphasis on big bus/regular route service complemented by paratransit service. Downtown area circulators possible.	<i>Orientation</i> – Focus on both CBD’s <i>Availability</i> – Up to 24 hours/day and 7 days/week <i>Access</i> – Route spacing (.25 – .50 miles) with 8-10 bus stops per mile <i>Frequency</i> – Generally 5 – 15 minutes
Area II	Primary emphasis on big bus/regular route service complemented by paratransit service. Neighborhood circulators should tie in with limited stop regular route service.	<i>Orientation</i> – Link CBD’s/suburban transit stations and centers <i>Availability</i> – Up to 20 hours/day and 7 days/week <i>Access</i> – Route spacing (0.5 – 1.0 miles) with 6-10 stops per mile <i>Frequency</i> – Generally 15 – 30 minutes
Area III	A mix of big and small bus/regular route and community circulator service complemented by paratransit service. Community circulators should tie into regular route regional service at a transfer point.	<i>Orientation</i> – Link CBD’s/suburban transit stations and centers <i>Availability</i> – Up to 18 hours/day and Up to 7 days/week <i>Access</i> – Route spacing (0.5 – 1.5 miles) with 6-10 stops per mile <i>Frequency</i> – Generally 30 – 60 minutes
Area IV	Primary emphasis on: 1) small bus/dial-a-ride service providing county or rural circulation, and 2) community bus service tied to major park-and-ride facilities to create travel volumes.	<i>Orientation</i> – Suburb to suburb and central cities <i>Availability</i> – Peak-period express and midday circulators; weekday only <i>Access</i> – Express routes tied to major park-and-rides/circulators link to transit stations and centers <i>Frequency</i> – Advance registration for dial-a-ride services
Pockets	Primary emphasis on 1) small bus service providing community local or dial-a-ride circulation, and 2) commuter bus service may have localized service in addition to linking with major park-and-ride facilities to create travel volumes.	<i>Orientation</i> – Localized <i>Availability</i> – Varies by pocket; primarily weekday service <i>Access</i> – Door-to-door or modified circulation; express routes primarily tied to park-and-ride facilities <i>Frequency</i> – Up to 2 hours for circulator services. Advance registration for dial-a-ride

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.

Area I	Area II	Area III	Area IV	Pockets
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Transit Service Options

Regular Route Services Considered:

Express	Yes	Yes	Yes	Yes	Yes
Radial	Yes	Yes	Yes	No	No
Crosstown	Yes	Yes	Yes	No	No
Circulator	Downtown	Neighborhood	Community	Specific	Specific
Limited Stop	Yes	Yes	Yes	No	Specific

Paratransit

General Public	No	No	Specific	Yes	Yes
Metro Mobility	Yes	Yes	Yes	No	Specific

Service Span

*Regular Route Days and Times of Service:**

General Availability	Up to 24 hours	Up to 20 hours	Up to 18 hours	Up to 14 hours	Up to 14 hours
Express	Pk/Day/Nt/Wkend	Peak/Specific	Peak/Specific	Peak Only	Peak Only
Radial	Pk/Day/Nt/Wkend	Pk/Day/Nt/Wkend	Pk/Day/Nt/Specific	N/A	N/A
Crosstown/Circulator	Pk/Day/Nt/Wkend	Pk/Day/Nt/Wkend	Pk/Day/Specific	Specific	Specific
Limited Stop	Peak/Specific	Peak/Specific	Peak/Specific	N/A	N/A

Paratransit

General Public	N/A	N/A	Specific	Pk/Day/Specific	Pk/Day/Specific
Metro Mobility	Pk/Day/Nt/Wkend	Pk/Day/Nt/Wkend	Pk/Day/Nt/Wkend	Specific	Specific

Service Levels

*Regular Route (Minimum Frequency for New/Existing Routes: *+)*

Express	15'' Peak/60'' Day	3 Pk Trips/60'' Day	3 Pk Trips/Specific	2 Peak Trips	2 Peak Trips
Radial	15'' Day/30'' Night	30'' Day/60'' Night	60'' Day/Specific	N/A	N/A
Crosstown/Circulator	30'' Day/60'' Night	30'' Day/60'' Night	60'' Day/Specific	60'' Day/Specific	60'' Day/Specific
Limited Stop	Specific	Specific	Specific	N/A	Specific

Paratransit

General Public	N/A	N/A	Specific	Specific	Specific
Metro Mobility	Specific	Specific	Specific	Specific	Specific

* Minimum service levels must be justified; with loading standards/connectivity dictating frequency above minimum.

+ In services with 15 minute or less frequency, clocked headways (or consistent departure times) shall be emphasized.

	Area I	Area II	Area III	Area IV	Pockets
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Route Spacing

Regular Route *Acceptable Range:*

Express	Specific	Specific	Specific	Specific	Specific
Radial	.25-.50 Miles	.50-1.0 Miles	.50-1.5 Miles	N/A	N/A
Crosstown/Circulator	.50-1.0 Miles	1.0-2.0 Miles	Specific	N/A	Specific
Limited Stop	Specific	Specific	Specific	N/A	N/A

Paratransit

General Public	N/A	N/A	N/A	N/A	N/A
Metro Mobility	N/A	N/A	N/A	N/A	N/A

Bus Stop Spacing Relates to local pick-up portion of the route

Regular Route Maximum Allowable:*

Express	8 per Mile	8 per Mile	8 per Mile	P&R or 8 per Mile	P&R or 8 per Mile
Radial	8 per Mile	8 per Mile	8 per Mile	N/A	N/A
Crosstown/Circulator	8 per Mile	8 per Mile	8 per Mile	N/A	8 per Mile
Limited Stop	Specific	Specific	Specific	N/A	N/A

Paratransit

General Public	N/A	N/A	N/A	N/A	N/A
Metro Mobility	N/A	N/A	N/A	N/A	N/A

* An allowable exception to standards may be CBD's and major traffic generators.

Bus Stop Siting

<i>Regular Route</i>	Near side stops are preferred in most areas. In CBD's and other high commercial density areas, where traffic movements are major impediments to smooth bus operations, far-side/mid-block stops are generally preferred. Individual stop sites must be evaluated for: 1) traffic conditions in area (i.e., right turns, merging, etc.); 2) curb availability (see stop dimensions table below); and 3) general suitability for stop (i.e., curb cuts, ADA considerations, obstructions, etc.).
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Bus Stop Dimensions+	Mixed Use Stop	Small Bus Only Stop
<i>Near-side Stop</i>	100 ft.	75 ft.
<i>Far-side Stop</i>	120 ft.	90 ft.
<i>Mid-Block Stop</i>	150 ft.	110 ft.

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

Passenger Waiting Shelter Warrant	Central Cities	All Other Areas
<i>Regular Route</i>	≥40 peak hour boardings	≥25 peak hour boardings

	Area I	Area II	Area III	Area IV	Pockets
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Branch Warrant

Route productivity measured as passengers per revenue hour for express and pass. Per revenue mile

Regular Route

Minimum Requirement:

Express	Specific	15 PPRH & 30"	15 PPRH & 30"	15 PPRH & 30"	15 PPRH & 30"
Radial	1.5 rte. prod. & 30"	1.0 rte. prod. & 30"	0.5 rte. prod. & 60"	N/A	N/A
Crosstown/Circulator	1.5 rte. Prod. & 30"	1.0 rte. prod. & 30"	0.5 rte. prod. & 60"	N/A	N/A
Limited Stop	30" Peak Frequency	15 PPRH & 30"	15 PPRH & 30"	N/A	15 PPRH & 30"

Paratransit

General Public	N/A	N/A	N/A	N/A	N/A
Metro Mobility	N/A	N/A	N/A	N/A	N/A

Directness

Express service is measured from beginning of route and compared with average auto travel time (including 10 min. remote parking time). Local service is measured using passenger boardings per mile operated.

Regular Route

Minimum Requirement:

Express	1.35 Avg Auto Time*	1.35 Avg Auto Time*	1.35 Avg Auto Time*	1.25 Avg Auto Time*	1.35 Avg Auto Time*
Radial	1.0 route product. +	1.0 route product. +	0.5 route product. +	N/A	N/A
Crosstown/Circulator	1.0 route product. +	1.0 route product. +	0.5 route product. +	N/A	N/A
Limited Stop	1.0 route product. +	1.0 route product. +	0.5 route product. +	N/A	N/A

* Avg. auto time includes assumption of 10 minute remote parking related time.

+ Increase in trip rides must be greater than thru rides inconvenienced (i.e.: new rides > thru rides). If deviation is more than 3 minutes, new trip rides must exceed extra time for thru riders (i.e., new rides > (thru riders X extra time)).

Paratransit

General Public	N/A	N/A	N/A	N/A	N/A
Metro Mobility	N/A	N/A	N/A	N/A	N/A

Network Transfer Connectivity

Regular Route

New Route Design Consideration: (includes peak and midday service only)

Express	3-15" w/ all others	Specific	Specific	3-10" at hubs & P&R	3-10" at hubs & P&R
Radial	3-15" w/ all others	3-10" at hubs	3-10" at hubs	N/A	N/A
Crosstown/Circulator	3-15" w/ all others	3-10" at hubs	3-10" at hubs	3-10" at hubs	3-10" at hubs & P&R
Limited Stop	Specific	Specific	3-10" at hubs & P&R	N/A	3-10" at hubs & P&R

Paratransit

General Public	N/A	N/A	3-10" at hubs	3-10" at hubs	3-10" at hubs
Metro Mobility	N/A	N/A	N/A	N/A	N/A

Area I	Area II	Area III	Area IV	Pockets
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Customer “Peak Period” Load Guidelines

Guidelines are based on maximum load point of route and would be somewhat more flexible on fringe of peak period.

Regular Route

*Minimum and Maximum Targets on a Consistent Basis:**

Express	70-100% of Seat Cap.	70-100% of Seat Cap.	70-100% of Seat Cap.	70-100% of Seat Cap.	70-100% of Seat Cap.
Radial	85-125% of Seat Cap.	85-125% of Seat Cap.	N/A	N/A	N/A
Crosstown/Circulator	75-115% of Seat Cap.	50-100% of Seat Cap.	N/A	N/A	N/A
Limited Stop	80-110% of Seat Cap.	80-110% of Seat Cap.	N/A	N/A	N/A

* Maximum customer load average over 15 minute period.

Paratransit

General Public	N/A	N/A	N/A	N/A	N/A
Metro Mobility	N/A	N/A	N/A	N/A	N/A

Customer “Off-Peak” Load Guidelines

Guidelines are based on maximum load point of route.

Regular Route

Minimum and Maximum Targets on a Consistent Basis:+

Express	65-100% of Seat Cap.	60-100% of Seat Cap.	50-100% of Seat Cap.	50-100% of Seat Cap.	50-100% of Seat Cap.
Radial	60-100% of Seat Cap.	60-100% of Seat Cap.	N/A	N/A	N/A
Crosstown/Circulator	50-100% of Seat Cap.	50-100% of Seat Cap.	N/A	N/A	N/A
Limited Stop	65-100% of Seat Cap.	60-100% of Seat Cap.	50-100% of Seat Cap.	50-100% of Seat Cap.	50-100% of Seat Cap.

+ Maximum customer load average over 30 minute period.

Paratransit

General Public	N/A	N/A	N/A	N/A	N/A
Metro Mobility	N/A	N/A	N/A	N/A	N/A

Transit Performance Standards

The primary performance standards to measure service 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.

Subsidy per Passenger

Subsidy or net cost is the difference between the total cost of providing service offset by 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 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.

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

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 measured less rigidly at a trip level.

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