

Fixed Route Service Policy

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Executive Summary

The purpose of a service policy is to define performance standards for the implementation and evaluation of Lane Transit District's fixed route transit service. To the extent possible, these standards are designed to be quantifiable and replicable. The service policy also provides guidance to resolve performance issues.

The Federal Transit Administration requires agencies such as LTD that receive federal funding to develop a service policy which describes, at a minimum, vehicle load, headway, service availability, and on-time performance standards for each mode of service (i.e. BRT, bus, rail). Additionally, it requires the evaluation of service to prevent disparate impact discrimination on the basis of race, color, or national origin. LTD's first service policy was adopted in 1999 and last updated in 2014 to include Title VI federal guidelines to ensure the equitable distribution of public transit service.

Since its adoption over 20 years ago, there has been significant changes to the community, the transit network, and how LTD provides service, most notably with the addition of the West Eugene EmX. This updated service policy will help decision-makers, the public, and partner agencies understand why and how LTD makes changes to its fixed route service in order to adapt to an ever changing mobility environment and better reflect the needs of the communities LTD serves. It applies industry standard techniques and methodologies.

There are five key components of the service policy:

- A description of LTD fixed route service, including the allocation of service focusing on productivity or coverage goals, network design principles, and route classifications with goals and characteristics.
- Service design which covers peak periods, spans, and frequency of service. This also includes stop types, location, spacing, and transit amenities at stops and stations.
- Service evaluation procedures which represents the most significant changes to the policy. This updated section includes information on:
 - The timing of changes and a summary of possible changes;
 - The definition of substandard service and the means by which staff evaluates service;
 - Implementation guidelines for new service; and
 - Standards which guide the decisions regarding service increases and reductions.
- Lane Transit District's Title VI policy governing the equitable distribution of service and evaluation of impacts of service changes on minority populations. For more information on Title VI regulations see FTA Circular 4702.1B¹.
- The addition of several Appendices which provide broader policy statements and methodology information for calculating certain aspects of the policy.

¹ https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Title_VI_FINAL.pdf

About LTD

Lane Transit District (LTD) was established in 1970 under the laws of the State of Oregon that allowed the formation of transit districts as special taxing entities. The District began operating in the Eugene-Springfield area on November 23, 1970. LTD serves a population base of approximately 316,600 with a fleet of 100 buses in revenue service on 31 routes that traveled more than 3.9 million miles annually in 2019 (pre-pandemic) and 2.4 million miles in 2021. Passenger boardings were approximately 10 million in fiscal year 2019 and 4 million for fiscal year 2021. In fiscal year 2019, LTD provided almost 280,000 revenue hours of service. In fiscal year 2021, LTD provided almost 195,000 revenue hours of fixed route service.

LTD also provides other non-fixed route services for persons unable to use the fixed route system. More information about these non-fixed route services are available in Appendix A.

All of LTD's services are tied to our mission of connecting our community. In all that we do, we are committed to creating a more connected, sustainable, and equitable community.

Why Have a Service Policy

The purpose of a service policy is to define performance standards for the implementation and evaluation of LTD's fixed route transit service. To the greatest extent possible, these standards are designed to be quantifiable and replicable. The service policy also provides guidance to resolve performance issues. This service policy does not apply to non-fixed route services such as RideSource or mobility-on-demand options.

Network Design Principles

LTD's fixed route network is designed on the basis of balancing goals of high productivity and geographic coverage.

Service designed for high productivity is closely associated with:

- Frequency - Routes that run frequently are more likely to be useful for many trips.
- Density - More people coming from and going to destinations located near bus stops.
- Walkability - More sidewalks, safer street crossings, and a connected street grid.
- Linearity - Routes designed in straight, direct lines with few deviations.
- Continuity - Routes designed to avoid long gaps of low-density development.

In contrast, service designed to maximize geographic coverage seeks to:

- Provide a social service to people who lack transportation options, when they are located in or wish to reach areas that do not support high productivity service.
- Reach as many neighborhoods as possible, even if relatively few people need or are likely to use service to or from that area.

Service Allocation

Within the Eugene-Springfield urban growth boundary, LTD will strive to allocate service hours according to the following ratios:

- 75 percent to maximize productivity.

- 25 percent to geographic coverage beyond areas that support higher productivity.

These allocations may temporarily fluctuate in response to budgetary, staffing capacity, or other major conditions. A significant change in service conditions is defined in the [Service Changes](#) and [Service Reduction](#) sections. Appendix B provides the methodology for calculating productivity and coverage percentages.

Route Types

The LTD fixed route transit network includes the six route types described below and represented in Figure 1. These route types and characteristics are desired outcomes for the network based on available resources. For spans and frequencies, refer to tables 2 and 3.

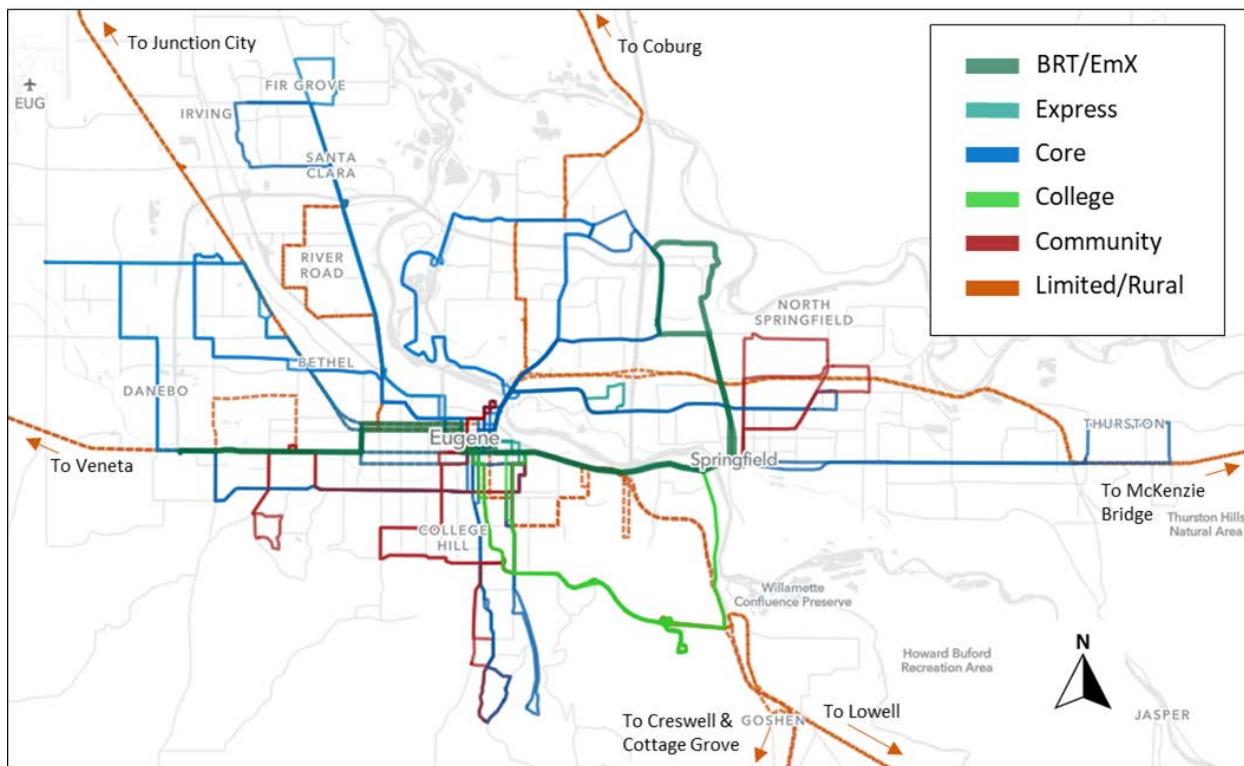


Figure 1 - Route Type Map

Bus Rapid Transit (BRT)/Emerald Express (EmX)

BRT/EmX lines run primarily in dedicated bus-only lanes with some segments of mixed traffic.

- Features: Very frequent all-day service; widely spaced stations; longer hours of service.
- Service targets: Higher travel speeds; very reliable service; more amenities at stations; higher passenger loads.
- Expectations: Highest productivity; highest ridership.

Express Routes

Express routes have limited stops and serve the parts of the network with the highest peak demand ridership.

- **Features:** Very frequent all-day or peak service; widely-spaced stops; service hours based on demand.
- **Service targets:** Higher travel speeds; higher passenger loads.
- **Expectations:** High productivity; high ridership.
- This category includes any college-oriented express routes that may have shorter hours of service, matching class schedules or demand.

Core Routes

Core routes operate primarily on arterial streets, major collectors, and corridors identified on the Frequent Transit Network (FTN) developed in the 2014 Long Range Transit Plan.

- **Features:** Frequent all-day service; moderate distance between stops; longer hours of service.
- **Service targets:** Moderate travel speeds; reliable service; amenities at major stops; high passenger loads.
- **Expectations:** High productivity; high ridership.

College Routes

College routes are designed to provide transit primarily to university students traveling to the University of Oregon (UO) or Lane Community College (LCC). These routes are characterized by fluctuating frequency to meet demand and line up with class schedules and one way service to meet demand.

- **Features:** Fluctuating all-day or peak service; variable distance between stops; shorter hours of service.
- **Service targets:** Moderate travel speeds; reliable service; fewer stops with amenities; high passenger loads.
- **Expectations:** High productivity; high ridership.

Community Routes

Community routes are designed to provide transit in areas where land use, density, development patterns, or demographic characteristics are not conducive to high ridership transit.

- **Features:** Lower frequency; infrequent all-day or peak service; variable distance between stops depending on the area served; shorter hours of service.
- **Service targets:** Low to moderate travel speeds; reliable service; fewer stops with amenities; moderate passenger loads.
- **Expectations:** Moderate productivity; moderate ridership.

Limited or Rural Routes

Limited routes operate very infrequently within the metro area and rural routes operate mostly (but not exclusively) outside the Eugene-Springfield urban growth boundary. They provide basic “insurance against isolation” for communities within the LTD service boundary that might otherwise not receive service.

- **Features:** Infrequent service at limited hours; variable distance between stops depending on the area served; few hours of service.
- **Service targets:** Moderate to higher travel speeds; reliable service; fewer stops with amenities; lower passenger loads.
- **Expectations:** Low productivity; low ridership.

Service Design

Time Periods

LTD operates different levels of service depending on the time of day and day(s) of the week. These time periods are described in Table 1.

Table 1. LTD Time Period Definitions

Time Period		Definition
Weekday	AM	5:00 AM - 6:00 AM
	AM Peak	6:00 AM - 9:00 AM
	Midday	9:00 AM - 3:00 PM
	PM Peak	3:00 PM - 6:00 PM
	Evening	6:00 PM - 12:00 AM
Saturday		7:00 AM - 12:00 AM
Sunday		8:00 AM - 9:00 PM

Span of Service

Span of service refers to the hours during which service is available. LTD has established span of service standards that define the expected hours that any given service will operate. Table 2 displays the current spans of service at the time of this service policy update based on the route type and day. Changes in span will be based on available resources and need.

Table 2. Span of Service

Route Type	Day of Week	Span of Service
EmX (BRT)	Weekday	5:00 AM - 1:00 AM
	Saturday	7:00 AM - 11:30 PM
	Sunday	7:30 AM - 9:30 PM
Express	Weekday	7:00 AM - 10:00 PM
Core	Weekday	5:00 AM - 12:00 AM
	Saturday	7:00 AM - 11:30 PM
	Sunday	7:30 AM - 9:30 PM
College	Weekday	7:00 AM - 7:00 PM
	Saturday	Limited
Community	Weekday	6:30 AM - 8:30 PM
	Saturday	7:30 AM - 8:30 PM
	Sunday	Limited
Limited	Weekday	Variable*
Rural	All Day Types	Variable*

*Variable means that there is no minimum span, up to and including no service on certain day types.

Frequency

Frequency, also referred to as headways, is the time between trips. Table 3 below shows the desired minimum and maximum frequencies in minutes by peak demand period. Operation at these frequencies assumes the availability of sufficient resources.

Table 3. Desired Minimum and Maximum Frequencies in Minutes by Service Type

Route Type	AM Peak	Midday	PM Peak	Evening	Saturday	Sunday
BRT/EmX	10/15	10/15	10/15	15/30	15/30	15/30
Express	5/25	30	20/30	60		
Core	15/30	15/30	15/30	30/60	30/60	30/60
Community	30	30/60	30/60	60	60	60
College	10/30	30/60	30/60	60	60	
Limited	≥60	≥60	≥60			
Rural	<i>Variable; determined by commute demand</i>					

Route Scheduling

Route scheduling will take into consideration the following factors:

1. Striving for the spans and frequencies expressed above.
2. Maintaining consistency and clarity of timetables for customers through the use of clock face headways whenever possible (e.g. frequency intervals of 15, 30, or 60 minutes).
3. In scheduling transfers, the efficient operation of the more frequent route shall be a higher priority than ensuring timed transfers.
4. The scheduled running time for routes will adequately meet average customer loads and typical traffic congestion, and will include sufficient recovery time on each route to compensate for variations in running time and to provide for bus operator restroom breaks.

Route Design and Deviations

Route Design

Whenever possible, routes will be structured as two-way line routes between terminal points. Line routes reduce travel time and are easier for the public to understand. Terminal points at both ends of a route will be located at major activity centers where possible to ensure ridership in both directions of operation. Routes will remain on the most direct path possible, using arterials and collector streets to provide the shortest practical travel time between the terminal points.

Loops at the end of routes may be used in limited cases where there is no practical layover or turnaround point at the end of a line or when it is the most practical way to provide neighborhood coverage.

New streets will not be considered for bus routes unless the street and the associated intersections and traffic controls allow for the safe operation of the bus. LTD's Safety Committee is consulted whenever a new street is considered for service.

Deviations

Deviations from a route's shortest path may be considered to serve a major trip generator or serve an area with a high population of older adults, people with disabilities, or people experiencing poverty. Decisions on route deviations will be based on weighing the benefits of the deviation against the amount of impact to through riders using a specific formula. Appendix C provides the methodology for calculating deviations.

Customer Comfort and Safety

Stops and Stations

Stop Location

The location of bus stops depends on a variety of factors, including transit operational needs, safety, traffic flow, the type of land use, parking, physical roadside constraints (trees, poles, driveways, utilities, etc.) and the extent of available public right-of-way and adjacent property owner concerns.

There are three basic types of bus stop locations along a street as shown in Figure 2: far-side, near-side, and mid-block bus stops. Generally, far side stop placement is preferred for safety and operational reasons. Additionally, placement of a bus stop at a crosswalk location should be a minimum of 100' far side of the crosswalk to minimize blind spots for traffic and pedestrians.

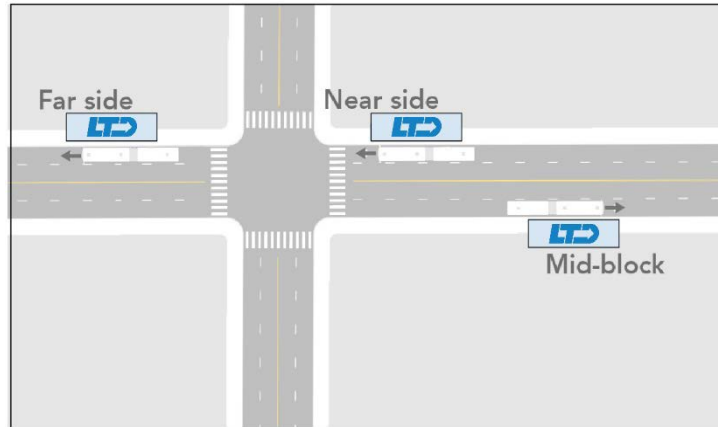


Figure 2 - Bus Stop Locations
(Adapted from Metro Transit's Regular-Route Bus Stop Design Guide, July 2021, Minneapolis, MN)

Table 4 below further outlines the advantages and disadvantages of bus stop locations along a street.

Table 4 – Advantages and Disadvantages of Bus Stop Locations

Stop Type	Advantages	Disadvantages
Near Side	- Minimizes interference when traffic is heavy on the far side of the intersection - Passengers access buses closest to crosswalk - Intersection available to assist in pulling away from curb - No double stopping - Buses can service passengers while stopped at a red light - Provides driver with opportunity to look for oncoming traffic including other buses with potential passengers	- Conflicts with right turning vehicles are increased - Stopped buses may obscure curbside traffic control devices and crossing pedestrians - Sight distance is obscured for crossing vehicles stopped to the right of the bus. - The through lane may be blocked during peak periods by queuing buses - Increases sight distance problems for crossing pedestrians
Far Side	- Minimizes conflicts between right turning vehicles and buses - Provides additional right turn capacity by making curb lane available for traffic - Minimizes sight distance problems on approaches to intersection - Encourages pedestrians to cross behind the bus - Requires shorter deceleration distances for buses	- Intersections may be blocked during peak periods by queuing buses - Sight distance may be obscured for crossing vehicles - Increases sight distance problems for crossing pedestrians - Stopping far side after stopping for a red light interferes with bus operations and all traffic in general - May increase number of rear-end accidents since drivers do not expect

	Gaps in traffic flow are created for buses re-entering the flow of traffic at signalized intersections	buses to stop again after stopping at a red light
Mid-block	- Minimizes sight distance problems for vehicles and pedestrians - Passenger waiting areas experience less pedestrian congestion	- Requires additional distance for no-parking restrictions - Encourages patrons to cross street at mid-block (jaywalking) - Increases walking distance for patrons crossing at intersections

Source: Table A-4, Appendix A, TCRP, original source: K. Fitzpatrick et al., *Guidelines for Planning, Designing, and Operating Bus-Related Street Improvements*. FHWA/TX-90/1225-2F, Texas Transportation Institute, College Station, TX. August 1990.

Stop Spacing

Bus stop spacing impacts route performance and correlates with demand for transit. In general, the trade-offs are:

1. Closely spaced stops (every block or 1/8 to 1/4 mile) provide short walk distances, but more frequent stops and a longer bus trip.
2. Stops farther apart require longer walk distances, but less frequent stops that lead to higher speeds and shorter bus trips.

The determination of bus stop spacing is primarily based on the land use type, such as residential area, commercial, and/or a central business district. Another generally accepted procedure is placing stops at major trip generators. The following are typical bus stop spacings used.

- BRT/EmX routes: Stations are generally spaced 1/3 to 1/2 mile apart in order to maintain high frequency and service reliability.
- Express routes: Stops are typically spaced every 2,000 to 3,000 feet (about 1/2 mile).
- Core, College, and Community routes: The spacing between bus stops in developed areas are generally 1,000 to 1,500 feet (about 1/4 mile) based upon the immediate street environment and safe operation of transit vehicles.
- Limited, rural routes or less developed areas: Wider spacing may be considered and/or stops may be established at places where riders are known to congregate, regardless of spacing.

On all routes, closer spacing may be implemented in areas with high levels of boardings or in locations that are heavily used by older adults or people with disabilities.

Transit stations will be located in areas with very high numbers of transferring customers or major trip generators.

Transit Amenities

LTD will regularly evaluate the availability and distribution of transit amenities as required by the Title VI and Environmental Justice requirements, and will meet the requirements of the Americans with Disabilities Act (ADA) that are within LTD's jurisdiction.

Bus Stops

BRT/EmX: Amenities at EmX facilities are based on need or projected demand and usually include shelter coverage, lighting, seating, trash cans, level boarding platforms, real time and route signage, and a fare machine.

Enhanced Corridor Stops: Enhanced Corridor stops or stations are being considered for development as part of high frequency corridor development in conjunction with City of Eugene and/or Springfield projects. Features of Enhanced Corridor stops could include near-level boarding platforms, off board fare collection, bulb outs, bike channels, or other features that would reduce dwell times or increase passenger comfort and safety.

Fixed Route (non-BRT/EmX): Within the Eugene-Springfield metro area and the city limits on rural routes, standard bus stops will have, at a minimum, a stop pole and placard. The pole will be in close proximity to the boarding area based on immediate road/sidewalk conditions. Stop placards will adhere to LTD's branding guidelines and include, at a minimum, the routes serving the stop and stop number. Bus Stop Information (BSI) cards and holders will be placed at route timepoints and other locations as determined by staff.

If both funding and staff resources are available and the necessary adjoining infrastructure is adequate, then:

- Bus shelters may be located at bus stops with at least 30 boardings per day, with the priority of installation based on heaviest usage. Shelters may be removed based on non-conforming stop activities such as graffiti and loitering.
- Bus benches may be located at shelters but are not required at every shelter location. Benches may be removed based on non-conforming stop activity.
- Stop seating may be located at stops with 15 or more boardings per day.

Shelters or seating may also be located at any other stop if:

- It is heavily used by older adults or people with disabilities.
- There is a significant amount of transfer activity.
- A municipality or developer requests an amenity for an adjacent development and funds or subsidizes the cost of the requested amenities, including installation and maintenance.

In partnership with respective road authorities, the District would work toward the goal that every bus stop has a paved boarding area. This will not be a requirement where curbs and sidewalks do not exist.

Service Capacity and Reliability

The assignment of a larger vehicle or tripper service may be considered if it meets the following criteria during a bid period:

- Customer loads consistently exceed 1.75 times the seated capacity of the vehicle; or
- Customers are consistently not accommodated on a trip due to full customer loads and the next scheduled trip is more than 30 minutes away; or
- Customers must consistently stand longer than 20 minutes on an individual trip.

Any proposal to add service to meet observed passenger loads must be balanced against total available fleet and operational resources, and evaluated against the goal of maintaining the balance between frequency and coverage resources established in the [Service Allocation section](#).

Service Reliability

On-time Performance

On-time performance is defined as departing a timepoint between 0 and 4 minutes after the scheduled time. The service reliability standard is that 90% of the buses at significant timepoints on all routes will be on time. Timepoints will be determined based on ridership, transfer activity, or layover locations. The ideal spacing for timepoints on routes over 60 minutes in length or on rural routes is ten minutes apart or as infrastructure allows. LTD currently has a goal of maintaining 90% on-time performance.

Missed Trips

LTD has a goal that the number of missed trips will be less than half a percent of total trips operated.

Vehicle Reliability

LTD has a goal that road calls on the system should not occur more frequently than every 10,000 vehicle miles.

Vehicle Age

LTD adheres to state and federal standards for Transit Asset Management (TAM), which stipulates that the percentage of bus revenue vehicles that have met or exceeded their Useful Life Benchmark shall not exceed 25% in the year 2020.

Service Evaluation Procedures

Service changes are typically made three times per year in accordance with the bargaining unit contract and are known as bids. The fall bid typically starts one week before the start of classes at the University of Oregon and Lane Community College. The start of summer bid coincides with the end of the UO, LCC, and K-12 school year. The winter bid is scheduled at approximately halfway between the fall and summer bids.

Fall Bid

[Major Service Changes](#) and other significant changes will generally occur during, but are not limited to, the fall bid period. Significant changes in other bid periods may occur based on available operational and resource availability. When determining changes:

- LTD will evaluate the performance of each route to maintain on time performance and ridership capacity and levels.
- LTD may choose to evaluate and respond to specific requests for changes to routing, frequency, and span on individual routes based on input received from bus operators and current and potential customers.
- Staff may recommend service changes based on this review. Such recommendations:
 - May include changes to routing, span or frequency on individual routes, the addition or removal of trips including changes to a route's category (i.e. from Community to Core).
 - May include reductions in service on any route beyond the minimum spans and frequencies stated in the Spans and Frequencies and Service Reductions sections and changes to a route's category (i.e. from Core to Community).
 - May include the deletion of any routes, or deletion of a full day's service (weekday, Saturday or Sunday) on any route.
 - Shall include an evaluation of the degree to which such changes would change the productivity/coverage service allocations in service offered within the urban growth boundary.

A change in a route's days of service, the deletion of a route, or other change in service that meets the definition of a Major Service Change would require an equity analysis as defined by the Disparate Impact Policy. For more information on reductions in service, see Service Reductions.

Winter and Summer Bids

Minor service adjustments will generally be made during the winter and summer bids. These may include, but not limited to, any of the following, on any route:

- Route detours in response to long-term construction.
- The addition or removal of trippers.
- The addition or removal of trips (weekday, Saturday and Sunday), so long as the route continues to meet span and desired frequencies within its service category as defined in the [Spans and Frequencies](#) section.
- Span changes, so long as the route continues to meet desired frequencies within its service category.
- The deletion of school service generally occurs during the summer bid and holiday breaks, to be scheduled in alignment with UO, LCC, and K-12 district calendars.

Substandard Service

Substandard service will be evaluated during regular service change evaluations. The substandard service will be subject to modification, within the limits established in the [Service Evaluation Procedures](#) section above.

Ridership productivity is measured in terms of riders per revenue hour of service. A route will be considered substandard if ridership productivity is less than 67 percent of the average of other routes within its specific route category. Productivity will be computed separately for weekdays, Saturdays, and Sundays. The "substandard" designation will be specific to both the route and day type. The identification of substandard service may result in adjustments to routing, frequency, span, or elimination.

Community, limited, and rural routes may operate below 67% of other routes within its category, recognizing that these routes provide coverage service where productivity is not the goal. For route categories which contain only a single route, productivity will be measured based on historical performance. The District may choose to continue to offer service that does not meet productivity standards if the service meets other clearly defined District objectives, including but not limited to maintaining the productivity/coverage resource split (see [Service Allocation](#)), or providing operational stability to the system.

Implementation/Evaluation Guidelines for New Fixed Route Service

New service, as defined in this context, includes the establishment of new routes or the addition of service on existing routes in excess of the spans and frequencies set out in [Service Design](#) standards. Factors to consider in evaluating potential service additions include the following:

1. Financial situation of the District.
2. Expected ridership and productivity, both immediate and long term.
3. Availability of operators and staff necessary to plan and operate the service.
4. Availability of fleet and maintenance capacity.
5. Integration of the service in the District's network.

New service may be operated for a probationary period of at least 12 months without major modification, except in extenuating circumstances. Over the first 12 months, the productivity standard for continuation of

new service will be at least 50 percent of the average productivity of all routes within its service type. Following the probationary period, new service will be subject to the same standards as the remainder of the system. Adequate marketing resources to promote the new service are to be available during the probationary period.

Service Increases

New or increased service may be considered if additional long-term financial and operational resources are available. Depending on circumstances, these decisions may take place in the context of a comprehensive operations analysis. Service increase will be based on the following factors:

1. Maintenance of service under Service Evaluations Procedures and Implementation/Evaluation Guidelines for New Fixed Route Service.
2. Meet desired service levels as described in the [Service Allocation](#) section.
3. Increase service on:
 - a) Weekday span & frequency
 - b) Saturday span & frequency
 - c) Sunday span & frequency

Service Reductions

In the event of changed financial resources or other circumstances, difficult decisions on service reductions may be required. Depending on circumstances, these decisions may take place in the context of a comprehensive operations analysis or in response to an emergency situation.

If service reductions are required, the following steps will be considered for each route, in the order provided:

1. Examine schedules for on-time performance issues that may be depressing ridership, and adjust running times as needed.
2. Examine ridership patterns on early morning, evening, and weekend trips and reduce span and frequencies as appropriate, within the limits set in [Spans and Frequencies](#). This may involve a shift in the route type, from core to community or from community to limited/rural.
3. Consider eliminating service or combining routes on substandard segments, if the following conditions are met:
 - a. Alternate service is available within 1 mile of eliminated segments.
 - b. Available data for adjacent census block groups does not suggest a disproportionate number of older adults or households with zero vehicles live within ½-mile of eliminated segments.
 - c. Available data does not suggest a disproportionate number of people with disabilities board transit on the eliminated segments.
4. Consider weekday-only service on the route.
5. Consider discontinuing the route.

This approach will focus on routes in the following order:

1. Routes that are substandard on weekdays.
2. Routes that are substandard on both Saturdays and Sundays.
3. Routes that are substandard on either Saturdays or Sundays.
4. All other routes based on their productivity.

In the case of temporary extreme weather or man-made emergencies (such as major collisions affecting traffic), LTD's Director of Operations is authorized to make determinations on levels of service, up to and including suspension of fixed route operations, in order to maintain safe operations.

Standards for Tripper Service

A tripper is generally a short piece of work, usually no more than one round trip, designed to meet unusually high demand at a particular location or in response to an emerging need, and is not expected to last longer than two bids. The following criteria are to be used in determining whether to offer tripper service:

- Trips cannot be adequately provided by regularly scheduled service, or there is not enough capacity within regularly scheduled service.
- There are no budgetary, operational, or fleet constraints that would preclude the addition of the tripper.

Trippers will be evaluated and discontinued when the combined load of the tripper and the next regular trip can be accommodated within existing load standards. If the demand continues, the tripper may be added as regular service and included in the next available bid.

Disparate Impact Policy

The Disparate Impact Policy establishes a threshold for determining whether a Major Service Change or fare change has a potential disparate impact on minority populations².

The equitable distribution of fixed route transit service is a major factor when determining service changes. LTD's fiscal year 2022-24 Strategic Business Plan includes a tactic to analyze and establish equity metrics. In addition, the Comprehensive Operations Analysis (COA) process will develop service changes with an equity lens.

Major Service Changes

Major services changes are defined below.

1. A change in service of 25 percent or more of the number of transit route miles of the system;
2. A change in service of 25 percent or more of a route's revenue hours of service on a daily basis for the day of the week for which a change is made;
3. A new transit route is established or terminated;
4. Any change in the days of the week a route is in service.

Except as provided elsewhere in this Service Policy, an Equity Analysis must be completed before implementing a Major Service Change. If the number of changes on a route in a fiscal year, together, meet the definition of a Major Service Change, an Equity Analysis must be completed prior to the last change.

The following Service Changes are exempted from the definition of Major Service Changes:

1. Standard seasonal variations in service are not considered Major Service Changes.
2. In an emergency situation, a service change may be implemented immediately and will not be considered a Major Service Change. However, an Equity Analysis must be completed if the emergency service change is to be in effect for more than 180 days, as required by the FTA, and if the change(s) meet the definition of a Major Service Change. Examples of emergency service changes include, but are not limited to:
 - Extreme weather events
 - Natural or man-made disasters
 - Public health emergencies (such as pandemics)
 - Changes in service due to federal guidelines

² FTA Circular 4702.1B, <https://www.transit.dot.gov/regulations-and-guidance/fta-circulars/title-vi-requirements-and-guidelines-federal-transit>.

- Major impacts to infrastructure resulting in operation changes
- 3. Experimental Service Changes may be instituted for 365 days or less without an Equity Analysis being completed. An Equity Analysis must be completed prior to continuation of service beyond the experimental period if the change(s) meets the definition of a Major Service Change.
- 4. Restoration of service previously eliminated due to budget constraints or emergency service changes, provided the service runs on the same route as it had prior to its elimination, subject to minor deviations that do not meet the definition of a Major Service Change.
- 5. Headway adjustments of up to 5 minutes during peak hour service, and up to 15 minutes during non-peak hour service.

80 Percent Rule

There could be evidence of disparate impact if:

- Benefits provided to minority or low-income populations are at a rate less than 80 percent than benefits being provided to non-minority or non-low-income populations.
- Adverse effects borne by non-minority or non-low-income populations are at a rate less than 80 percent the adverse effects borne by minority or low-income populations.

Example: Proposed Service Changes

A bus route restructuring project results in an increase in the overall amount of service available. We have determined the average increase in service levels for an area. Is there a disparate impact in where service improvements are being made?

Avg. % increase in service levels for various populations affected by service change:

Example 1:

Low-Income Population 6.8 percent – *80% Threshold is 5.7 percent*
 Non-Low-Income Population 7.1 percent ($7.1\% \times .8$)

Example 2:

Minority Population 8.1 percent – *80% Threshold is 8.8 percent*
 Non-Minority Population 11 percent ($11\% \times .8$)

In the first example, the benefit of the service addition to the low-income population within the area of benefit is above the 80% threshold (6.8 percent is greater than 80 percent of the 7.1 percent estimated for non-low-income populations). No disparate impact is found in this example.

In the second example, the benefit of the service addition to the minority population within the area of benefit is below the 80% threshold (8.1 percent is less than 80 percent of the 11 percent estimated for non-minority populations). This would indicate a disparate impact.

If a disparate impact is found:

- The District may modify the proposed changes in order to avoid, minimize, or mitigate potential disparate impacts. If the proposed changes are modified, the District will analyze the modified proposed changes to determine whether the modifications actually removed the potential disparate impacts.
- If the District elects not to alter the proposed service changes despite the potential disparate impacts on minority populations; or if the District finds, even after revisions, that there continue to

be disparate impacts on minority populations, the District will implement the service change only if:

1. The District has a substantial legitimate justification for the proposed service change; and
2. The District can show that there are no alternatives that would have a lesser Disparate Impact on minority riders but would still accomplish the District's legitimate program goals.

For the purposes of this service policy, the maximum acceptable difference (positive or negative) in level of benefit between protected and unprotected populations is 20 percent. For changes in transit service level or transit fares, this standard applies as follows for minority and low-income populations:

Fare Changes

For fare changes, a potential disparate impact is noted when the percentage of trips by minority riders using a fare option, in combination with the percentage price change for that option, has an impact that exceeds the comparable impact on non-minority riders.

Differences in the use of fare options between minority populations and other populations include all such differences that are documented as statistically significant at the 95 percent confidence level.

Exceptions to the fare analysis include:

1. Days when the District has declared that all passengers ride free; or
2. Reduced or free promotional fares, which are instituted on a daily basis or periodically within a period of 180 days.

Additional information on the process for fare changes is outlined in LTD's Fare Policy, [Ordinance 53](#).

Maintenance of the Fixed Route Service Policy

The Director of Planning and Development is responsible for maintaining the service policy. A review of the policy is conducted whenever major network changes occur. A review of the service policy is not required for a major service change except as recommended by the Director of Planning and Development, the General Manager, or the Board of Directors.

Board Approval of Revisions: 6/16/99

Board Approval of Revisions: 3/16/11

Board Approval of Revisions: 6/18/14

Board Approval of Revisions: 10/22/14

Board Approval of Revisions: 02/16/22

Glossary

Bid: Time of year when operators select work shifts. Bids are held as required in the labor agreement with ATU Local 757, and provide an opportunity to implement service changes.

Boardings: A boarding occurs every time a customer boards a bus.

Comprehensive Operations Analysis (COA): The process to examine and evaluate a transit system to determine where improvements can be made to make transit operations more effective and efficient across the network in alignment with agency goals.

Deadhead: Deadhead refers to bus travel that is not in revenue service, such as travel time to the garage after the bus has completed scheduled service.

Headway: Bus headway refers to the amount of time between consecutive buses on a given route. The lower the headway, the more frequent the service.

Layover: This term identifies time that a bus is not in operation between scheduled revenue service. Layover time is included in revenue hours. Also referred to as recovery.

Line Route: A bus route that travels on the same streets in both directions. Line routes differ from loop routes, which travel to and from their point of origin using different streets.

Platform Hours: A platform hour is counted for every hour that a bus operator is with a bus, including deadhead and layover time.

Revenue Hours: A revenue hour is each hour that a bus is in service. This is equivalent to platform hours less deadhead time. Layover time is included in revenue hours.

Ridership Productivity (or Productivity): Ridership productivity, as used in this document, is defined as the number of boardings per revenue hour of service.

Road Call: A road call occurs when a bus is replaced or repaired during revenue service.

Route Deviation: A route deviation involves deviating from the most direct path to serve a housing, school, commercial development, or other potential source of ridership.

Significant Timepoint: A location that acts as a primary transfer point or trip generator that is used for the calculation of on-time performance.

Timed Transfer: A timed transfer occurs when separate bus routes converge at one point at the same time, and customers make transfers while the buses wait.

Timepoint: A designated location on a route used to control schedule adherence.

Transfer: To transfer means to change from one bus to another.

Transit Amenities: Refers to items of comfort, convenience, and safety available to the general riding public. These items may include: seating, lighting, bus shelters, platforms, passenger information, and waste receptacles.

Trippler: A short piece of work, usually no more than one round trip, designed to meet unusually high demand at a particular location. This piece of work may be assigned at any time in response to an emerging need, and is not expected to last longer than two bids.

Urban Growth Boundary: The area within which all urban development must take place over the next 20 years, as defined in Oregon land use law.

Appendix A – Other LTD Services

In addition to fixed route transit service, LTD provides demand-response/paratransit service for persons unable to use the fixed route system. LTD serves as the county's Medicaid non-emergency medical transportation brokerage. Recognizing that the future of transit is multi-modal, in 2019, LTD began piloting mobility-on-demand services in the cities of Cottage Grove and Eugene.

Contracted Service

LTD may provide service under contract to other entities only if the provision of these services does not interfere with LTD's ability to meet regularly scheduled and budgeted service obligations and fits within the scope of the agency's regular operation in terms of route structure, fares, and span of service. Contracted service will be provided in the form of additional trips on existing routes. Requests for deviations on existing routes for contracted service will not be considered unless the request meets the standards for [Route Deviations](#) and does not require the use of additional resources. Contracted services will be provided on a full cost recovery basis, or at the discretion of the General Manager.

Charter Service

Federal regulations prohibit public transit agencies from providing charter services unless certain exceptions are met (49 CFR Part 604, Charter Service; 73 FR 2326 Final Rule 4/30/08). The Federal Transit Administration (FTA) requires LTD to provide a quarterly report for all transit service exceptions.

Special Event Service

Special event services are bus routes designed to take customers to a specific venue. LTD will provide service under contract to other entities only if the provision of these services does not interfere with LTD's ability to meet regularly scheduled service obligations and fits within the scope of the agency's regular operation in terms of route structure, span of service, is available to the public, and has a published timetable. Special event services will be provided on a full cost recovery basis at the discretion of the General Manager.

Alternative Service Delivery Options

Alternative service delivery options generally refer to services not directly operated by LTD, such as contract services, taxis, and other flexible destination operations. These alternatives can complement traditional transit service. In addition, RideSource provides mandatory ADA complimentary paratransit service for people unable to access fixed route transit service due to a disability within the Eugene-Springfield metropolitan area. RideSource services are available for eligible individuals within the service area. For ADA paratransit service, this is generally within a 3/4 mile boundary of non-commuter fixed route transit service operated by LTD within the Eugene-Springfield metropolitan area. For non-emergency medical transportation (NEMT) service, this is generally within Lane County.

Appendix B – Calculating Productivity and Coverage Percentages

When evaluating the percentage of service dedicated to productivity and coverage, LTD will make the following analysis:

Step 1: Estimate the number of route miles in each of the following categories, based on intended service frequency on weekdays in the middle of the day.

- Line service, two-way every 15 minutes or better: 100% Frequency, 0% Coverage.
- Loop service, one-way every 15 minutes or better, or two-way every 20 minutes or better:
 - Where the loop exists due to an operational constraint (e.g. lack of a good turnaround or layover point): 50% Frequency, 50% Coverage.
 - Otherwise: 0% Frequency, 100% Coverage.
- Line service operating every 20 to 30 minutes two-way:
 - Where adjoining population density is below 1,000 people per square mile and job density below 500 jobs per square mile: 0% Frequency, 100% Coverage.
 - Otherwise: 50% Frequency, 50% Coverage.
- Line service operating every 60 minutes or worse two-way, or one-way loop service every 20 minutes, or any loop service operating worse than every 20 minutes: 0% Frequency, 100% Coverage.

Step 2: Determine the frequency and coverage percentage of each route. For example:

EmX has a total two-way length of 24.6 miles. 20.4 miles are in category 1 (line service, every 15 minutes or better). 4.2 miles are in category 2a (two-way loop service, every 20 minutes, due to an operational constraint).

The Frequency percentage is therefore: $((20.4 * 100\%) + (4.2 * 50\%)) / 24.6 = 91\%$. The Coverage percentage is therefore: $100\% - 91\% = 9\%$.

Step 3: Multiply these percentages by each route's annual revenue hours. For example:

EmX accounts for approximately 65,000 annual revenue hours. So:

Annual Frequency revenue hours on EmX are: $65,000 * 91\% = 59,150$.

Annual Coverage revenue hours on EmX are: $65,000 * 9\% = 5,850$.

Step 4: Add the Frequency and Coverage revenue hours for each route, then dividing those hours by the total revenue hours in the network. For example:

If LTD operates 300,000 annual revenue hours:

Using the formulas above, we have determined that LTD operates 240,000 annual Ridership revenue hours and 60,000 annual Coverage revenue hours.

Then the total Ridership percentage would be: $240,000 / 300,000 = 80\%$, and the total Coverage percentage would be: $60,000 / 300,000 = 20\%$.

Appendix C – Calculating Route Deviations

Decisions on route deviations will be based on weighing the benefits of the deviation against the amount of impact to through riders, using the following formula:

$$\frac{\#_{average\ through-riders} \times \#_{minutes\ of\ deviation\ time}}{\#_{boardings\ \&\ alightings\ along\ deviation}}$$

For a new development, boardings and alightings can be estimated by experience at similar developments in the service area. If the result of this calculation (i.e., additional passenger minutes per boarding/alighting along the deviation) is less than 10 AND if the deviation will not require additional resources on the route, then the route deviation can occur. Two examples can show how the formula is applied:

- A. Example: Through ridership on average 200 riders per weekday. The deviation adds five minutes to travel time and will result in an additional 50 boardings and deboardings at the trip generator

$$(200 \times 5) \div 50 = 1,000 \div 50 = 20$$

The deviation would be rejected

- B. Example: Through ridership on average is 300 riders per weekday. The deviation adds three minutes to travel time and will result in an additional 100 boardings and deboardings at the trip generator

$$(300 \times 3) \div 100 = 900 \div 100 = 9$$

The deviation would be approved, if it will not require additional resources on the route.