



Service Standards and Design Guidelines

City of Madison, Wisconsin

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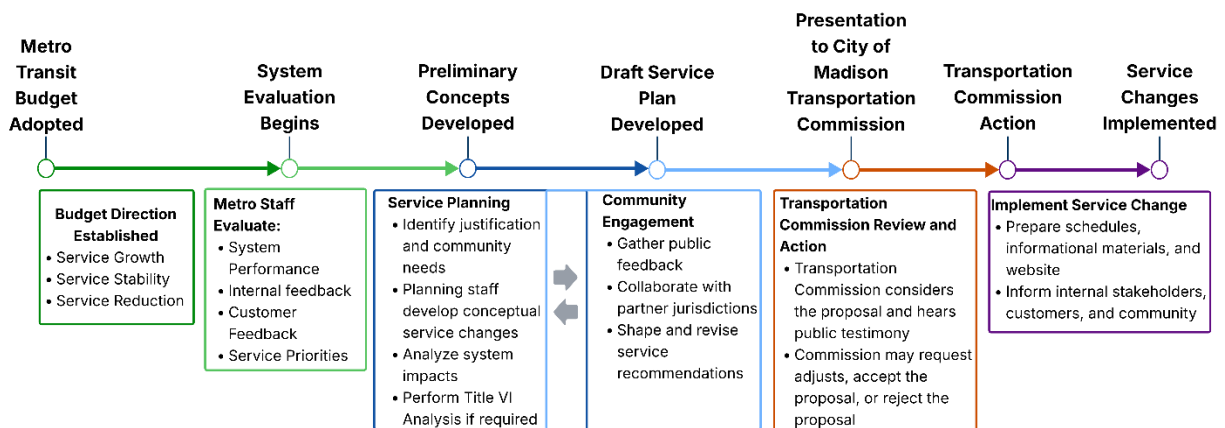
Introduction

Metro Transit is a Division of the Department of Transportation within the City of Madison that provides fixed-route, Bus Rapid Transit (BRT), and paratransit services. Metro Transit is guided by four fundamental pillars: doing the basics well, ensuring the safety and security of our staff and riders, fiscal stewardship, and improving internal and external communication. With these pillars in mind, Metro Transit has developed the following Service Standards and Design Guidelines to guide the development of future service changes. The document is organized into three sections: the Service Change Process, Service Standards, and Service Design Guidelines.

The Service Change Process

Metro Transit continually evaluates its services to meet the evolving needs of its customers and deliver high-quality transit service. The service change process is conducted up to four (4) times a year and provides a structured process that Metro Transit staff use to evaluate, design, and implement service changes. This document outlines the service change process and the two primary policies that Metro Transit staff use to evaluate and design transit service: Service Standards and Service Design Guidelines.

Service Standards establish metrics that are used to evaluate the performance of existing transit services and identify areas where service may be modified or improved. Service Design Guidelines are the principles that guide the development of new service. Overall, these policies provide a transparent decision-making framework that is used to provide service planning recommendations.



Budget Adoption

The service change process begins with the annual budget adoption process for the City of Madison and its service partners. Metro Transit operates as a department of the City of Madison, and its operating budget is approved by the City of Madison Common Council. The adopted budget establishes the policy direction for Metro Transit's service levels. Metro Transit's service partners undergo similar budgeting processes, which may impact future levels of service.

Service Evaluation

Once the annual operating budget has been approved, staff evaluate existing service levels and develop service recommendations that align with the adopted budget and policy direction. Metro Transit utilizes a data-driven approach for system evaluation, measuring route performance against established service standards. This data is presented to policymakers through the annual System Report Card. Customer feedback is continuously collected and evaluated, providing essential context on service demand and the customer experience. Through the service evaluation process, Metro Transit determines the scope of service changes that may be assessed.

Service Development

The service evaluation process identifies routes where potential service adjustments may be necessary to meet policy goals and is led by Metro Transit's Planning and Scheduling Division. In general, the scope of the proposed service changes determines the service development process, with more significant changes requiring extensive planning and documentation. All service and schedule changes are approved by the Metro Transit Planning and Scheduling Manager and the Metro Transit General Manager.

Service Change Type	Staff Report	Service Development Committee Review	Title VI Equity Analysis	Public Hearing	Transportation Commission Approval
Minor Schedule Change	Yes	No	No	No	No
Minor Service Change	Yes	Yes	No	No	Yes
Major Service Change	Yes	Yes	Yes	Yes	Yes

Service Development Committee

All minor and major service changes are reviewed by the Service Development Committee. The Service Development Committee meets quarterly to review proposed service changes and is composed of representatives from the following departments:

- Metro Transit Planning and Scheduling Department
- Metro Transit Operations Department
- Metro Transit Capital Planning Department
- Metro Transit Customer Service Department
- Metro Transit Safety Department

Minor Schedule Change

Minor schedule changes refer to normal adjustments made during the scheduling process, including, but not limited to shifting trip start times, adjusting pull-in or pull-out trips, or adjusting running times on existing routes. Due to the limited impact of these service changes, they generally do not require extensive administrative review.

Minor Service Change

A minor service change generally refers to proposed service changes where the impacts exceed a minor schedule change, but do not meet the criteria for a Major Service Change as defined by Metro Transit's Major Service Change Policy. Examples of Minor Service Changes include adding or removing early morning/late night trips or adjusting route terminals to provide appropriate layover locations. In general, minor service changes are provided to the Service Development Committee for comment and require approval from the City of Madison Transportation Commission.

Major Service Change

In accordance with Federal Transit Administration (FTA) [Circular 4702.1B](#), Metro Transit has defined a Major Service Change Policy to determine when a service change may have a significant impact. Major Service Changes require additional analysis and public engagement. In general, a Major Service Change requires review by Metro Transit's Service Development Committee, a Title VI Equity Analysis, a public hearing, and approval by the City of Madison Transportation Commission. For more information on major service change requirements, please refer to Metro Transit's Title VI Program.

Internal Approval and Documentation

The internal approval process for proposed service changes is as follows:

1. A staff report outlining the proposed service changes is submitted to Planning and Scheduling Manager for review;
2. Once approved by the Planning and Scheduling Manager, the proposed service changes will be reviewed by the Service Development Committee;
3. A staff report outlining the final service change proposal is submitted to the Metro Transit General Manager for approval.

Staff Reports

Prior to approval, the assigned staff will submit a staff report for review. The staff report provides information on the recommended actions. A sample staff report can be found in Appendix A. At a minimum, the staff report will include the following information:

- Estimated change in peak vehicle requirements
- Estimated change in roster (operator) requirements
- Estimated annual cost of the proposed service or schedule changes
- Estimated rider impact (service reductions)
- Major Service Change Analysis

Public Engagement and Participation

Metro Transit encourages public participation in its service planning decisions, particularly for Minor Service Changes and Major Service Changes. Major Service Changes follow the public participation process outlined in Metro Transit's Title VI Program. Minor Service Changes follow the same process for providing information to the public, but a public hearing is not required as part of the process. However, public comment is still gathered and shared with the Transportation Commission for their consideration prior to approval of the service change.

Service Change Adoption and Implementation

All service changes are reviewed and approved by the Planning and Scheduling Manager and the Metro Transit General Manager. Draft service recommendations are shared for public feedback and presented to the City of Madison Transportation Commission, and service partner governing bodies, when applicable. The Transportation Commission, or applicable governing body, may adopt, deny, or request adjustments to the service recommendations. Once a proposed service package is approved, Metro Transit staff begin preparing schedules and informing customers of the changes. The level of outreach is generally determined by the scope of the service change, with larger service changes requiring extensive public outreach and engagement.

Service Standards

What are Service Standards?

Service Standards establish the criteria Metro Transit uses to evaluate the performance of existing transit services and guide service planning decisions. These standards measure key aspects of transit performance, including service availability, reliability, efficiency, and productivity. Certain standards, such as on-time performance and vehicle load are mandated by the FTA to fulfill the Title VI requirements established in [FTA Circular 4702.1B](#). Other standards, such as route productivity and cost per passenger are used by Metro Transit staff to evaluate existing system performance. Overall, these standards establish a foundation for evaluating route performance, identifying opportunities for improvement, and supporting data-driven decision-making.

How does Metro Transit evaluate service?

Metro Transit utilizes a data-driven approach to service evaluation. Routes are grouped into categories based on their service goals and characteristics. The performance of each route is then measured against the established service standard for the route class. The result is a composite score identifying how each route performs compared to the service standards for its route class. In general, if a route has underperformed for two consecutive quarters, then Metro Transit staff will conduct a review to determine if service adjustments are needed. While route scoring provides an indication of route performance, Metro Transit staff evaluate the full context of a route's operations to determine if service changes are warranted.

Route Classification

To meet the travel needs of its customers, Metro Transit provides a variety of service types. When evaluating route performance, staff analyze multiple performance metrics and compare routes both within and across route classifications. Comparisons within a classification are used to assess how effectively routes with similar service goals are performing, while comparisons across classifications are used to identify if a route's performance may warrant reclassification.

Metro Transit Route Classifications

Route Class	Routes	Class Description
BRT	A	BRT service operates using dedicated bus lanes, 60-foot articulated buses, and enhanced stations to provide fast and frequent service.
Frequent	B, C, D, 80, 84	Frequent local bus service operates with minimum headways of 15 minutes. Routes that operate with "branches" may have lower frequency on the "branched" portion of the route.
Standard	28, 38, E, F, G, H, J, P, R, W	Core local bus routes make up the majority of Metro's service. These routes generally operate with frequency of at least 30 minutes on weekdays.
Coverage	L, O, S	Coverage routes provide connections to essential destinations where service may otherwise not be warranted.
Peak Only Bus	55, 65, 75	Peak only routes operate with limited service hours to accommodate specific travel needs.
Supplemental	601 – 646, 81, 82	Supplemental routes provide peak only overlay service to relieve congestion on core local routes.

Route Productivity

Route productivity is an internal metric used by Metro Transit as a measure of route efficiency, and is defined as the number of riders per revenue hour. This metric measures the average number of riders carried during each hour a vehicle is in revenue service and actively serving scheduled stops. Routes with higher riders per revenue hour values generally indicate stronger ridership demand and operational efficiency, while lower values may reflect lower demand, operational inefficiencies, or coverage-oriented service goals.

Route Productivity Standards

Route Class	Route Productivity		
	Weekday	Saturday	Sunday
BRT	35	25	20
Frequent	30	25	20
Standard	20	10	10
Coverage	15	5	5
Peak Only Bus	25	-	-
Supplemental	35	-	-

Cost Per Passenger

Cost per passenger is an internal metric used by Metro Transit staff as a measure of service efficiency which provides a general indication of how effectively resources are used on a specific route. While this metric is an important indicator of route performance, Metro Transit staff consider the full context of the service being evaluated, as some routes are designed primarily to provide coverage and access to essential destinations.

Service Span

Service span is used by Metro Transit as a measure of service availability, which is a requirement under [FTA Circular 4702.1B](#). Service span refers to the length of time a route operates in revenue service and is a key measure of service availability. In general, Metro Transit's fixed-route service operates for at least 14 hours. Some routes, such as peak-only and supplemental routes, operate a shorter span focused on peak travel periods to meet specific demand. Additionally, high-frequency services, such as BRT, operate over a longer span to accommodate off-peak travel demand.

Service Span Standard

Route Class	Service Span (Hours)
BRT	18
Frequent	18
Standard	16
Coverage	14
Peak Only Bus	6
Supplemental	2

Vehicle Load

Vehicle load is a measure of the number of riders on a bus at a given point in time along a route and is a required service standard under [FTA Circular 4702.1B](#). Transit planning staff use this metric to determine when and where vehicles are experiencing high passenger volumes. While higher vehicle loads indicate strong ridership demand and efficient service, they can also negatively affect passenger comfort if they exceed certain thresholds. Metro Transit considers vehicle loads of up to 1.5 times seated capacity to be acceptable. When vehicle loads consistently exceed this threshold, it indicates a need for additional service.

Maximum Vehicle Load Standard

Route Class	Maximum Vehicle Load	
	40' Bus	60' Bus
BRT	NA	85
Frequent	55	85
Standard	55	85
Coverage	55	85
Peak Only Bus	55	85
Supplemental	55	85

On-Time Performance

On-time performance is an indicator of transit reliability that measures how often vehicles depart their timepoints within a defined window of their scheduled time and is a required service standard under [FTA Circular 4702.1B](#). Metro Transit encourages riders to arrive at their stop up to five (5) minutes ahead of the published schedule. However, vehicles should not depart a timepoint early as riders plan their arrival time at stops based on the published schedule. Metro Transit considers a vehicle on-time if it departs a timepoint no more than one (1) minute early and no more than five (5) minutes late relative to its scheduled time.

On-Time Performance Standards

Route Class	On-Time Performance
BRT	85%
Frequent	80%
Standard	80%
Coverage	80%
Peak Only Bus	80%
Supplemental	80%

Route Frequency

Route frequency, also referred to as headway, describes how often a bus is scheduled to arrive at a given timepoint and is a key measure of service supply as well as a required service standard under [FTA Circular 4702.1B](#). Headway is typically expressed as the time interval in minutes between consecutive trips on a route and is a primary driver of how long riders wait between buses.

Route Frequency Standards

Route Class	Typical Frequency (Minutes)			
	Peak	Off-Peak	Saturday	Sunday
BRT	15	15	15	30
Frequent	15	15	30	30
Standard	30	60	30-60	30-60
Coverage	60	60	60	60
Peak Only Bus	30	-	-	-
Supplemental	Varies	Varies	-	-

Bus Stop Amenities

The following standards are used to guide the placement and equitable distribution of bus stop amenities. Amenities are allocated based on need, availability of equipment, and space availability at the bus stop. In general, bus stop amenities are distributed based on the average daily weekday boardings at the stop in either the fall or spring (Metro Transit's peak for ridership). In addition to the quantitative thresholds established below, Metro Transit staff also consider factors including, but not limited to, the proximity of the bus stop to senior living or healthcare facilities. The public is encouraged to reach out to Metro Transit to request bus stop amenity improvements at mymetrobus@cityofmadison.com.

Bus stop characteristics	Appropriate amenities
Lower use stop – 0 to 15 boardings per day	Boarding pad, sign
Medium use stop – 15 to 30 boardings per day	Boarding pad, sign, bench, exit pad
High use stop – 30 to 500 boardings per day	Boarding pad, sign, shelter, exit pad, bench
Very high use stop – more than 500 boardings per day	Consider multiple shelters

Service Design Guidelines

What are Service Design Guidelines?

Metro uses the following service design guidelines to develop its transit routes. These guidelines are based on industry best practices and are intended to improve service quality and the rider experience. The guidelines do not reflect a rigid set of requirements and are intended to be applied flexibly based on service goals and operational context.

Route Directness

Routes that follow a direct path between two locations are generally faster and provide a better rider experience than routes that follow circuitous paths. Route deviations from major corridors onto neighborhood or side streets should be avoided where practicable.

The use of one-way loops should be minimized. Short turnaround loops are permitted as an operational necessity, but their length should be constrained when possible. In limited cases, a large loop may be used to provide additional coverage. However, bi-directional service is recommended when similar levels of service and operational efficiency can be achieved.

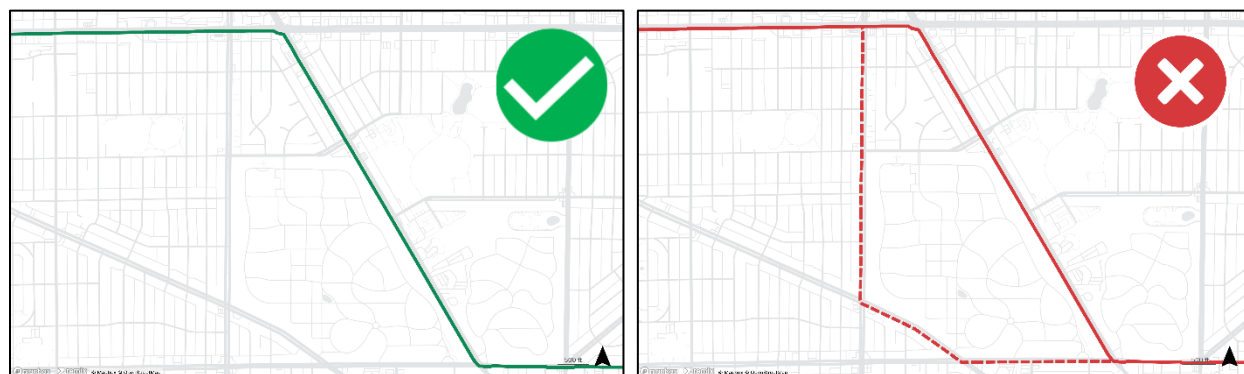


Serving Multiple Purposes and Destinations

Routes are generally more efficient when they serve multiple purposes and destinations instead of accommodating specialized travel demands. Specialized services, such as peak-hour commuter routes, may be appropriate when there is significant demand that cannot otherwise be served by a more general route design.

Simple and Consistent Route Design

Routes that are simple and consistent provide better customer experience. In general, routes should follow a consistent alignment throughout the service day and across all days of operation, with minimal variation in routing or structure.



Routes should operate in symmetrical, bi-directional patterns so that they are predictable and easy to understand. If routes operate on one-way streets, the alignments should be parallel in each direction where feasible.



Coordinated Schedules

Metro Transit seeks to coordinate schedules between routes to provide reliable and convenient connections. Schedules should be coordinated to provide convenient transfer opportunities between routes at shared timepoints. Routes operating along the same corridor should be scheduled to provide coordinated service, with departure times offset to increase effective frequency along the corridor.

Consistent Bus Stop Spacing

Metro Transit's Facilities Planning and Design Manual establishes the standard distances between stops for each of Metro Transit's service types. Consistent bus stop spacing improves speed and reliability, provides area coverage, and distributes stops equitably between routes. Metro Transit spaces bus stops at one-half mile for BRT service and one-quarter mile for all other fixed-route service. In some cases, deviations from these guidelines may be necessary. For example, commuter-oriented service may have longer distances between stops. In general, deviations that locate stops closer than the standard distance should be avoided.

Service Type	Desired Bus Stop Spacing				
Bus Rapid Transit	BRT Station BRT Station BRT Station				
	0 mi.	1/4 mi.	1/2 mi.	3/4 mi.	1 mi.
All other Fixed-Route Service	Bus Stop Bus Stop Bus Stop Bus Stop Bus Stop				
	0 mi.	1/4 mi.	1/2 mi.	3/4 mi.	1 mi.

Terminal Planning

Terminals are the end of line stops that provide an opportunity for operator breaks and schedule recovery. In general, Metro Transit terminal locations should meet the following criteria:

- A bus pullout exists or can be constructed to avoid lengthy disruptions to traffic.
- The presence of a standing, idling bus is not disruptive to the surrounding neighborhood.
- A bathroom is available or can be installed for operator use.
- No or minimal deadheading is required to get to and from the terminal.
- Passengers have seamless connections to and from other routes nearby.

Appendix A – Staff Report Template

Planning Staff Report

Subject:

Staff Contact:

Date:

Staff Recommendation

Recommendation Summary

Proposal Summary	
Route(s) Impacted	
Estimated Change in Roster Requirements	1
Estimated Change in Peak Vehicle Requirements	2
Estimated Change in Annual Operating Expenses	\$500,000
Estimated Change in Overtime Hours (if applicable)	\$100,000
Estimated Rider Impacts (Service Reductions Only)	N/A
Major Service Change	[Yes / No]

Analysis of Alternatives

Appendix B – Route Evaluation Methods

Metro Transit utilizes a standard-anchor scaling methodology to create a composite score for each route. For each metric and route classification, a floor and ceiling are established relative to the standard for the route class. The floor represents the value below which a route is clearly deficient for a given metric. The ceiling represents a value above which a route exhibits strong performance. A route's raw score for a given metric is calculated as:

$$(\text{actual value} - \text{floor}) / (\text{ceiling} - \text{floor})$$

The raw values for each metric are then weighted based on policy direction and combined to generate a composite score for each route. This provides an indication of how a route performs relative to its established service standards. Metro Transit uses this scoring to inform its service planning. However, scoring alone does not justify service changes, and Metro Transit staff evaluate the full context prior to making service changes.