



SERVICE GUIDELINES **FOR BUS SERVICE**

2020 EDITION

AUG. 19, 2020



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Introduction

About the service guidelines

Cherriots has developed service guidelines to steer the process for designing, evaluating, and modifying bus service. Staff use the guidelines to plan service that is efficient, high-quality, and appropriate. The guidelines help ensure the decision making process is objective and transparent, and that Cherriots bus service meets the needs of riders and the community.

This document provides the framework for planning and evaluating all types of Cherriots bus service included in both the local and regional systems, excluding ADA paratransit services.

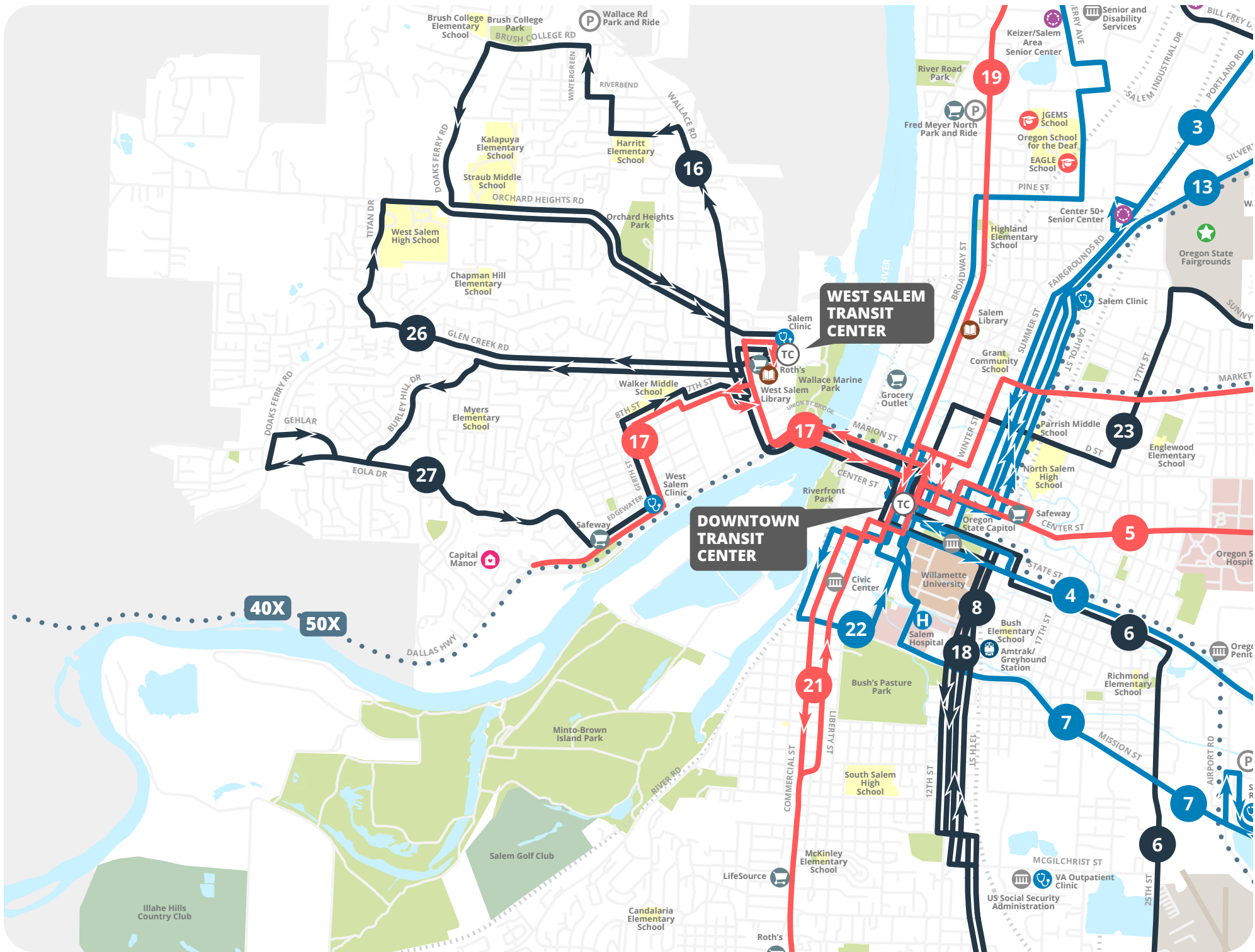


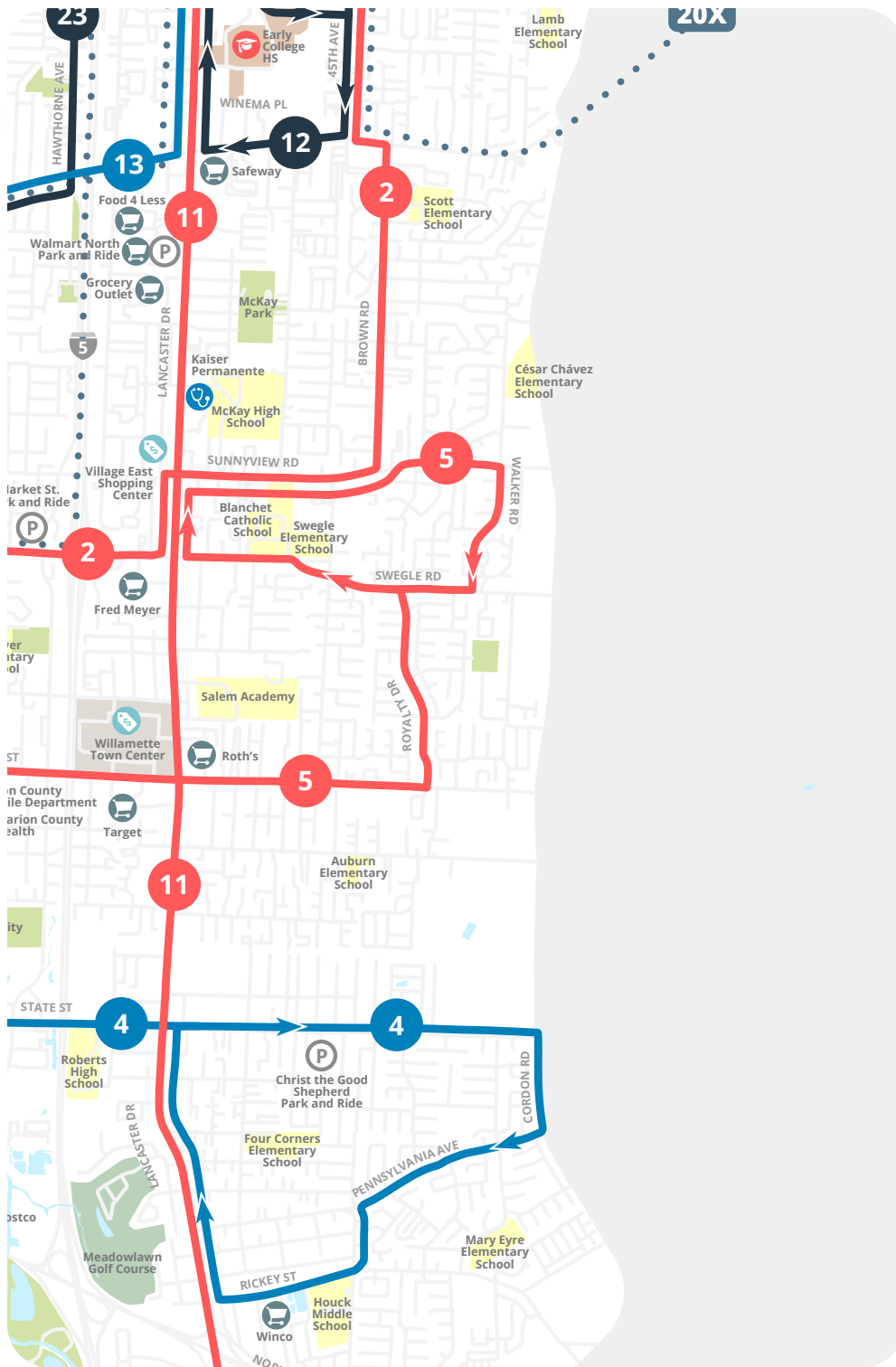
Biennial service planning process

Every two years staff use the service guidelines to steer the service planning process. Grant funding plays a large role in initial revenue forecasting. The most impactful grant fund is the Statewide Transportation Improvement Fund (STIF). Therefore, the biennial service planning process follows the STIF biennial calendar, with major planning processes in even-numbered years and implementation in odd-numbered years (e.g., planning beginning in fiscal year 2020 leads to service change implementation in September 2021).

Additionally, a more abbreviated planning process takes place every four months for service being modified each January, May, and September in the interim period of the biennium. These processes are much shorter, as those months are typically reserved for minor changes to service.







1 Service overview

Before delving into the service planning process, this chapter presents a snapshot of the current Cherriots system. This includes an overview of the Cherriots organization, a summary of each of the Cherriots services, and maps of the local and regional bus systems.

1.1 About Cherriots

Salem Area Mass Transit District (SAMTD), more commonly known as Cherriots, is the transit district based in Salem, Oregon. Cherriots provides six day a week bus and paratransit service in Salem and neighboring Keizer, as well as six day a week service to 17 communities in Marion, Polk, Linn, and Clackamas counties (referred to throughout this document as the “region”). SAMTD was established by the State of Oregon in 1979. Before then, the City of Salem operated bus service under the name Cherriots. The regional bus service was operated by the Oregon Housing and Associated Services (OHAS) until 2012. The regional brand was first called “Wheels,” and then “CARTS” before changing to “Cherriots Regional” in 2017.

The population of Salem’s urbanized area is about 243,600 and the population of the overall Cherriots service area is about 443,200 (source: 2014-18 American Community Survey). In Fiscal Year 2019, annual Cherriots ridership between all services was just over 3.2 million, averaging approximately 13,000 rides per day. Bus service operates with 60 peak vehicles (for local and regional services). There are an additional two vehicles dedicated to Cherriots Shop and Ride and 38 vehicles dedicated to Cherriots LIFT paratransit service.

1.2 Cherriots services

Cherriots operates local bus service within the Salem-Keizer Urban Growth Boundary (UGB), known as Cherriots Local. Other services Cherriots provides are Cherriots Regional, Local Commuter Express, Qualified Human Services Routes, Cherriots LIFT, and Cherriots Shop and Ride. In addition to operating service, Cherriots offers travel training to riders and the Cherriots Trip Choice program, which helps connect riders with transportation options, including transit, carpools and vanpools, biking, and walking.

This Service Guidelines document focuses on the service planning process for local, regional, and shop and ride bus services. Cherriots LIFT planning processes are not included in this document.

Cherriots Local



Local bus routes serve local streets in the Salem-Keizer area, providing service within the Salem-Keizer UGB. The two qualified human services routes that Cherriots currently operates are part of Cherriots Local service.

Cherriots Regional



There are currently two types of Regional routes; Regional express and deviated fixed routes. Regional express routes provide bus service between towns and cities mostly in Marion and Polk counties. Additionally, Cherriots provides a deviated fixed route service within and between Dallas, Monmouth, and Independence.

Local Commuter Express



Local commuter express routes connect metropolitan areas with no stops in between. Currently, Cherriots partners with the City of Wilsonville's South Metro Area Regional Transit (SMART Transit) to provide a local commuter express route connecting the metropolitan areas of Salem and Wilsonville – Route 1X. Because of the way Route 1X is funded, the National Transit Database (NTD) considers it part of Cherriots Local service and it is reported on as such. However, because of its regional connection nature Route 1X is marketed to the public as a Cherriots Regional service.

Cherriots LIFT



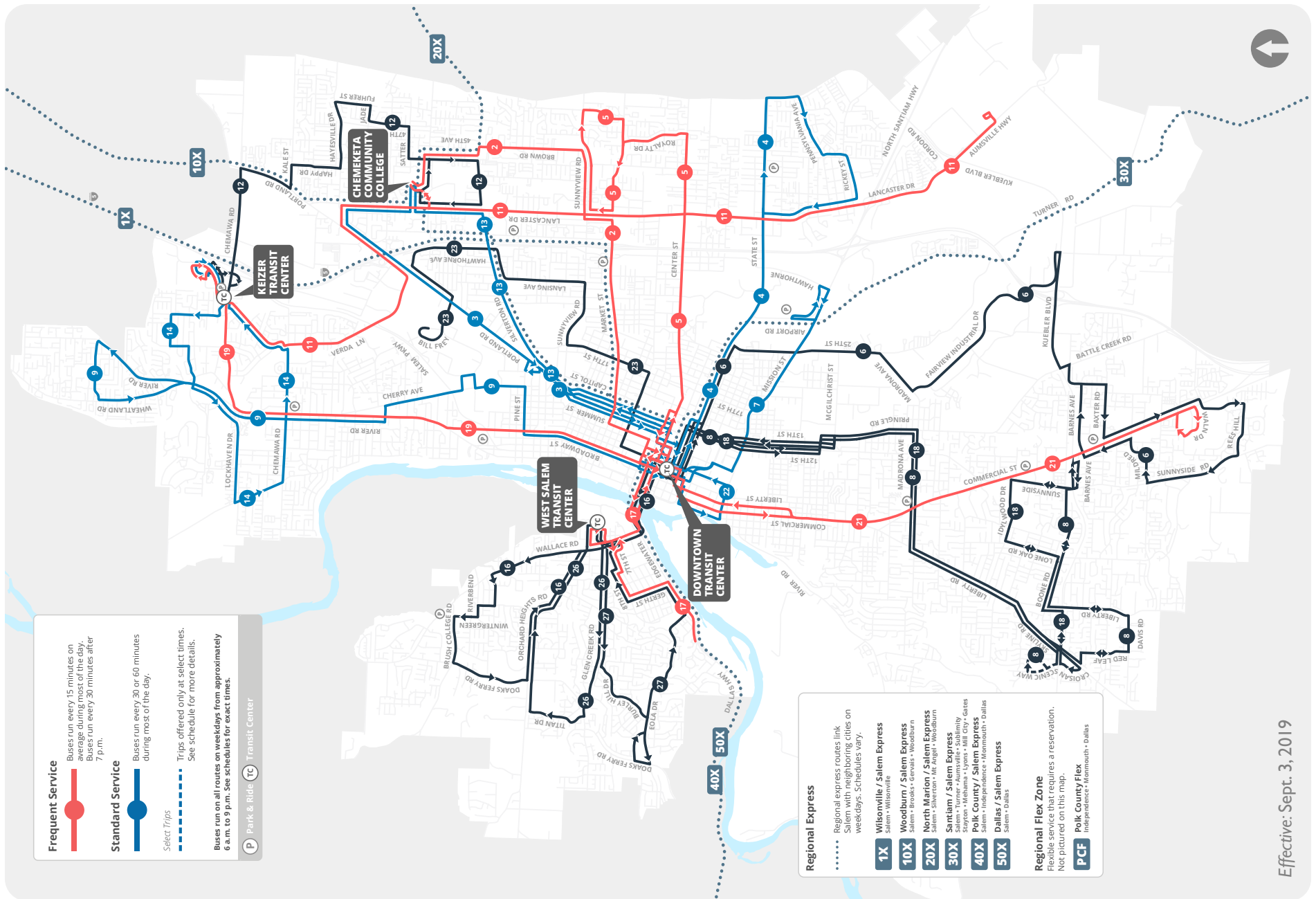
Origin-to-destination paratransit service provides rides to those who are unable to access regular bus service. LIFT serves the Salem-Keizer UGB. Riders must be found eligible and trips must be scheduled in advance.

Cherriots Shop and Ride



Shop and Ride includes both a shopper shuttle and an origin-to-destination service for seniors and individuals with disabilities. This service operates throughout the Salem-Keizer UGB and trips must be scheduled in advance.

1.3 Local routes



Frequent Service
 Buses run every 15 minutes on average during most of the day. Buses run every 30 minutes after 7 p.m.

Standard Service
 Buses run every 30 or 60 minutes during most of the day.

Select Trips
 Trips offered only at select times. See schedule for more details.

Buses run on all routes on weekdays from approximately 6 a.m. to 9 p.m. See schedules for exact times.

P Park & Ride **TC** Transit Center

Regional Express

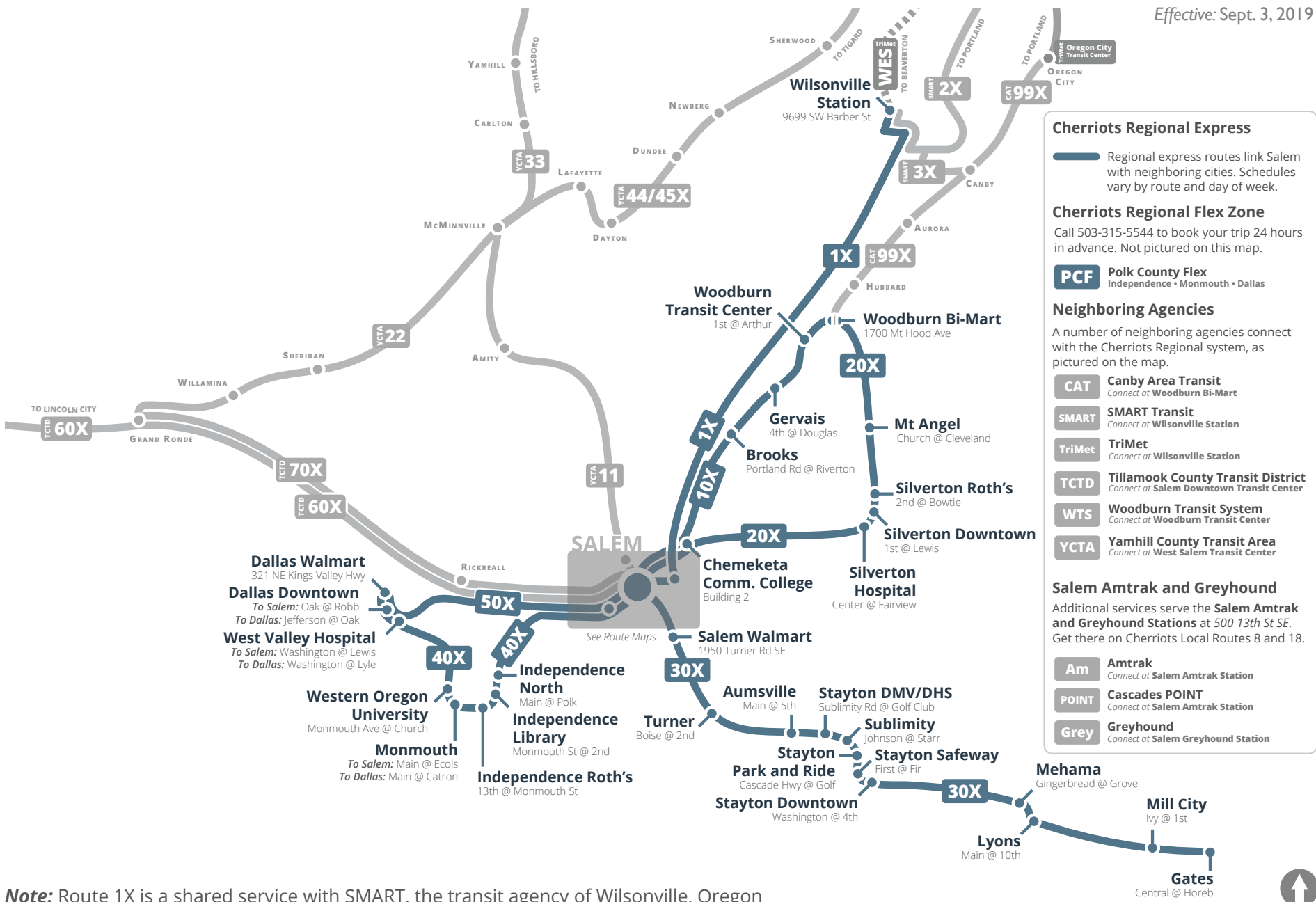
- Regional express routes link Salem with neighboring cities on weekdays. Schedules vary.
- 1X** Wilsonville / Salem Express
Salem • Wilsonville
- 10X** Woodburn / Salem Express
Salem • Woodburn • Corvallis • Madras
- 20X** North Marion / Salem Express
Salem • Sherwood • Mt. Angel • Woodburn
- 30X** Santiam / Salem Express
Salem • Heppner • Lyons • Mill City • Gates
- 40X** Polk County / Salem Express
Salem • Independence • Mouth • Dallas
- 50X** Dallas / Salem Express
Salem • Dallas

Regional Flex Zone
 Flexible service that requires a reservation. Not pictured on this map.

PCF Polk County Flex
 Independence • Mouth • Dallas

1.4 Regional routes

Effective: Sept. 3, 2019



Note: Route 1X is a shared service with SMART, the transit agency of Wilsonville, Oregon





2

Performance evaluation

Staff routinely monitors performance throughout the year. Cherriots has established a number of performance measures and targets to ensure performance objectives and goals are met. Staff produces performance reports on a monthly, quarterly, and annual basis.

Cherriots monitors service because it enables staff to make short-term adjustments where problems are occurring; to make intelligent, informed decisions during the service planning process; and to measure how a route is performing in relation to how it is expected to perform.

2.1 Performance goals

When evaluating route and system performance, Cherriotics uses five performance goals to determine how productive, efficient, reliable, comfortable, and safe service is.

Productive

Service should be well-utilized in relation to how much service is provided.

Efficient

The cost to provide service should be reasonable in relation to how much service is provided and how much that service is used.

Reliable

Riders should be able to count on the bus to pick them up and drop them off on time.

Comfortable

Riding the bus should be a pleasant experience and not overcrowded.

Safe

Riders should feel safe and secure when riding a Cherriotics bus.



2.2 Performance measures and targets

Goal	Objective	Measure	Target	Evaluation Level	
				System	Route
Productive	Provide service to as many riders as possible given available service	Riders per revenue hour	Corridor route: 20 rides / hr Coverage route: 10 rides / hr Commuter express: 10 rides / hr Regional express: 10 rides / hr Deviated fixed route: 5 rides / hr	✓	✓
Efficient	Keep costs at reasonable levels	System cost per revenue hour	Year-over-year increase less than regional consumer price index	✓	✓
		Operating cost per ride	<i>No specific target; for reporting purposes only</i>	✓	✓
	Be good stewards of public funds	Share of fare revenue in relation to operating costs	<i>No specific target; for reporting purposes only</i>	✓	✗
		Operating subsidy per ride	<i>No specific target; for reporting purposes only</i>	✓	✓
Reliable	Ensure trips depart on time	Share of trips on time, late, very late, and early	All day: 85% on time, 10% late, 5% very late, 0% early PM: 75% on time, 15% late, 10% very late, 0% early	✓	✓
	Maintain enough buses and available operators to run scheduled service	Share of maintained pullouts	99.5% or higher	✓	✗
	Maintain buses to avoid mechanical failures while in service	Frequency of mechanical failures resulting in a road call	Less than one for every 10,000 vehicle miles traveled	✓	✗
Comfortable	Limit number of standing riders	Average rider to seat ratio at maximum load point	Local: 1.3 Regional express: 1.0	✗	✓
Safe	Limit preventable bus collisions	Frequency of preventable bus collisions	Less than 2 for every 100,000 total miles traveled	✓	✗

2.2.1 Productivity

Service productivity is a measure of how well a service is utilized. To determine productivity, Cherriots measures the number of rides for every hour a bus is in service (rides per revenue hour).

Targets for productivity differ depending on the type of route:

- **Corridor routes:** 20 rides per revenue hour
- **Coverage routes:** 10 rides per revenue hour
- **Regional express:** 10 rides per revenue hour
- **Local commuter express:** 10 rides per revenue hour
- **Deviated fixed routes (DFR):** five rides per revenue hour

Bus routes not meeting their targets are evaluated as part of the needs assessment process (see Chapter 3).



2.2.2 Efficiency

Cost efficiency measures how effectively Cherriots provides service. Revenue efficiency is a measure of how much revenue Cherriots collects in relation to the cost of operating service. In order to be a good steward of public funds, Cherriots seeks to have the most efficient service possible.

Cherriots uses two measures to determine the efficiency of service:

- **System cost per revenue hour** - The total system cost of each hour vehicles are in service. Each year, this measure should not increase by more than the regional consumer price index.
- **Farebox recovery ratio** - The amount of revenue received by riders in relation to the total operating costs.

Cherriots also reports on two measures, both of which combine efficiency and productivity measures to provide information in a more intuitive format.

- **Operating cost per ride** - The amount of operating costs it takes to provide each ride.
- **Operating subsidy per ride** - The average operating cost per ride minus the average amount of revenue received per ride.



2.2.3 Reliability

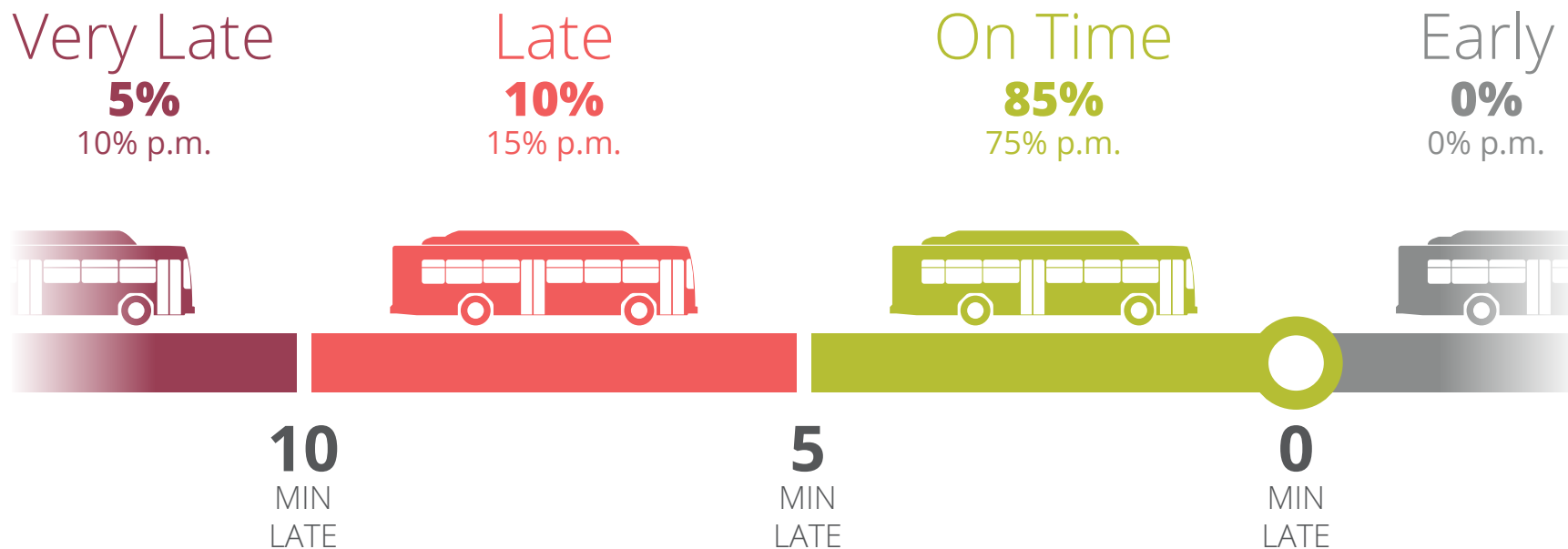
Share of trips departing on time

On-time performance is the measure of how close a bus adheres to its schedule. Schedules are designed to give riders certainty about when their bus will depart so they can make informed decisions about when to travel.

However, it is difficult to predict exactly when a bus will arrive at every bus stop due to changing conditions on the ground, fluctuations in traffic, number of mobility devices, etc. As a result, on-time performance is measured only at bus stops with scheduled departure times, known as time points. Additionally, buses are considered “on time” if they

depart up to five minutes late from their time points. On-time performance is measured on the route level and system level, both for the entire day and the p.m. peak (2-6:59 p.m.)

At least 85 percent of buses should depart time points no more than five minutes late (75 percent in p.m. peak). No more than 10 percent of buses should depart their time points between five and 10 minutes late (15 percent in p.m. peak). No more than 5 percent of buses should depart their time points more than 10 minutes late (10 percent in p.m. peak). No buses should depart their time points before their scheduled departure times.



Maintained pullouts

When a bus successfully leaves the yard to complete its trip, this is known as a maintained pullout. Sometimes pullouts are missed if there is not an operator available to drive a bus or if no bus is available.

The number of maintained pullouts should be at least 99.5 percent of all scheduled pullouts.

Mechanical failures

Sometimes buses experience mechanical failures while in service that require a road call. A road call can result in either a bus being repaired out in the field or a bus being towed back to the yard for maintenance.

Mechanical failures requiring a road call should occur less than once every 10,000 miles a bus is in operation.

Table 2.2.3 Reliability Measures

Reliability measure	Cherriots Local off-peak	Cherriots Local peak	Cherriots Regional
Share of trips running on time	85%	75%	85%
Trips running late	10%	20%	10%
Trips running very late	5%	5%	5%
Maintained pullouts	99.5%	99.5%	99.5%
Mechanical failures	1:10,000 miles	1:10,000 miles	1:10,000 miles

2.2.4 Comfort

Overcrowding





















Crowding is measured as a proxy for rider comfort. To measure how full a bus is, Cherriots monitors its load factor—a measure of how many riders are on the bus compared to the number of available seats.

The load factor is expressed in decimal form (e.g. a bus that has 30 seats and 30 riders on the bus would have a load factor of 1.0, while a bus that has 30 seats and 33 riders would have a load factor of 1.1).

Vehicle type

Sufficient sized vehicles, or frequency of vehicles, will be assigned in order to minimize overcrowding across all Cherriots services. Below are the types of vehicles Cherriots currently uses, their capacities, and maximum load factors. These load standards do not apply to special event service or shuttles.

Additional service will be considered when load levels routinely exceed the maximum load factor or when riders must routinely stand longer than 20 minutes on an individual trip.

	35-foot low floor	 32 seated	 9 standing	 1.5 maximum load factor
	40-foot low floor	 39 seated	 11 standing	 1.5 maximum load factor
	35-foot high floor	 35 seated	 0 standing	 1.0 maximum load factor
	40-foot commuter	 37 seated	 0 standing	 1.0 maximum load factor
	cutaway	 14 seated	 0 standing	 1.0 maximum load factor

Monitoring overcrowding

Staff will not be able to use the established methodology to measure overcrowding until Cherriots procures new automatic passenger counters (APCs). In the interim, when a bus is at capacity, transit operators notify dispatch that they have passed up riders waiting for the bus. These occurrences are logged and monitored.

2.2.5 Safety

Bus collisions

Transit operators are trained to drive in a safe manner. However, conditions on the road and other factors can sometimes lead to a collision. The number of preventable bus collisions should be less than two per 100,000 total miles traveled.



2.3 Performance monitoring and reporting

Performance is monitored throughout the year. Reports are published monthly, quarterly, and annually, and compare current performance to the performance over the same period during the previous year.

Monthly

Monthly Performance Reports are published on the fourth Thursday of the month following data collection. These reports are used to guide decisions about route maintenance for the triannual service changes.

Quarterly

Quarterly Performance Reports are three-month summaries of each fiscal quarter. These reports are presented to the Board of Directors on the fourth Thursday two months following data collection and are primarily used to keep the Board informed about route and system performance.

Q1 Jul-Sep • **Q2** Oct-Dec • **Q3** Jan-Mar • **Q4** Apr-Jun

Annual

Annual Performance Reports are yearly summary reports for the fiscal year. Additionally, they include individual route profiles. The reports are published by the first Thursday in September and presented to the Board of Directors on the fourth Thursday of September. Results from the reports are used to inform the needs assessment.

Fiscal Year July-June



FISCAL YEAR 2019
ANNUAL PERFORMANCE REPORT

JULY 2018 - JUNE 2019

2.4 Peer agencies

Staff sometimes look to agencies similar to Cherriots to evaluate how Cherriots service is performing compared to theirs. Agencies considered peers are listed below. Many of the cities these agencies serve are state capitals and their urbanized areas are of similar geographic size and population as the Salem area (236,632 residents). These agencies provide similar levels of annual bus service as Cherriots (414,554 revenue hours), and see a similar number of annual rides (3,196,774).



Lane Transit District

Eugene, Oregon
247,421 residents
10,698,219 rides
535,766 rev. hrs.



DART

Des Moines, Iowa
450,070 residents
4,524,795 rides
307,483 rev. hrs.



Spokane Transit

Spokane, Washington
387,847 residents
10,702,358 rides
621,076 rev. hrs.



Valley Regional Transit

Boise, Idaho
349,684 residents
1,369,532 rides
139,822 rev. hrs.



Intercity Transit

Olympia, Washington
176,617 residents
4,475,180 rides
364,520 rev. hrs.



Ben Franklin Transit

Tri-Cities, Washington
210,975 residents
3,120,955 rides
386,995 rev. hrs.

Agencies that inspire

There are also a couple agencies that are not Cherriots peers, but that staff look to for ideas and inspiration.



TriMet

Portland, Oregon
1,849,898 residents
97,033,281 rides
2,999,817 rev. hrs.



King County Metro

Seattle, Washington
3,059,393 residents
129,054,197 rides
4,929,459 rev. hrs.





3

Needs assessment

As part of the biennial service planning process, Cherrlots conducts a needs assessment to seek out unmet transit needs in the region. In order to determine current needs, Cherrlots assesses current demographics, locates new and shifted development and businesses, and gathers input from current riders, community partners, and frontline employees.

From there, staff determine whether Cherrlots bus service, other Cherrlots services, and public and private transportation services in the region meet all transit needs. For any transit needs determined to be unmet, Cherrlots evaluates whether those needs can be met using current resources.

3.1 Determining needs

Analyzing populations and travel patterns

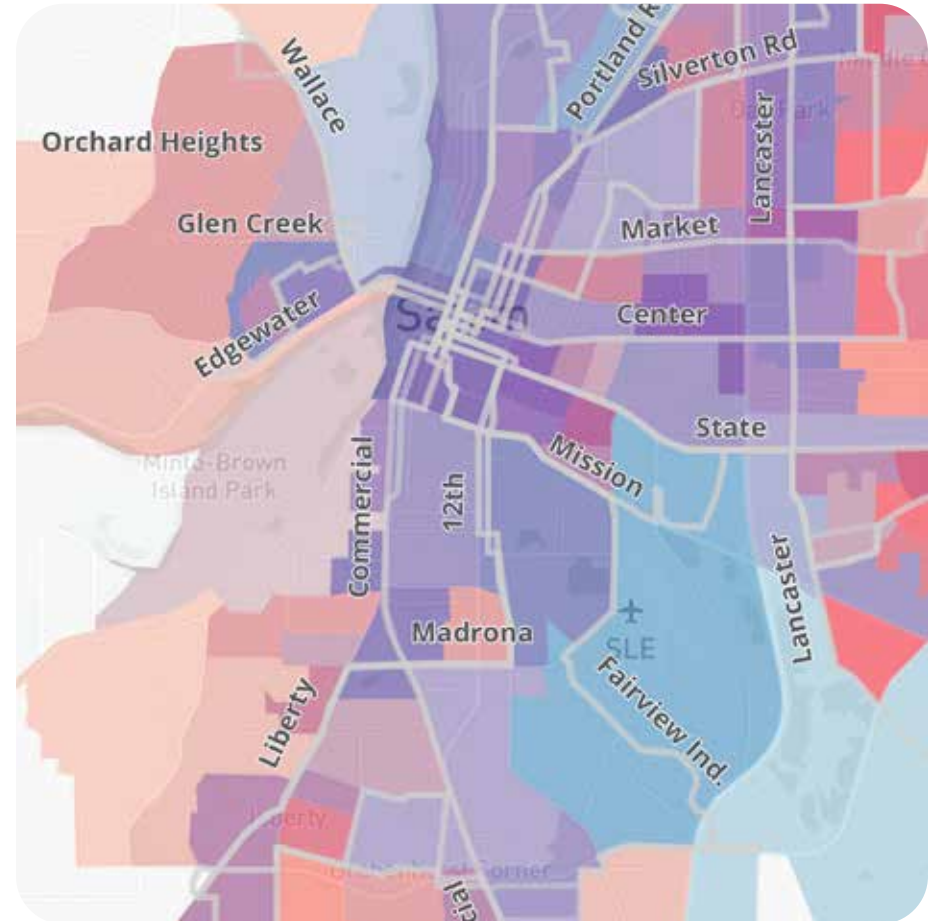
To ensure residents have access to bus service they can use to get to employment and other activities, Cherriots maps population and jobs using the latest available American Community Survey (ACS) data.

Staff also evaluate travel patterns for work trips and non-work trips using survey data provided by the Salem-Keizer Area Transportation Study (SKATS) and the Longitudinal Employer-Household Dynamics (LEHD) program.

Staff note both recent and upcoming shifts in business locations and new development.

Finally, Cherriots determines where those who are more likely to need transit are concentrated using ACS data. Populations include:

- **Poverty** - Households experiencing incomes below 200% of the federal poverty level
- **Minorities** - Individuals who are non-white (Caucasian), including white Hispanic people
- **Car free** - Households with no vehicle available
- **Seniors** - Individuals who are 65 years or older
- **Youth** - Individuals who are 18 years or younger
- **Disabled** - Individuals who have a disability
- **Limited English** - Household with limited English speaking status



Engaging riders

Those who ride Cherriots buses know more than anyone what issues arise while riding transit. In order to gather their input, Cherriots conducts robust rider engagement.

See *Chapter 6 - Public Engagement* to learn more about the public engagement strategies used by Cherriots staff.

Engaging frontline employees

Frontline employees are Cherriots employees who engage directly with riders, including transit operators, customer service representatives, travel trainers, transit hosts, mobility assessors, social media communication staff, and security officers. It is important to engage with frontline employees, both to get their perspectives on service as well as to learn more about the needs of riders.

Strategies that may be employed to gather frontline employee input include focus groups, on-board conversations, feedback forms, and surveys.

Working with partners

A partnership is a relationship in which Cherriots and an external organization work together to help advance opportunities and conditions for travelers to use alternatives to driving alone. Partners will be engaged during the needs assessment process to learn what diverse needs exist throughout the community.

See *Chapter 6 - Public Engagement* to learn more about the groups Cherriots partners with in the community.



3.2 Service assessment

Once data and input are gathered and analyzed, Cherriots assesses whether current transit and transportation options in the service area meet the needs of the community.

Cherriots bus service

Staff begin by evaluating the route path, trip times, frequencies, span, and performance of current Cherriots bus routes.

Other Cherriots services

Staff also analyzes other services Cherriots operates or facilitates in the region, including:

- **Cherriots LIFT** - Paratransit serving inside the Salem-Keizer UGB.
- **Cherriots Shop and Ride** - Both a shopper shuttle and dial-a-ride for seniors and individuals with disabilities.
- **Vanpools** - Facilitated by the Cherriots Trip Choice program. Vanpools are organized and subsidized for those with similar travel patterns.

Other Transportation Services

Finally, Cherriots may evaluate other transportation services provided in the area, including city circulators and dial-a-rides, intercity transit routes, microtransit, and some private transportation services.



3.3 Unmet transit needs

An unmet transit need is any need in the region for additional public transportation services to meet existing basic mobility needs not currently being met through the existing bus service or alternative services.

Once an unmet transit need is identified, staff will determine if it is reasonable for Cherriots to meet that need using the following criteria:

- 1 Can a service be implemented consistent with the established design standards?
- 2 Can a service be implemented safely and in accordance with local, state, and federal laws and regulations?
- 3 Excluding the first three years of operation, would the proposed service meet performance targets?
- 4 Excluding the first three years of operation, would the proposed service not cause the overall system to fail to meet performance targets?
- 5 Would the proposed service not cost more than the budget allows given available funds?

When unmet transit needs are determined to be reasonable, Cherriots will incorporate solutions to meet those needs into the plan development process.







4

Plan development

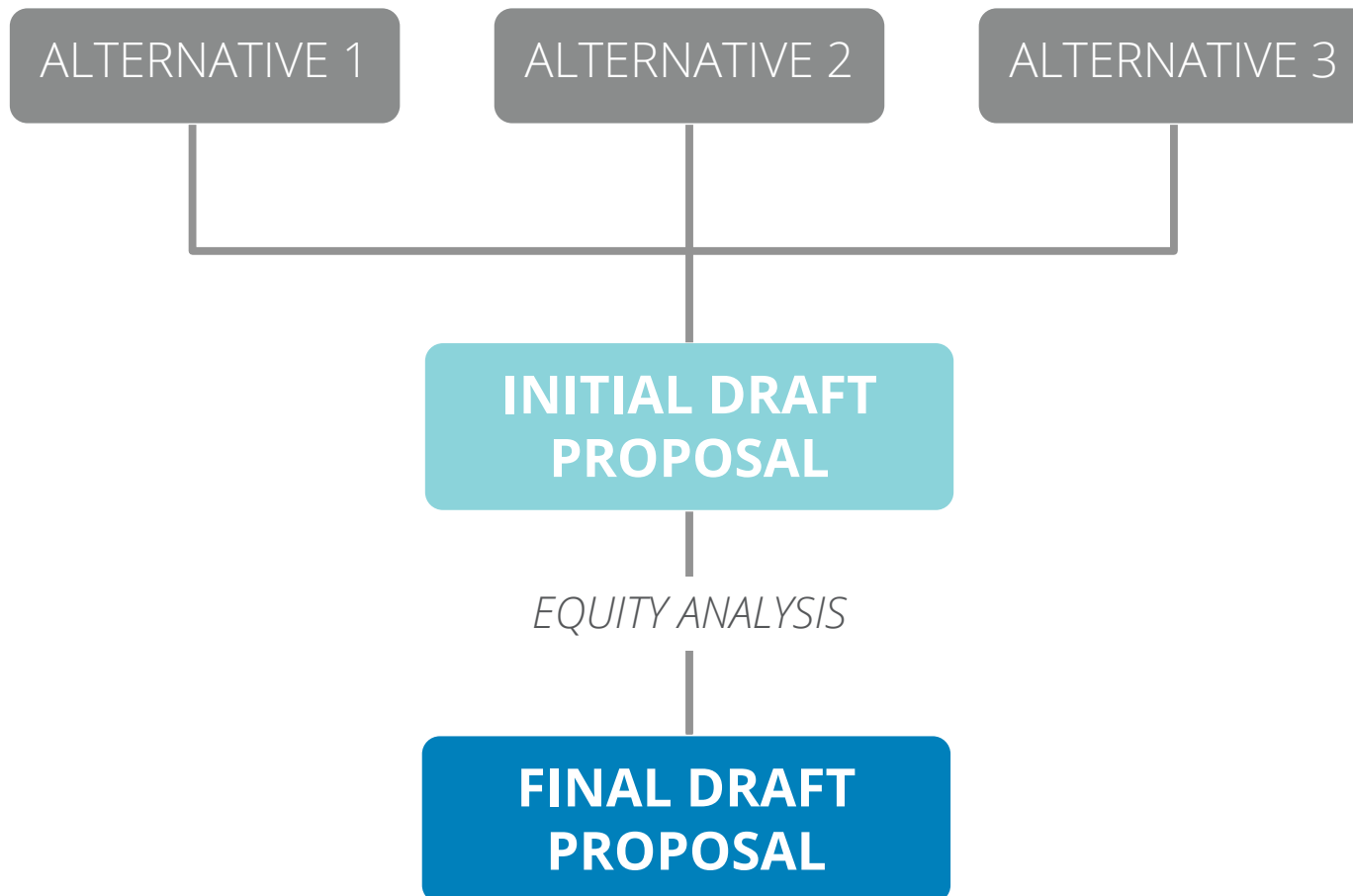
Once staff have a revenue forecast, performance results, and a determination of the unmet needs throughout the region, the next step is to begin the development of a service change plan to address both performance issues and unmet needs given available resources. Once drafted, the plan will be analyzed to ensure it is equitable.

When the revenue forecast remains largely the same as the previous year, the focus of the plan will be to maintain and optimize current service. This is typically the case with all triannual service changes, and can be the case for the biennial service change. When revenue is projected to increase, the focus shifts to expanding service. In the case of a decrease in projected revenue, the focus shifts to reducing service.

4.1 Overview

During the plan development process, Cherrriots considers a range of potential alternatives to meet the needs of riders, given available funding. Once those alternatives are distilled into an initial draft proposal, staff performs a Title VI equity analysis in accordance with the adopted SAMTD Title VI Program to ensure the proposal is equitable. If the proposal is found to have potential inequities, staff will either modify the proposal, mitigate the effects of the proposal, decide not to move forward with the proposal, or provide a substantial legitimate justification for why the proposal is the most equitable solution. From there, staff will develop the final draft proposal for the public.

To learn about how service is designed for these proposals, see *Chapter 5 - Design Standards*.



4.2 Service change frequency

Biennial

The biennial service change takes place every two years as a result of the approved Statewide Transportation Improvement Fund (STIF) application. This service change is typically implemented in September of the odd numbered year of the biennium.

The scope of this service change is dependent upon the amount of funds awarded to the projects included in the STIF application, but it is typically when changes that have major impacts on the Cherrits system take place. Additionally, service can be maintained or optimized at this time if routes are not meeting their performance targets.

Biennium September of odd year - August of next odd year

Triannual

Triannual service changes take place about every four months during the interim period of the biennium and are in conjunction with the transit operator bid change. The first service period begins the first Sunday in September, the second service period begins the first Sunday in January, and the third service period begins the first Sunday in May.

Typically, triannual service changes are focused on maintaining and optimizing current service for routes that are not meeting their performance targets.

SP1 Sep-Dec • **SP2** Jan-Apr • **SP3** May-Aug



4.3 Long-range transit plan

Cherriots currently has a long-range regional transit plan that was developed in 2013. This plan provides long-term strategic guidance for Cherriots over a 20 year period. It provides the basis and justification for seeking transit funding for service investments. The plan also addresses coordination with other transit agencies in the region to integrate service and create efficient transit connections.

The plan established implementation time frames based on cost, ease of implementation, and need. Time frames are:

- **Short term** - within 1-5 years
- **Medium term** - within 5-10 years
- **Long term** - within 10-20 years

As staff develop annual service plans, they refer back to the long-range plan to ensure the goals of that plan are being met and the suggested projects are being implemented.

See the *Long-Range Regional Transit Plan* for more information.

Future long range transit plan

The long range transit plan (LRTP) is typically updated every five years. A project to develop a new LRTP has been approved for FY21, which will include plans for both the regional and local service.



4.4 Service change types

When developing plans for service changes, Cherriots considers whether service will be maintained, optimized, expanded, or reduced. The direction Cherriots takes depends on the revenue forecast as well as the results of the performance evaluation and needs assessment.



MAINTAIN

Improve reliability and decrease crowding



OPTIMIZE

Better match service to demand



EXPAND

Add service when budget grows



REDUCE

Decrease service when budget shrinks

4.4.1 Maintain

Over time, as traffic patterns change and ridership shifts, routes may become unreliable or overcrowded. In order to maintain these routes so they operate as expected, Cherriots has a number of tools at its disposal depending on the source of the issue.

Unreliable service



Adjust schedules

Sometimes routes have enough runtime, but the scheduled departure times at time points are not always accurate. Adjusting times can prevent buses from having to hold up at bus stops for long periods and help make the schedule better match reality.



Modify routing

If buses are struggling to stay on time due to a bottleneck along the route, one option is to modify the path of the route to avoid that bottleneck.



Add runtime

Adding runtime on a route might be necessary throughout the day or during a specific time if there is not enough time to complete trips. This is easier to accomplish on routes that run every 15 minutes or better. The lower the frequency, the more difficult it is to add runtime.



Shorten route

Sometimes routes do not have enough runtime and there are not additional resources to add more runtime. In those cases, routes may need to be shortened. This is especially the case for routes running every 30 and 60 minutes, as adding runtime to these routes must come in increments of 30 or 60 minutes, respectively.



Interline routes

When one bus route is tight on time and another bus route has extra time, sometimes interlining the routes can take pressure off the route that is tight. Interlining is the process of switching a bus from one route to another at a shared location.



Adjust traffic signal timing

When traffic signals are causing a choke point along a route or having a major impact on traffic flow along a corridor, Cherriots can work with the cities or counties to make adjustments to the timing of those signals or employ transit signal priority technology where available.



Operator coaching

When evaluating the on-time performance of a route, it is important to determine if the issue is happening for most operators along a route, or just one. In some cases, individual operator coaching can help improve on-time performance.



Eliminate or consolidate bus stops

Sometimes bus stops can be eliminated or consolidated to help the route flow better. Additionally, bus stops in some cases can be moved from the near side of an intersection to the far side of the intersection to prevent operators from having to wait at traffic signals.



Invest in capital improvements

In places with major bottlenecks that cannot be avoided, it is sometimes worth investing in capital improvements to provide long-term fixes to on-time performance issues. Capital improvements include transit signal prioritization, queue jumps, and dedicated bus lanes.

Overcrowding



Increase bus size

As long as the turn radius and bus availability are not constraints, using larger buses on a route experiencing overcrowding is the simplest way to alleviate this issue.



Add overload trips

Another option is to add select overload trips. For example, on a route that runs every 30 minutes, a few extra trips might be added during times when the buses are getting overcrowded.



Increase frequency of service

If the overcrowding is happening over a longer period of time, the frequency of the route may need to be increased during those hours.

4.4.2 Optimize

When service is evaluated on an annual basis, it is likely staff will find a mismatch between level of service and the utilization of service in some parts of the system. In those cases, resources should be shifted to better match service levels with demand.

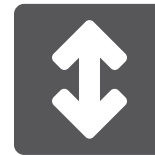
Poor performers

When routes are performing below their performance targets, staff first determines if there is an underlying cause for the poor productivity, such as poor on-time performance or a major service disruption (such as a long-term detour). If those causes are ruled out, the following strategies can be used to improve the productivity of the service:



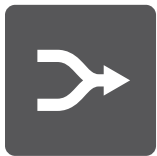
Promotion

When a route has the potential to perform well but the service is not well known, targeted promotion can be a useful strategy to help that route reach its performance targets.



Change in frequency

In some cases, there are more resources given to a route than is merited by demand. In these cases, frequency can be reduced during low-ridership times, or all day. Other times, route performance may be improved by increasing frequency, making the route more attractive to potential riders.



Realignment

Route performance should be analyzed by segment and stop. A realignment might be necessary to bring service to places where it would be better utilized.



Route elimination

In extreme cases, routes might be eliminated due to poor performance. This should only be considered if there is comparable service nearby.

Exceptional performers

Routes that are performing well above their targets will be considered for increased frequency as resources become available. Sometimes resources are available because of reductions to other service throughout the system. There are a few strategies to respond to routes that are outperforming their productivity targets:



Realignment

Underperforming routes can be realigned to help provide more frequency on corridors served by the route exceeding its target. This could help take pressure off the exceptional performer.



Increase in frequency

If resources are available, frequency can be increased on the route during the most productive hours or throughout the day to reduce loads and increase the quality of service.

New development and relocated facilities

As new residential and commercial units are developed and as businesses and facilities relocate, ridership might shift along with them. Cherriots will evaluate the impact these shifts have on ridership on overall efficiency. In some cases, staff might need to modify routes or frequency to respond to these changes.



Realignment

Realign routes to serve new facilities or to stop serving facilities that have been closed.



Change in frequency

Increase or decrease frequency on routes if new or closed facilities have had a significant impact on ridership.

4.4.3 Expand

When additional revenue is available, service expansion will be planned using the following priorities:

1 Performance of current routes

Ensure current service is able to meet its performance targets for predictability and comfort.

2 Weekends, holidays, and span of service

Saturday service

Saturday service expansions could include increased span of service, increased frequency, or increased coverage.

Holidays

Service on holidays should be established at a level matching weekday, Saturday, or Sunday service, or a modified version of one of these.

Sunday service

Service should be expanded to Sundays with the expectation of about a quarter of the current weekday ridership.

Span of service

Span of service should be increased on routes that have adequate ridership demand.

3 Increased frequency

Route frequency should be increased based on demand. Hourly service should be improved to 30-minute service whenever possible, especially during peak times.

4 Additional coverage and connections

Cherriots should offer service closer to more residents and jobs. Additionally, Cherriots should make it easier to ride on transit without having to travel through downtown Salem.

4.4.4 Reduce

Every service reduction is different, and the unique circumstances will dictate exactly how the service reduction looks. However, when developing a service reduction plan, service will be reduced using the following guiding principles:

Maintain Core Network and frequent service

- Maintain levels of service on routes serving the corridors of the Core Network. Do not remove service completely along these corridors.
- Maintain frequent service that runs every 15-minutes or better on weekdays between 7 a.m. and 7 p.m.

For more on the Core Network, see Section 5.3.5.

Protect vulnerable populations

- Evaluate proposed reductions in service to avoid, minimize, or mitigate adverse effects on minorities and low-income populations.
- Evaluate proposed reductions in service to avoid or minimize impacts to seniors and riders with disabilities.
- Generally, reduce frequency before reducing span to preserve basic access to jobs and other needs.

Preserve for as many riders as possible

Generally, Cherrichts tries to preserve service for as many riders as possible:

- Preserve the trip with the highest demand for as long as possible.
- Attempt to maintain a minimal level of service on better-performing lines.
- Eliminate or reconfigure any redundant bus service where other accessible service exists and has adequate capacity to serve the current demand.
- Eliminate lowest ridership bus service trips and times of day.
- Reduce frequencies during lower demand days and times of day including eliminating any unnecessary overload trips.
- Reduce service in off-peak direction with lower ridership.
- If necessary, eliminate full routes that are underperforming.

4.5 Costing

When developing a service plan, costing to add and remove service is included in order to ensure the plan is within budget. For each service, staff begin by assessing current operating costs. The next step is to determine how much it would cost to add or remove service on standard days and holidays. From there, costs are projected for future fiscal years.

Costs are projected using current fiscal year numbers, as presented in the example on the next page. In addition to local and regional service, Cherriots LIFT cost estimates are included because an increase in hours or days operated on the local system results in an increase in hours or days LIFT operates.

Determining operating costs

Operating costs include wages and benefits for operators and operations supervisors, vehicle and facilities maintenance staff and supervisors, and all administrative staff—including managers and executives. Also included are the costs of fuel, vehicle parts, and other miscellaneous expenses required to operate service. Which costs are included is determined by the National Transit Database (NTD). The total operating costs are then divided by the number of revenue hours for each service to determine the cost per revenue hour of each service.

Projecting costs for future years

To project the cost to operate service and to add or remove service in future years on the local system, all wages and benefits related to wages (50 percent of benefits) are increased 3 percent per year. On contracted services, the same increases are assumed for general administrative wages and benefits. Projected increases in other operational costs are based on the agreed upon annual increases in the street services contract.

Determining cost to add or remove service

The cost to add or remove service differs from that of the standard operating cost. One reason is adding or removing service typically does not result in a change to general administrative staff.

Standard day

To determine the cost of adding or removing service on a standard weekday or weekend, the wages and benefits of all general administrative staff are removed from the equation. This is the case both for service operated directly by Cherriots, as well as service that is contracted.

Holidays

For local service, adding or removing service on a holiday is different than standard service in two ways: benefits not tied to wages can be removed because no new staff are hired to provide holiday service, and all remaining benefits and wages are multiplied by 150 percent because staff are paid at a rate of time and a half on holidays. For contracted service, costs match that of a standard day.

The chart below is used as an example only. Actual figures are produced by the Finance Department each fiscal year.

	Cost per revenue hour	Cost per added or removed rev. hour on a standard day	Cost per added or removed rev. hour on a holiday
<i>Local*</i> DIRECTLY OPERATED	FY 16 \$136.23 FY 17 \$138.67 FY 18 \$141.19 FY 19 \$143.68	FY 16 \$113.95 FY 17 \$115.90 FY 18 \$117.91 FY 19 \$119.97	FY 16 \$124.63 FY 17 \$127.55 FY 18 \$130.57 FY 19 \$133.67
<i>Regional</i> CONTRACTED	FY 16 \$83.86 FY 17 \$83.28 FY 18 \$88.12 FY 19 \$86.38	FY 16 \$81.17 FY 17 \$80.53 FY 18 \$85.31 FY 19 \$83.51	FY 16 \$81.17 FY 17 \$80.53 FY 18 \$85.31 FY 19 \$83.51
<i>LIFT</i> CONTRACTED	FY 16 \$68.44 FY 17 \$67.96 FY 18 \$76.43 FY 19 \$79.45	FY 16 \$66.24 FY 17 \$65.71 FY 18 \$74.13 FY 19 \$77.10	FY 16 \$66.24 FY 17 \$65.71 FY 18 \$74.13 FY 19 \$77.10

* Operating costs for local service also apply to Route 1X trips directly operated by Cherriots (not SMART Transit trips)

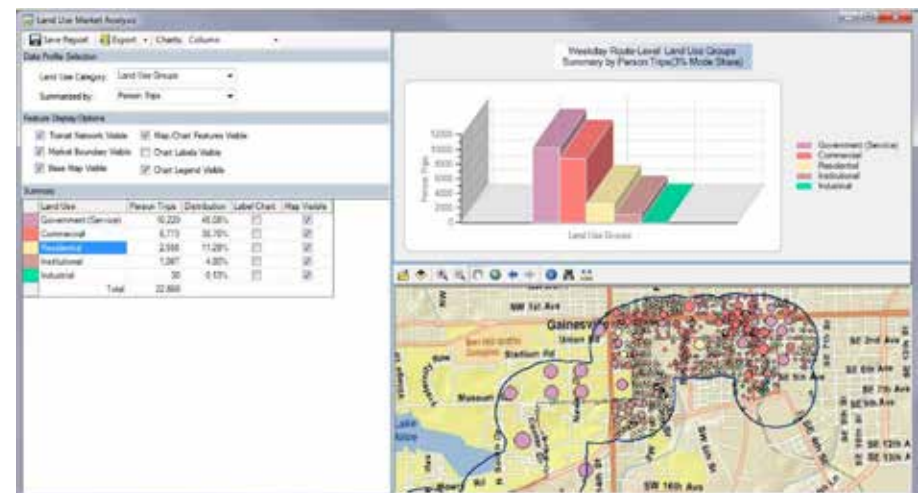
Source: National Transit Database and Cherriots budget, Fiscal Year 2016

4.6 Projections and modeling

When developing new service, especially with the introduction of new routes, it is important to create models to project the impact the changes will have on service hours, service miles, cost, and ridership. Cherriots currently uses Remix to estimate impacts to service hours, service miles, and cost based on the numbers on the previous pages. At this time, staff does not have a methodology for projecting changes in ridership, but will be looking into software such as TBEST in the future.



Remix allows Cherriots planners to quickly test multiple service scenarios to see the impact on service hours, service miles, and cost. This platform is used to help guide the planning process during the plan development phase. Remix is currently paid for by the Oregon Department of Transportation (ODOT), so all transit agencies in Oregon have access to it.



The Transit Boardings Estimation and Simulation Tool (TBEST) is a free software developed by the Florida Department of Transportation (FDOT). TBEST is a GIS-based modeling, planning, and analysis tool that integrates socio-economic, land use, and transit network data into a platform for scenario-based transit ridership estimation and analysis. Staff will be looking into using TBEST to estimate ridership in the future.

4.7 Equity

As Cherrriots plans service changes, all proposals are evaluated through the lens of equity. Design standards—outlined in the next chapter—help ensure staff are making decisions in a transparent, unbiased manner. However, even when following all design standards, a service change proposal still has the potential to negatively impact minorities and low-income populations, which are protected under Title VI of the Civil Rights Act of 1964.

In order to ensure all proposals are equitable before being adopted and implemented, Cherrriots has a Title VI program, which was developed in accordance with the Federal Transit Administration (FTA) Title VI Circular 4702.1B.

The intent of Title VI is to remove barriers and conditions that prevent minority, low income, Limited English Proficiency (LEP), and other disadvantaged groups and persons from receiving access, participation, and benefits from federally assisted programs, services, and activities. In effect, Title VI promotes fairness and equity in federally assisted programs and activities and is based on the fundamental principle that all human beings are created equal. Title VI is rooted in the constitutional guarantee that all human beings are entitled to equal protection under the laws and specifically addresses involvement of impacted persons in the decision making process. See the *Cherrriots 2020 Title VI Program* for more information.

Additionally, any service plan that includes a change classified as a major service change must be approved by the Cherrriots Board of Directors. A major service change is defined as a reduction or expansion in service of:

- 15 percent or more of the number of transit route miles based on the miles of an average round trip of the route. This includes routing changes where route miles are neither increased nor reduced, such as re-routes.
 - 15 percent or more of a route's frequency of the service on a daily basis for the day of the week for which a change is made. A route's frequency is defined as the average hourly frequency throughout one service day for local fixed routes and as daily round trips for regional express routes.
 - 15 percent in the span (hours) of a route's revenue service on a daily basis for the day of the week for which a change it made. A route's revenue service is defined as the time between the first served stop of the day and the last served stop of the day.
- OR**
- When a transit route is split where either of the new routes meet any of the above thresholds when compared to the corresponding piece of the former route.
- OR**
- When a new transit route is established.





5

Design standards

When designing new service or changing existing service, Cherriots adheres to a series of design standards. Standards exist for the system as a whole, routes, and stops. These design standards were developed to ensure Cherriots is meeting both performance and design goals. When service is introduced that does not meet the design standards, those exceptions need to be justified.

5.1 Service design goals

In addition to the five performance goals discussed in *Chapter 2 - Performance Evaluation*, Cherriots has five service design goals. Service should be designed to be:

Appropriate

Service span and frequency should match both potential demand and actual usage. This means that frequencies could change by time of day.

Available

Service should be available to homes and businesses throughout the service area.

Equitable

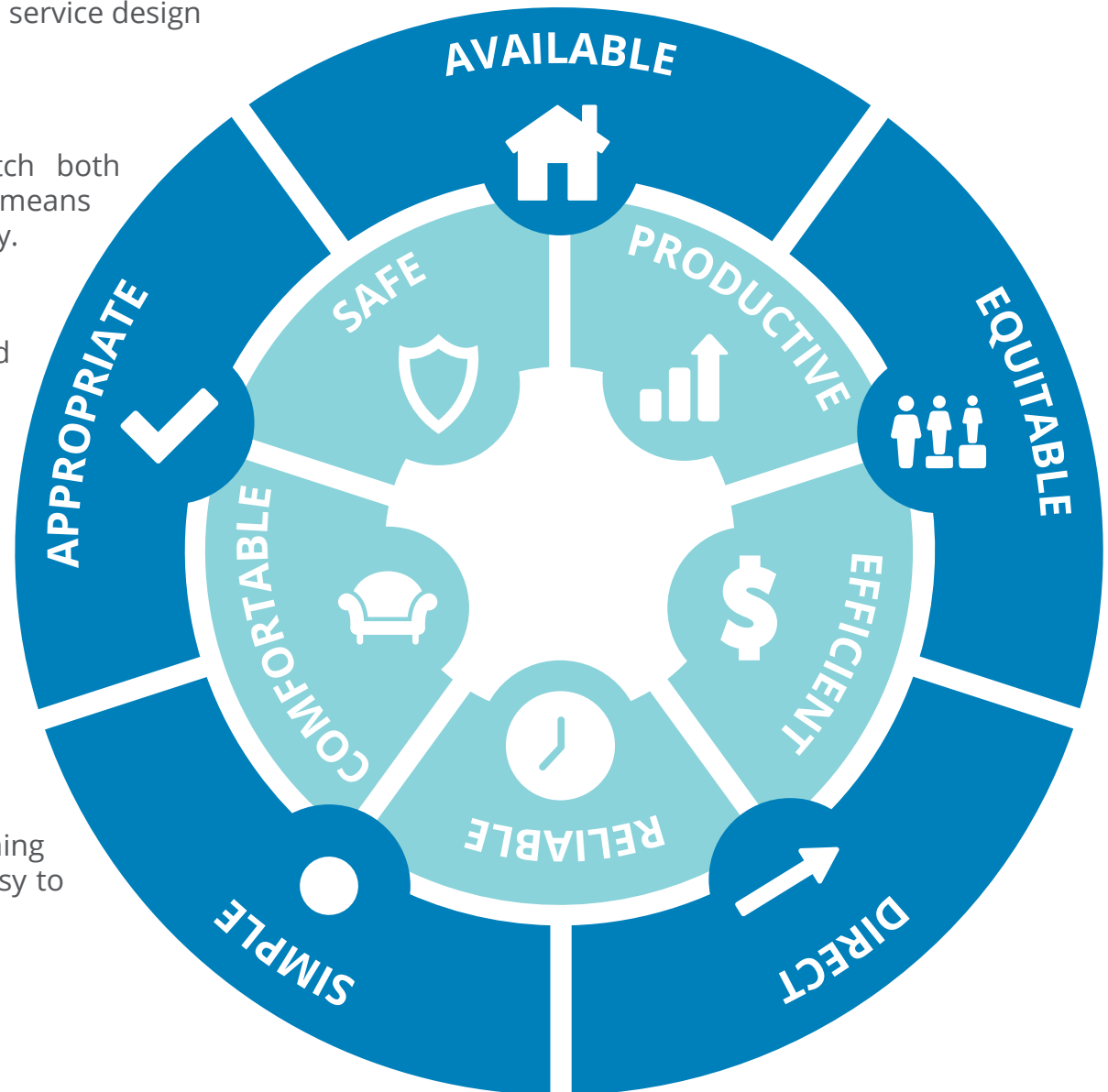
Service should be distributed in a way that does not unfairly impact any protected population.

Direct

Whenever possible, service should be direct and fast.

Simple

Network design, route design, and route naming and numbering should all be simple and easy to comprehend.



5.2 Distribution



Productivity 75%

In the urban area, 75 percent of revenue hours will be deployed with a focus on increasing ridership, predominantly on high demand corridors. This service will include frequent 15-minute service, express service, and standard 30-minute frequency routes, which are expected to provide overall high ridership.¹



Coverage 25%

The remaining 25 percent of urban revenue hours will be allocated to service that provides needed coverage throughout the community with less consideration for expected boardings per revenue hour. This service will predominantly include coverage routes with 30-minute and 60-minute headways.

Classification

An entire route or individual segments of a route may be classified as either productivity-focused or coverage-focused. Service distribution must remain within plus or minus five percentage points of the target (e.g. 70-80% productivity-focused, and 20-30% coverage-focused).

¹ See SAMTD Board Policy 109, Attachment B.

5.3 Transit network design

5.3.1 Centers, corridors, and coverage

All Cherriots Local routes are designed as coverage routes, corridor routes, or a combination of the two. Coverage routes funnel riders into activity centers, and corridor routes connect those centers at higher frequencies.

Coverage routes

Coverage routes are focused on getting close to riders and bringing them on short trips to their neighborhood activity centers.

These routes can take a variety of forms, including small one-way loops, two-way service, or microtransit service.

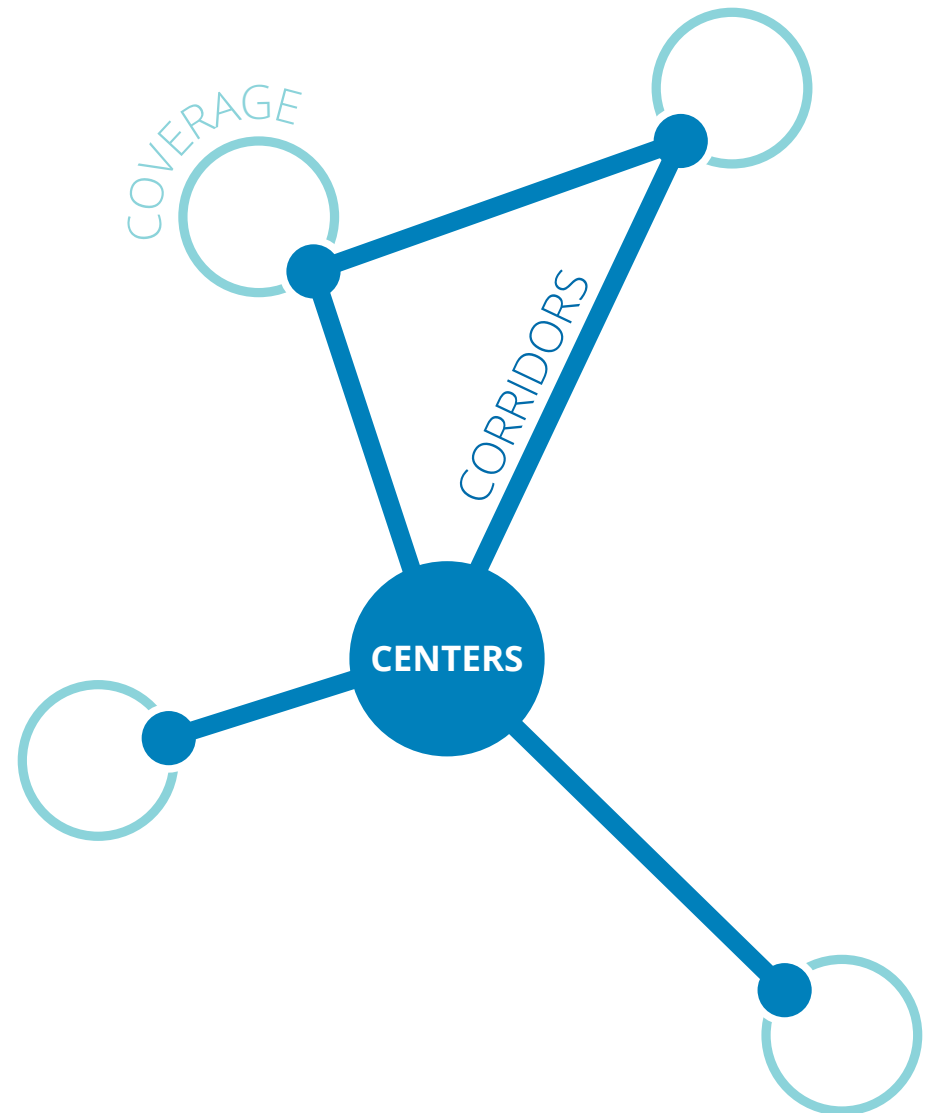
Activity centers

Activity centers are community hubs with a variety of shops, stores, and services. These are both primary destinations for riders, as well as places to transfer between routes.

Cherriots builds transit centers at some of these activity centers. Transit centers help facilitate transfers and create a better environment for riders waiting for the bus.

Corridor routes

Corridor routes serve the main corridors in Salem and Keizer. (see *Core Network*, p. 47). They also help riders quickly travel between activity centers, ideally at frequencies of every 15 minutes or better.



5.3.2 Multiple purposes

Service should help connect businesses, high-density residential, and other activity centers. A route is more useful and productive when there are multiple destinations along its path, with pickups and drop-offs occurring throughout the entire length of the route.



5.3.3 Transit network connections

Routes should be coordinated in a well-designed network. Transfers between routes allow for a more efficient service that doesn't require as much duplication. Routes should be designed to connect with one another at transit centers and major destinations. Additionally, Cherriot should install appropriate rider amenities at major transfer locations in order to provide riders with a comfortable experience while waiting.



5.3.4 Route start and end

Ideally routes start and end at transit centers or major activity centers. This allows for easy access to those places and makes it easier to communicate to riders where a route is heading. The ends of routes should also have a good place for a bus to layover, as well as a place for operators to use the restroom when possible.



5.3.5 Core Network

When designing and realigning routes, staff must ensure service remains on the Core Network corridors. Additionally, routes on these corridors will receive the priority for frequent service on weekdays and 30-minute service on weekends.

What is the Core Network?

The Core Network is a set of transit corridors where Cherriots has committed to providing stable service with a focus on frequency and reliability. By establishing a sense of permanency and an expectation for high-quality service, the Core Network signals to riders, business owners, and developers where to locate and build if they wish to orient themselves and their businesses around transit.

What gives the Core Network its permanency?

In July 2017, the Cherriots Board of Directors adopted Core Network Policy 118². The routes serving the Core Network corridors may change over time, but the corridors must be served. Service changes that result in completely removing service from any piece of the Core Network will require formal action from the Board with a public hearing process in advance of implementation.

What makes up the Core Network?

The Core Network is comprised of the following corridors:

- **High, Broadway, and River Rd** - Union to Lockhaven
- **Lockhaven** - River Rd to Chemawa
- **Summer, Capitol, and Portland Rd** - Union to Hayesville
- **Lancaster** - Hayesville to Rickey
- **Market** - Capitol to Lancaster
- **Center** - 13th to Lancaster
- **State** - 13th to Lancaster
- **Commercial** - Kuebler to Trade
- **Liberty** - Commercial to Trade
- **Madrona** - Liberty to Commercial
- **Skyline and Liberty** - Kuebler to Madrona
- **Marion and Center Street Bridges** - Wallace to Front
- **Edgewater** - Eola to Gerth

Core Network routing

Multiple routes may serve different segments of a single corridor. In places where the corridors are disconnected routes will be planned to connect those corridors in the most efficient way possible.

Downtown core

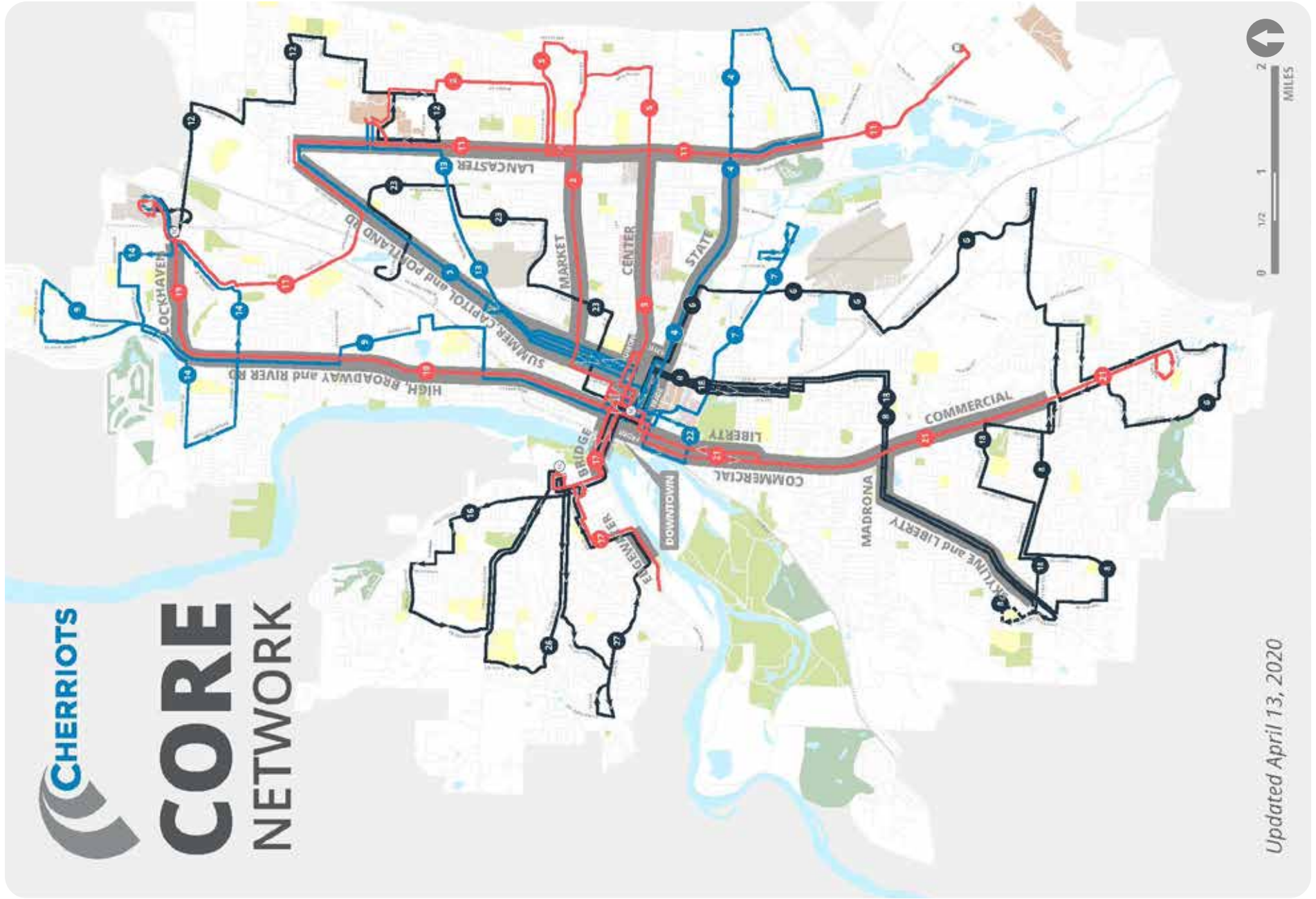
Cherriots guarantees service in the downtown core (between Front, Union, 13th, and Trade streets). In the downtown core, routing might shift slightly over time in order to best approach the Downtown Transit Center, especially if street configurations are changed by the city (changes to one-way streets, for example).

Transit centers

The Downtown Transit Center and Keizer Transit Center are both considered permanent fixtures of the Core Network.



CORE NETWORK

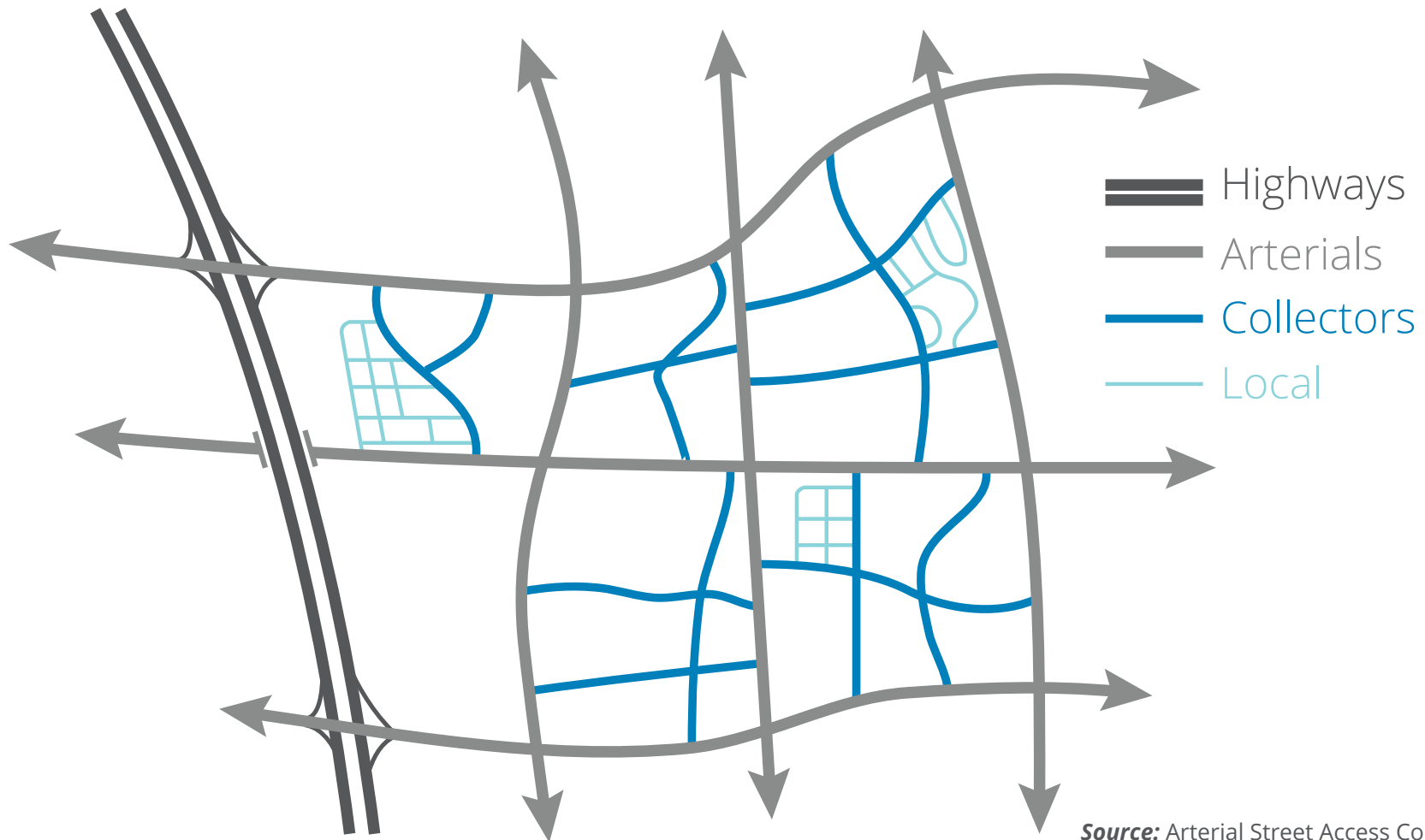


Updated April 13, 2020

5.4 Routing

5.4.1 Travel streets

Buses are routed primarily down arterials and collector roads. Express routes can also be routed down limited access roads, such as highways. When traveling down streets where vehicle speeds exceed 40 mph, however, bus stops should only be placed if they are in a turnout where the bus is pulled out of traffic—as specified in the 2012 ODOT Highway Design Manual. Local streets should be avoided unless there are no good alternatives. Buses should not be routed through parking lots whenever possible. Finally, routes must be designed to allow for vehicles to make safe turns.



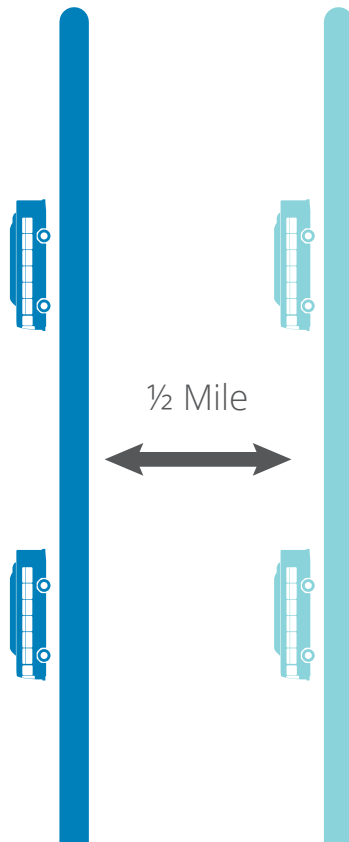
Source: Arterial Street Access Control Study

5.4.2 Spacing and duplication

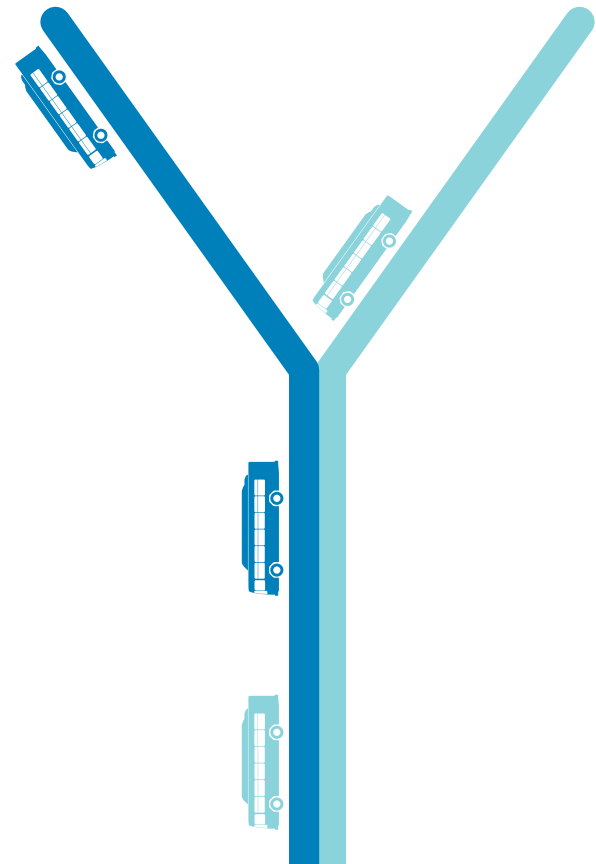
Routes traveling along parallel corridors should be placed at least $\frac{1}{2}$ mile apart. When routes share a path, their timing should be offset to avoid duplication. For example, two hourly routes sharing a path for half their length should provide 30-minute service along that shared path.

This standard does not apply to routes as they are approaching a transit center.

Parallel corridors



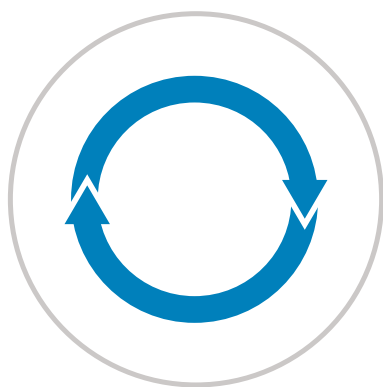
Shared path, offset schedules



5.4.3 Directness and complexity

A bus traveling directly between two places is faster and more desirable than a bus that takes a roundabout, circuitous path. The more a route loops, the less it can compete with other modes of travel. Loops may be necessary at times to turn a bus around at the end of its route or to provide necessary coverage. However, loops should generally be avoided.

A route that is easy to understand and predictable helps give riders confidence they are boarding the correct bus and will end up at their desired destination. In order to limit route complexity, the number of paths a route takes should be limited. When routes take multiple paths, buses should have very specific and unique destination signs to clearly state the trip's final endpoint.



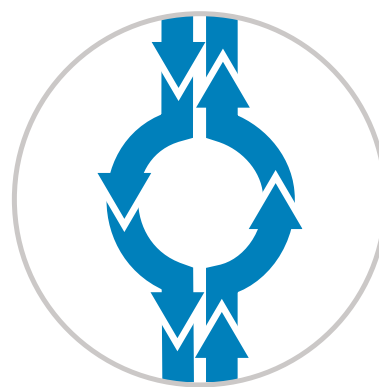
One-Way loops

In order to provide coverage in some neighborhoods, one-way loops are sometimes the most efficient option. In these cases, one-way loops should be limited to a travel time of 30 minutes for the round trip, including layover/recovery time.



Lassos

One-way loops at the end of routes are known as lassos. When it is necessary—either to provide coverage to a neighborhood or to turn the bus around—the lasso should be limited to no more than 1/4 of the roundtrip route miles.



Mid-route loops

Loops in the middle of routes cause confusion for riders and should be avoided in all cases. Buses traveling on a pair of one-way streets does not qualify as a mid-route loop, and is therefore acceptable.



Branches

One way to provide low-frequency coverage service in a neighborhood while still providing higher-frequency service along a main corridor is to design a route that splits into branches at one end. Routes should have no more than two branches.

Two-way, direct

Routes that are direct and travel the same path in both directions are preferable to all other route configurations.



Shortlines

Buses may not always need to travel to the end of their route at the same frequency at all times of the day. When buses turn around before the end of the route, this is referred to as shortlining. Routes should be limited to one shortline routing.



Two-way loops

Two-way loops are a useful way to provide two-way service while avoiding having to turn the bus around. However, they can be confusing to riders. To provide clarity, each half of the two-way loop should be branded as a separate two-way route.



Deviations

A bus traveling away from its primary path to serve a specific place is known as a route deviation. Deviations should only be considered when the expected ridership gains outweigh the delay the deviation will cause for the riders already on board (*less than 10 rider-minutes per person boarding or exiting the bus along the deviation*). This policy is different than designing a deviated fixed route where the bus is allowed to deviate up to three quarters of a mile off the designated path.

5.4.4 Microtransit

From 2015 through 2017, Cherriots operated a microtransit service called the West Salem Connector. Ridership was not high enough to justify maintaining the service, even though the bus got closer to riders' homes and was relatively well-received.

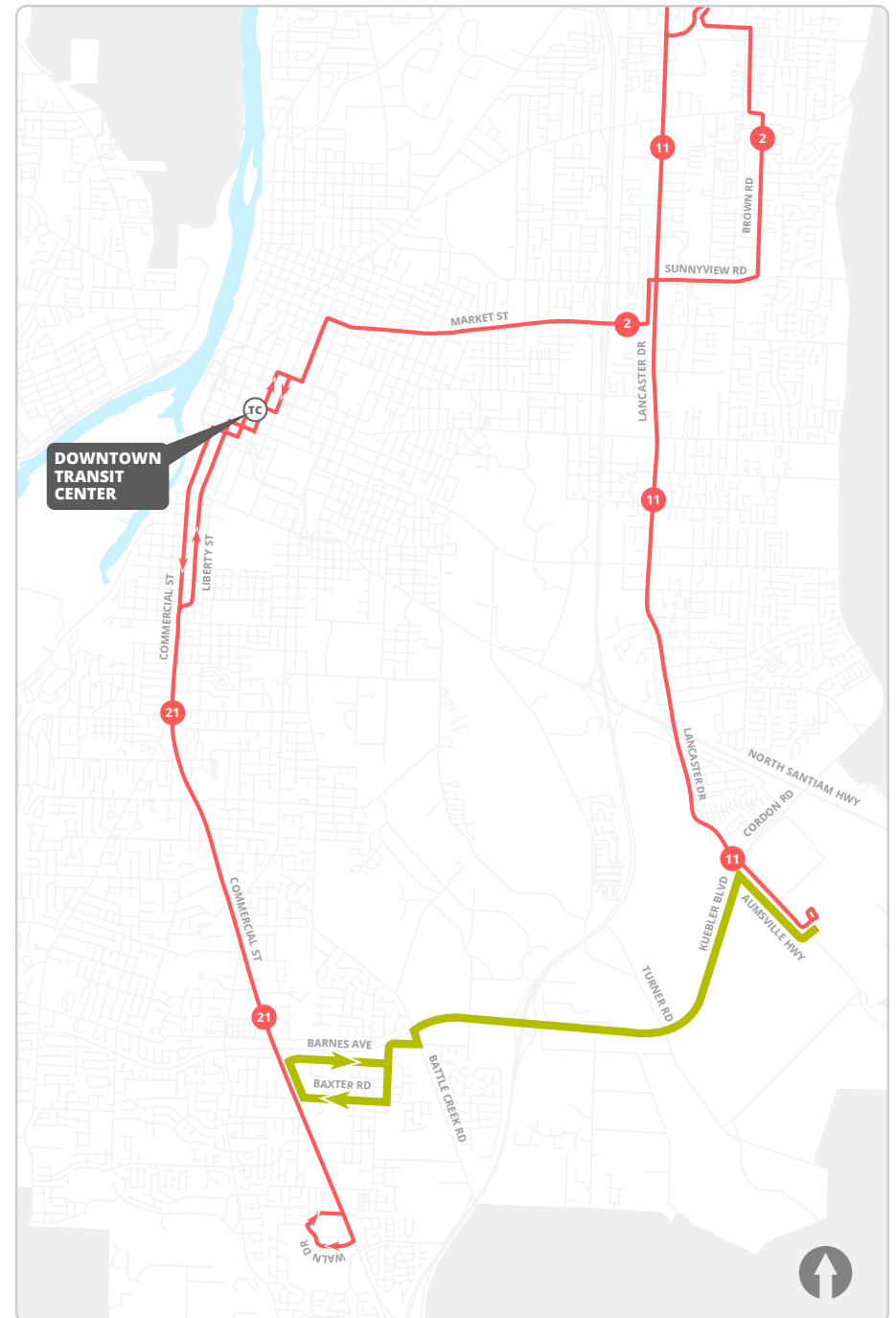
In the future, Cherriots might consider bringing microtransit service back to the Salem area. Microtransit solutions are becoming more and more popular because of their flexibility in design. They can be operated as fixed routes with schedules as well as flexible routes with on-demand scheduling. They also allow for innovative vehicle options, from small capacity electric vehicles like the Polaris EmGo to cut-away alternatives like the Ford Transit Van.



conceptual drawing

5.4.5 Local express routes

Another type of routing that Cherriots may consider in the future is local express. Local express routes would operate within the Salem-Keizer UGB with the objective of providing shorter trip times for riders to get from one area of Salem or Keizer to another. For example, a local express route could provide an east/west connection to routes running north/south with few stops in between, eliminating the need to transfer to one or more local fixed routes along the way.



This map shows a hypothetical local express route (in green), connecting the south ends of Routes 11 and 21.

5.5 Timing

5.5.1 Buses per hour and daily round trips

Service levels on routes should be appropriate to demand. Local and regional levels of service are expressed differently. For example, local service often runs multiple times per hour whereas regional service often runs multiple times per day.

Local

Local Cherriots routes have three levels of weekday service: frequent (every 15 minutes), standard (every 30 minutes), and basic (every 60 minutes). Service is designed to be consistent for most of the day to provide robust midday service and to help riders quickly learn how often their bus arrives. At a minimum, local buses must be scheduled to arrive once an hour to provide a base level of service.

Regional

The level of service for regional routes is measured by the number of daily round trips, because these buses are scheduled less frequently than local bus service. Buses on express service can either be scheduled throughout the day or only during the morning and evening peaks. At a minimum, regional routes must have two round trips per day on weekdays. Service levels for deviated fixed routes in the regional system are also measured by the number of daily round trips.

Frequent 15 minutes

30 minutes after 7 p.m.



Frequent bus routes form the backbone of the Cherriots system. Unlike buses running every 30 or 60 minutes, buses running every 15 minutes or better allow riders to use the bus without having to look at a schedule. These routes are ideal for attracting new riders and providing great service for existing riders.

Standard 30 minutes



Basic 60 minutes



5.5.2 Hours of service

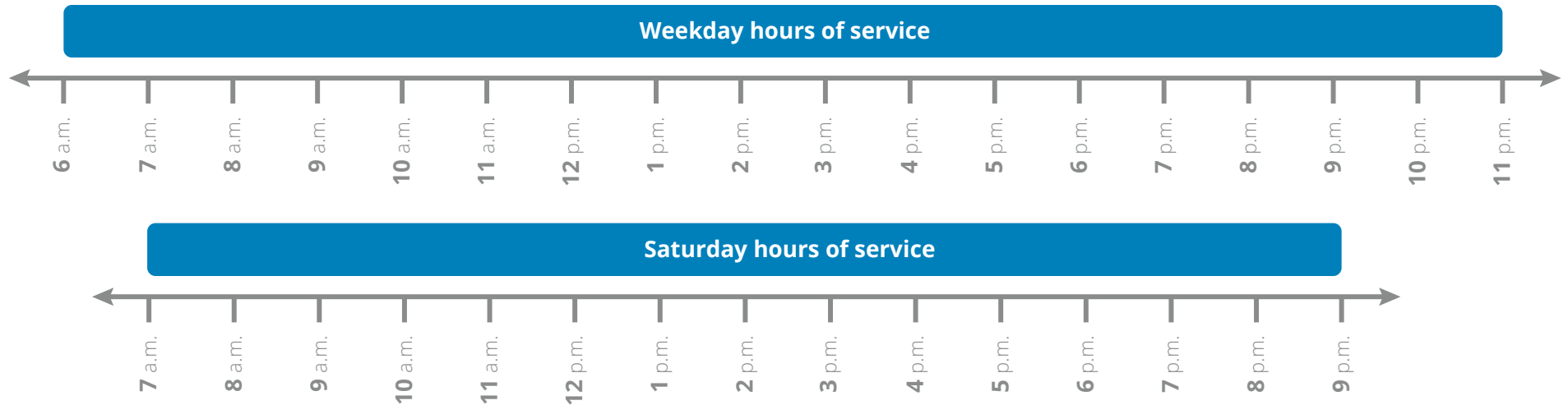
A robust span of service is necessary to allow riders to get to work and other appointments early in the morning, and to help assure riders they will have a trip home. Even though buses are likely to be less utilized early in the morning and later in the evening, a good span of service helps build ridership in the midday and during the a.m. and p.m. peaks.

Local

Most local routes typically operate between 6 a.m. and 11 p.m. on weekdays and between 7 a.m. and 9 p.m. on Saturdays. When Cherriots is able to implement Sunday service those routes will typically operate between 8 a.m. and 7 p.m.

Regional

Regional and deviated fixed routes have no minimum requirements for hours of service.



5.5.3 Time periods

Local

Every trip on a route takes a different amount of time to complete. Often the differences are slight, but during times of heavy traffic, or for trips that often have mobility devices, trip time can vary significantly. Although it might be tempting to create a unique schedule for every trip, doing so could be confusing for riders and difficult to remember for operators.

In order to strike a balance between these competing needs, Cherrits typically creates different schedules for four periods of time (but can use less or more).

The standard time periods are:

- **A.M.** (start of service until 8:59 a.m.)
- **Midday** (9 a.m. until 1:59 p.m.)
- **P.M.** (2 p.m. until 6:59 p.m.)
- **Evening** (7 p.m. until end of service)

Scheduled times remain consistent during each period in order to provide reliability. However, schedule times can be different between each period in order to reflect the differences in expected runtimes throughout the day.



Regional

Time periods are not used for regional or deviated fixed route services. Because these services run less frequently and for much longer distances than local service, custom schedules are developed for each individual trip.

5.5.4 Time points

Local

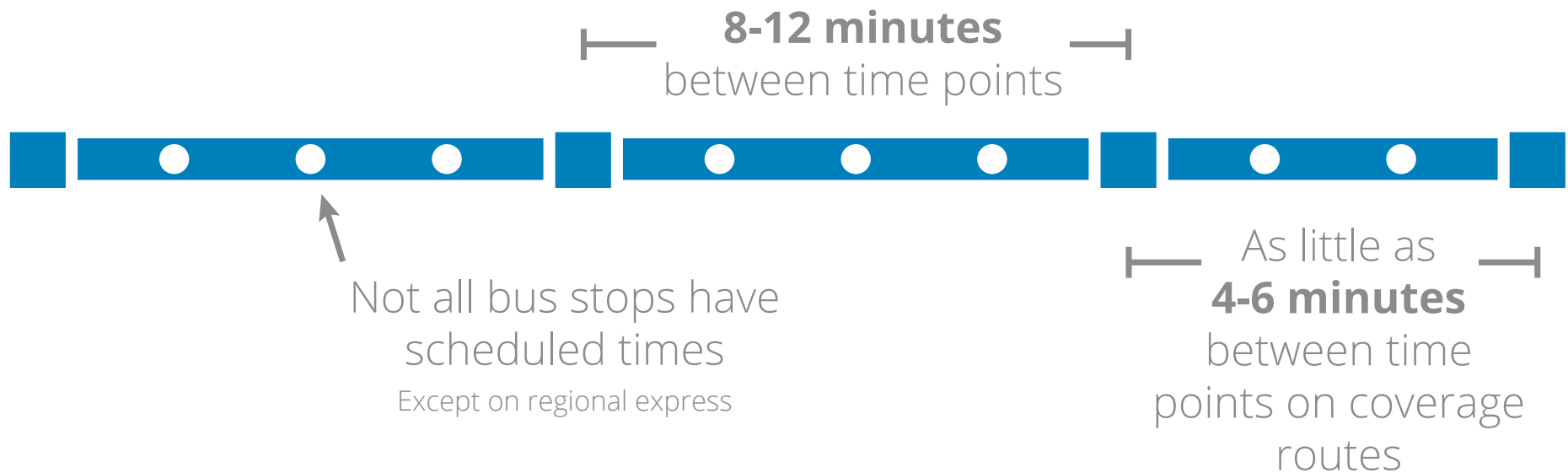
Bus stops with scheduled times determined as part of the route planning process are called time points. Time points help ensure buses remain evenly spaced and on schedule throughout the route (see section 7.2.2 *Bidding*). Time points may also be used in the development of customer facing schedules (see section 7.2.3 *Public materials*).

Typically, time points are spaced every 8-12 minutes. However, on coverage routes, time points can be spaced as close as every 4-6 minutes.

When deciding which bus stops will be time points, the priority is given to bus stops that:

- Serve a large number of riders
- Are at major intersections
- Are major transfer points
- Have a safe place for the bus to layover

On routes that share a path, time point locations are ideally the same for both routes along the shared stretch.



Regional

On regional express routes, typically all bus stops are treated as time points since there are often long stretches of time between stops. Regional deviated fixed routes use a similar standard as Cherriot's Local routes.

5.5.5 Runtime

Two methods are used to determine how much time should be scheduled on each route throughout the day. The first method is used when Cherrriots already operates bus service along a path and has good runtime data. The second is used when service is added to a street that currently does not have bus service.

Currently served

When Cherrriots already operates service along a path, runtime is determined by using real-world observations of current bus speeds. Samples of real bus travel time are collected, and Cherrriots determines the 60th percentile running time within each time period.

For example, the time it takes to travel between two time points during the A.M. time period might range between five and eight minutes, but 60 percent of trips take seven minutes or less. Because of this, seven minutes of runtime will be scheduled for that time period.



New streets

When developing schedules for service traveling down paths currently not served, Cherrriots determines runtimes using the following three methods:

1 Travel speed

For high-level planning, Cherrriots uses the travel speed setting in Remix. This setting is based on historical data and depends on the type of street being traveled. For example, travel speeds are set at 15 mph on collectors and 17 mph on arterials.

2 Google Maps estimates

Next, Cherrriots uses Google Maps to evaluate travel speeds throughout the day. Google Maps provides a high and a low estimate. The high estimate is used to account for typical bus operation.

3 Drive in buses

Once schedules are drafted using Remix and Google Maps estimates, operators drive the new routes to see if the proposed schedules are realistic. Schedules are then modified based on operator input.

After new routes are put into service, special attention is given to their on-time performance. If there are any issues, they will be addressed as soon as possible.

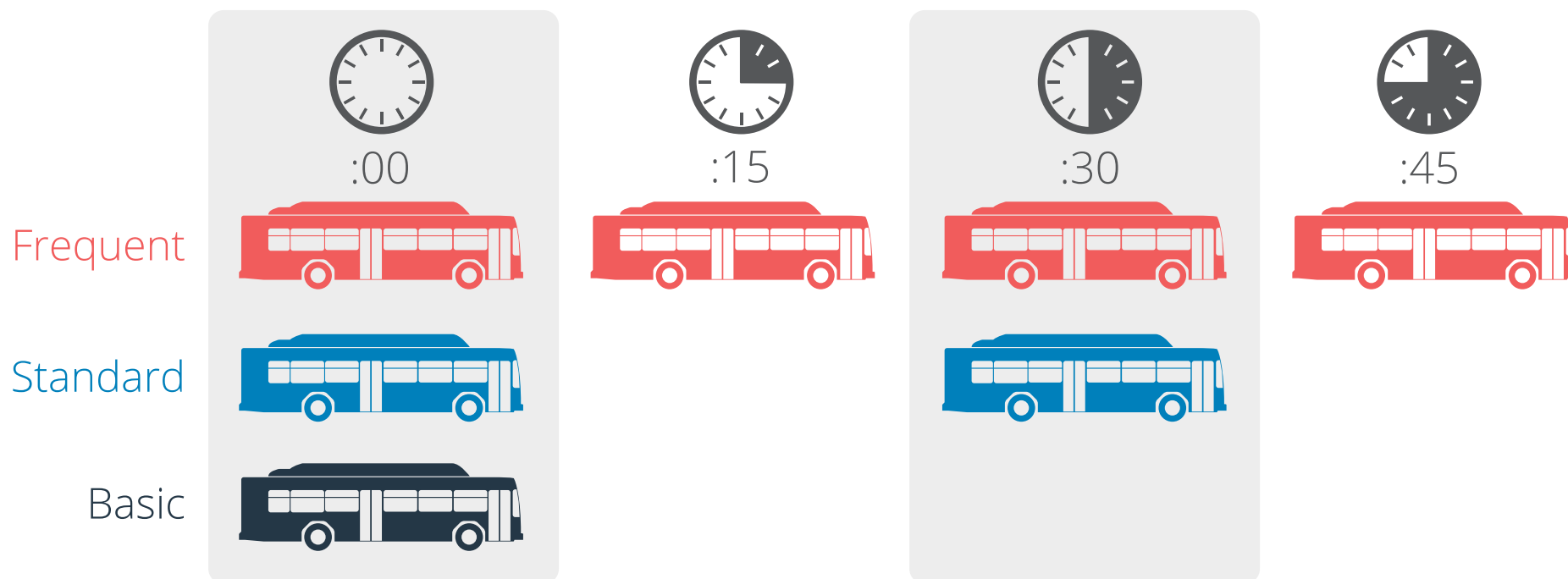
5.5.6 Timed connections and pulsing

For most Cherriots routes (Local and Regional), the primary transfer point is the Downtown Transit Center (DTC) in the heart of Salem. In order to facilitate the transfers taking place at DTC, Cherriots schedules buses to connect on a pulse. A pulse is a timed departure designed around a clock schedule. Buses typically lay over at transit centers in order to ensure that riders do not miss their transfers. This is especially important for routes that run infrequently, where missing a transfer could mean waiting 30 minutes or an hour for the next bus. Some routes may pulse out of the West Salem Transit Center or the Keizer Transit Center.

Frequent service pulses at :00, :15, :30, and :45. Typically, standard 30-minute service is pulsed at :00 and :30, and

hourly service is pulsed at :00. However, there are exceptions when two routes share a similar path and are timed to be offset. Regional express routes are pulsed at either :00 or :30 in order to allow riders to transfer to and from the local routes; however, exceptions may be made in order to maintain route timing.

Whenever possible, routes that connect at other locations should be timed together to make it easy for riders to transfer. This can be difficult, however, because the pulses at transit centers have a big impact on when buses arrive at other points along the route. Depending on route length and runtime, timed connections at other places are sometimes possible, such as at Keizer Transit Center.



5.5.7 Layover and recovery

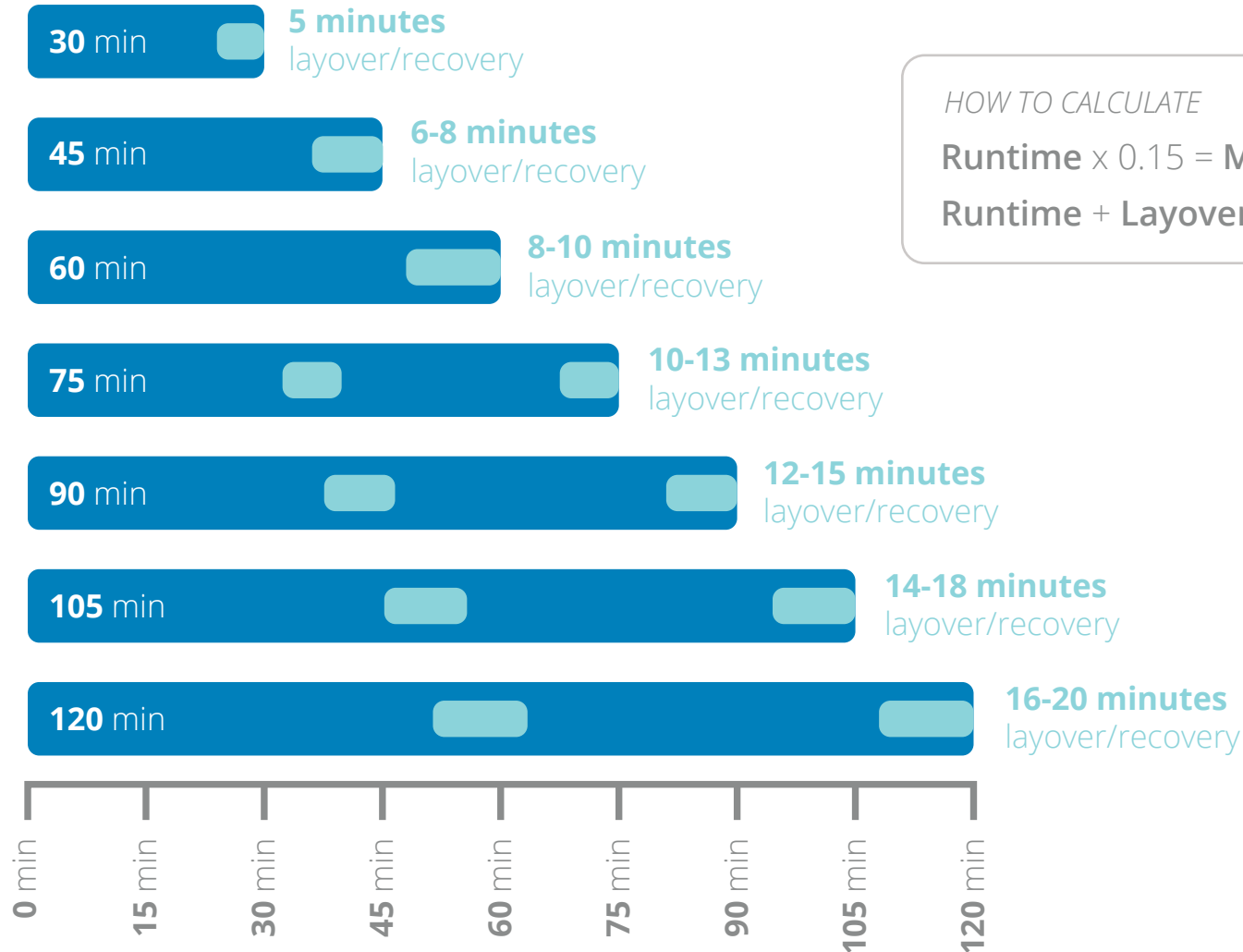
At the end of a route, there is typically time scheduled both to allow for an operator break (layover) and for a bus to get back on schedule if it is running late (recovery). Together, this is known as the layover/recovery time.

Layover/recovery should be between 15 and 20 percent of a route's runtime (and a minimum of five minutes). Together, the layover/recovery and runtime add up to the total cycle time of the route. If a route's cycle time is more than 60 minutes round trip, layover/recovery time should be scheduled on both ends of the route.

HOW TO CALCULATE

Runtime x 0.15 = **Minimum Layover/Recovery**

Runtime + **Layover/Recovery** = **Cycle Time**



5.6 Bus assignment

Local

Buses are reassigned during each bid period in order to equitably rotate all buses through the system, regardless of age or amenities. Cherriots uses three criteria for placing buses on routes:

1. **Mileage of the buses** in order to maintain approximately equal odometer readings on all of the buses based on their ages
2. **Ridership of routes** to avoid overcrowding
3. **Turning limitations of routes** to ensure safety

Additional criteria may influence vehicle assignment from time to time, such as rotation required by the Cherriots advertising contract or other service provision contracts.

Regional

Regional express routes are treated differently than the local routes. This is due to a combination of funding sources and geographic constraints.

Route 1X to Wilsonville is operated using two commuter-type buses. These buses have commuter style seats and luggage racks designed for regional express service.

The other Cherriots Regional routes are funded differently and operated by a contractor. They also have a different fare structure and do not use the magstripe electronic fare cards used by Cherriots Local routes. Buses within this contracted regional fleet are rotated regardless of age or amenities whenever possible.

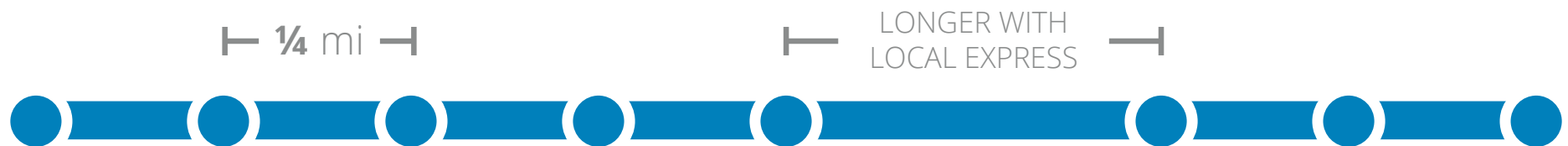


5.7 Bus stops

5.7.1 Stop spacing

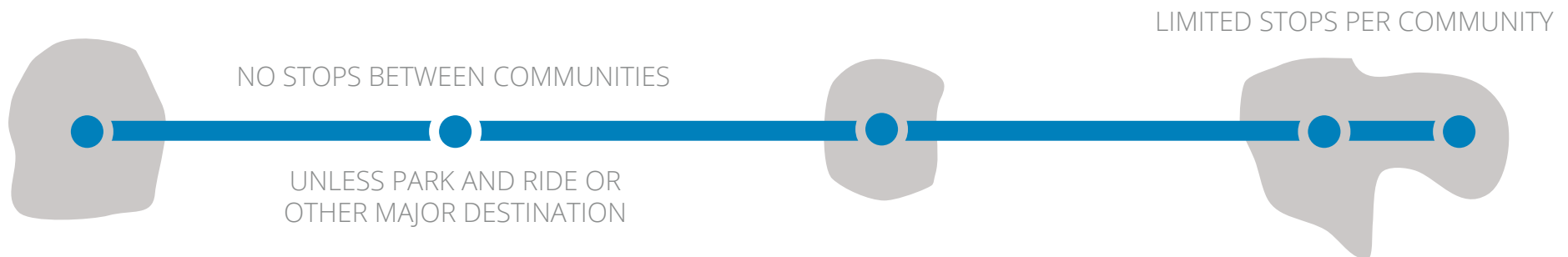
Local

For local bus service, bus stops should be placed about every quarter mile. Research shows this is typically how far riders are willing to walk to access the bus. When access to cross streets is limited, stops can be placed farther apart. All two-way bus service should have a corresponding bus stop in the opposite direction of travel so riders can get off the bus as close as possible to where they got on the bus earlier in the day.



Regional

For regional express routes, stops should be limited to one to three stops for each rural community. Unlike local service, the primary point of regional express service is to help riders travel between communities, not within. Typically, stops are placed at major destinations such as shopping centers, universities, and in the downtown core. Stops can also be placed at Park and Ride locations. Deviated fixed routes in rural regional cities should have stop spacing similar to Cherris Local in order to provide increased access to the neighborhoods rather than relying on people to walk further to a designated stop like the regional express services.



5.7.2 Stop placement

Bus stop placement in relation to an intersection can have an impact on both safety and timing. Below is the preferred order of stop placement:

1 Farside of intersection

Farside bus stops are located after crossing through an intersection. Farside placement is preferred because it makes it easier for buses to get back into a travel lane due to gaps in traffic created by traffic signals. However, multiple buses serving a farside stop at the same time might block an intersection.

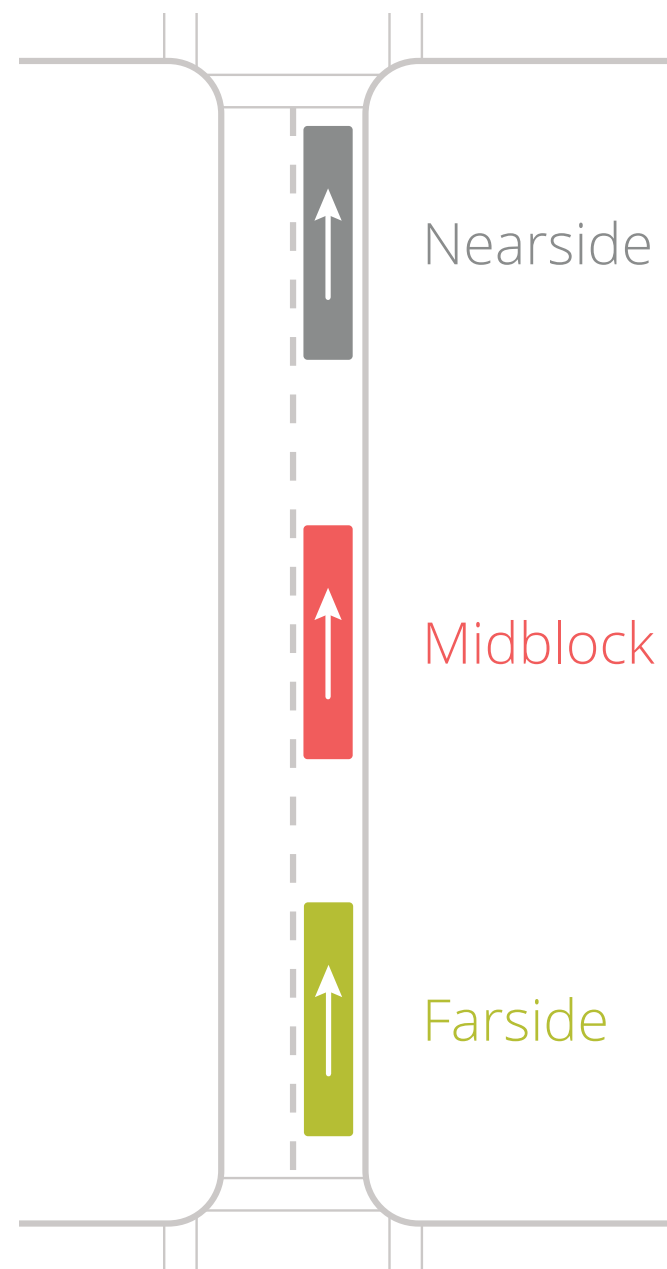
2 Nearside of the intersection

Nearside bus stops are located at the side of the block prior to crossing an intersection. An advantage of nearside stops is that time spent waiting at a red light can overlap time loading and unloading riders. However, there is an increased risk of conflicts with vehicles making right turns.

3 Midblock

Midblock stops experience less pedestrian congestion than the other two stop locations. However, unlike farside and nearside stops, midblock stops encourage riders to cross the street in the middle of the block, which is unsafe. Other riders may have to walk long distances to safely cross at an intersection.

In the end, every bus stop has unique circumstances and should be evaluated individually to determine the best and safest placement given conditions on the ground.



5.7.3 Stop amenities

Bus stop amenities should be installed for Cherriots Local stops based on ridership in order to benefit the largest number of riders. Cherriots Regional express stops should have shelters placed where local jurisdictions agree to maintain the shelter, and if there is grant funding to support the construction of the ADA landing pad and shelter pad and maintenance of the shelter. Additionally, special consideration may be given to areas where a high number of transfers are expected; waiting times for riders may be longer; stops are close to facilities such as schools, medical centers, or senior centers; and where the physical constraints of bus stop sites, preferences of adjacent property owners, and construction costs could require variance from standards.



Signs and poles

All bus stops

Signs and poles are placed at most bus stops.

Exceptions include transit centers, where there might be special bay signs.



Maps and schedules

Shelters and TCs

Maps and schedules are provided at all transit centers and on all shelters that have schedule holders.

Partner institutions

Additionally, maps and schedules are provided to partner institutions across the region to be available to the public. These partners include libraries, colleges, and social services agencies.



Waste receptacles

Shelters and TCs

Receptacles are placed at all transit centers and at stops with shelters in the Salem-Keizer area.

By discretion of the Service Excellence Team

The installation of a waste receptacle will be considered upon request at stops where noticeable amounts of trash have been reported.



Seating

Shelters and TCs

Transit centers and most bus shelters have benches that meet ADA standards.

Ten boardings per day

Seating will be considered for stops with 10 or more boardings per day. Cherriots currently uses the Simme-Seat with pole product.



Shelters

Twenty boardings per day

Shelters will be considered for any bus stop with 20 or more boardings per day in Salem and Keizer, and five boardings per day for regional express stops.

Other considerations

Shelters will be considered at bus stops with a high number of transfers, as well as stops that are near facilities such as schools, medical centers, or senior centers.



Lighting

Transit centers

All transit centers have lighting to provide a safe environment for riders and to help transit operators see riders.

Poorly lighted shelters

Solar lights can be installed in shelters that do not have adequate ambient light in the evenings and early mornings.



Digital signs

Transit centers

Currently digital signs are only placed at the Downtown Transit Center and Keizer Transit Center.

In the future, digital signs might be considered at more locations, including shelters and other bus stops with adequate ridership.

5.8 Numbering and naming

5.8.1 Route numbering and naming

Route numbers

All bus routes are assigned numbers to help riders identify what bus they are getting on. No route number should overlap with another route number (e.g. Route 1 and Route 1X).

3

Local and Local Express

The local bus network is relatively small and simple so the route numbering should reflect that. When route numbers are in the 100s, some might not ride because the service seems too complex to learn. *As of July 2020, there are currently no local express routes in operation.*

40X

Regional Express

Regional express routes should be divisible by 10 and have an 'X' on the end to show riders they run express and to help differentiate them from Cherriot's Local routes. Exceptions can be made when a route is shared with another transit agency. Routes may follow the numbering convention of that partner agency as long as they don't overlap with existing route numbers.

45

Regional Deviated Fixed Route

Regional deviated fixed routes should use a number ending in five that is closest to the regional express route number in the area/region that it serves.

Route names

Route names are used to further identify the main corridors or cities a route serves. Every route has a unique name that can be used in conjunction with its route number.

Local and Local Express

Local routes should be named after the major streets they operate on. They can be named after one or two streets:

Market / Brown

Regional Express

Regional express routes should be named after the cities they travel to and the word 'Express.' Routes traveling to multiple cities should be named after a corridor or county instead of a city:

Wilsonville / Salem Express

Regional Deviated Fixed Route

Regional deviated fixed routes should use a name that identifies the area/region that the route serves.

Central Polk County

Route directions

All two-way routes have two directions: one for outbound and one for inbound. One-way loops have just one direction.

Local and local express

All local route directions should be named after the end of the route. In some cases, there is a distinct destination like Chemeketa Community College or Downtown Transit Center. In other cases, the part of town can be used, such as South Salem or West Salem:

To West Salem

Regional express

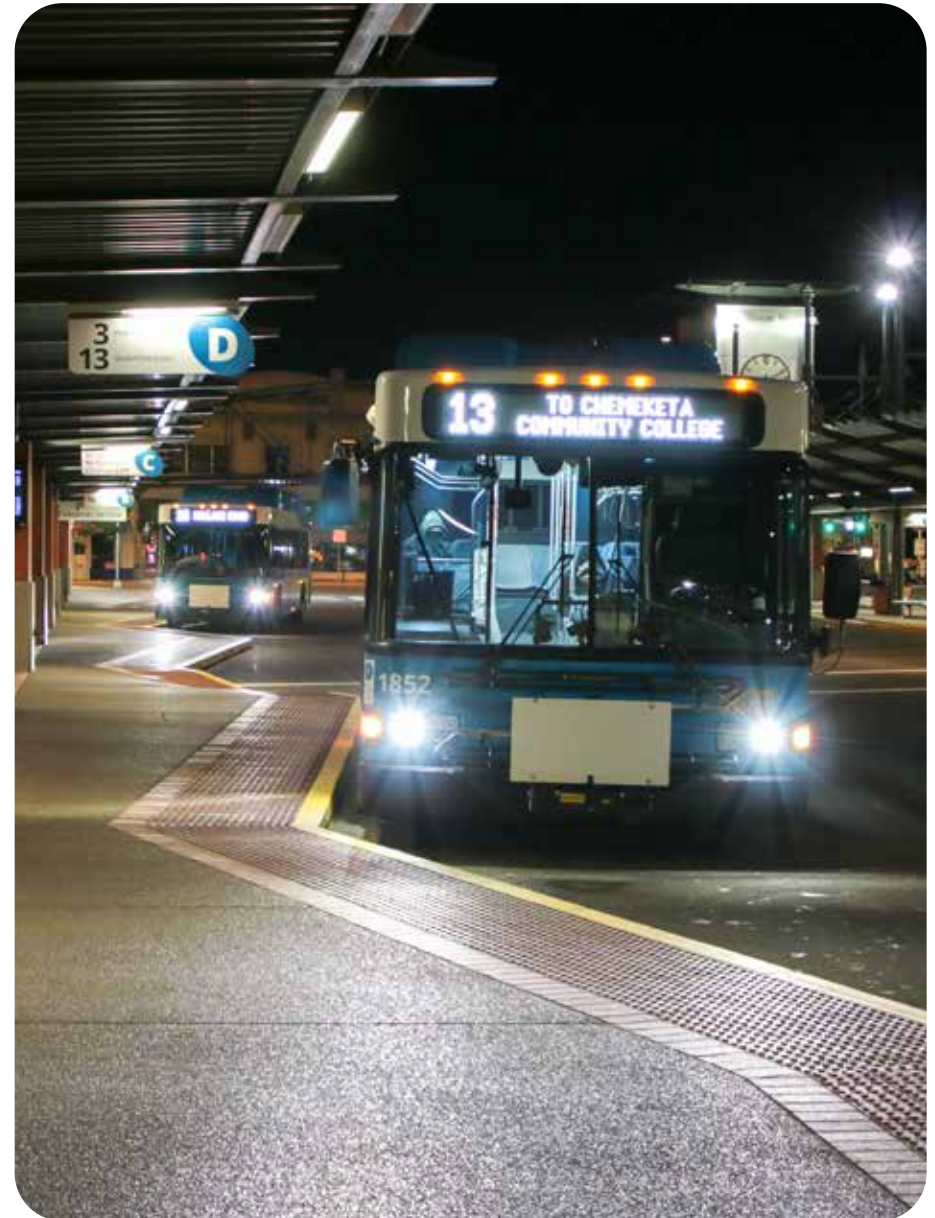
Directions for regional express routes should be named based on the city where the route ends:

To Woodburn

Via

The word “via” can be added to directions to signify when there’s a major destination along the route, or when trying to distinguish between two alternative paths:

To South Lancaster
via Chemeketa CC



5.8.2 Stop numbering and naming

Stop names

Stops are named to help riders know where the stop is located.

Standard stop name

The standard formula for a stop name is Travel Street @ Cross Street:

Center @ 24th

There is no need to add 'Rd' or 'St' to the end of the street name unless the street name can be confused with something else, such as Portland Rd. In this case, 'Rd' clarifies the stops name is not referring to Portland, the city.

Portland Rd @ Hyacinth

Major destination

When a bus stops at a major destination, that destination can be placed in parentheses to help riders identify at which stop they want to get off. However, including businesses in stop names should be done with caution because they can change over time:

Brooks @ Highland (Center 50+)

Regional stop

All regional stops should follow the same naming convention of a standard stop, but the name of the city served and the destination it is at should be placed in parentheses:

Ivy @ 1st (Mill City Market)

No cross street

When bus stops have a travel street but no nearby cross street, a nearby address can be used for the stop name:

3925 Fairview Ind

Transit center

Transit Centers do not follow the typical naming convention. Instead, the name of the transit center is used:

Keizer Transit Center

Park and ride

When a bus stops off-street in a park and ride location, the stop can be named after the park and ride:

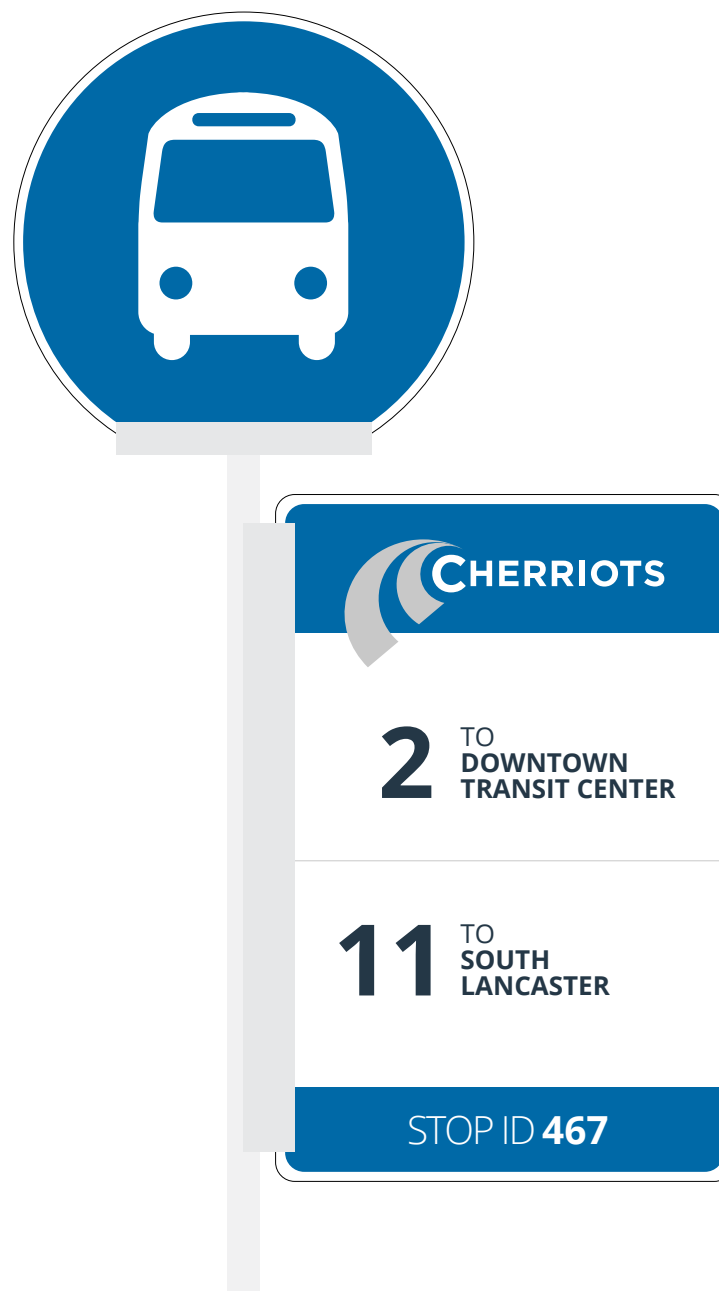
Market St Park and Ride

Stop IDs

All bus stops are assigned unique stop IDs. These IDs are placed on bus stop signs, in a bus stop database, and on work orders. Stop IDs help riders confirm they are at the correct stop and will soon be used to provide real-time arrival information for riders as well. They are also useful for facilities maintenance employees when adding, removing, modifying, or cleaning bus stops.

Whenever a new bus stop is added, that stop is assigned a stop ID. Stop IDs range between one and four digits and are never reused.

Stop ID **264**





CHERRIOTS

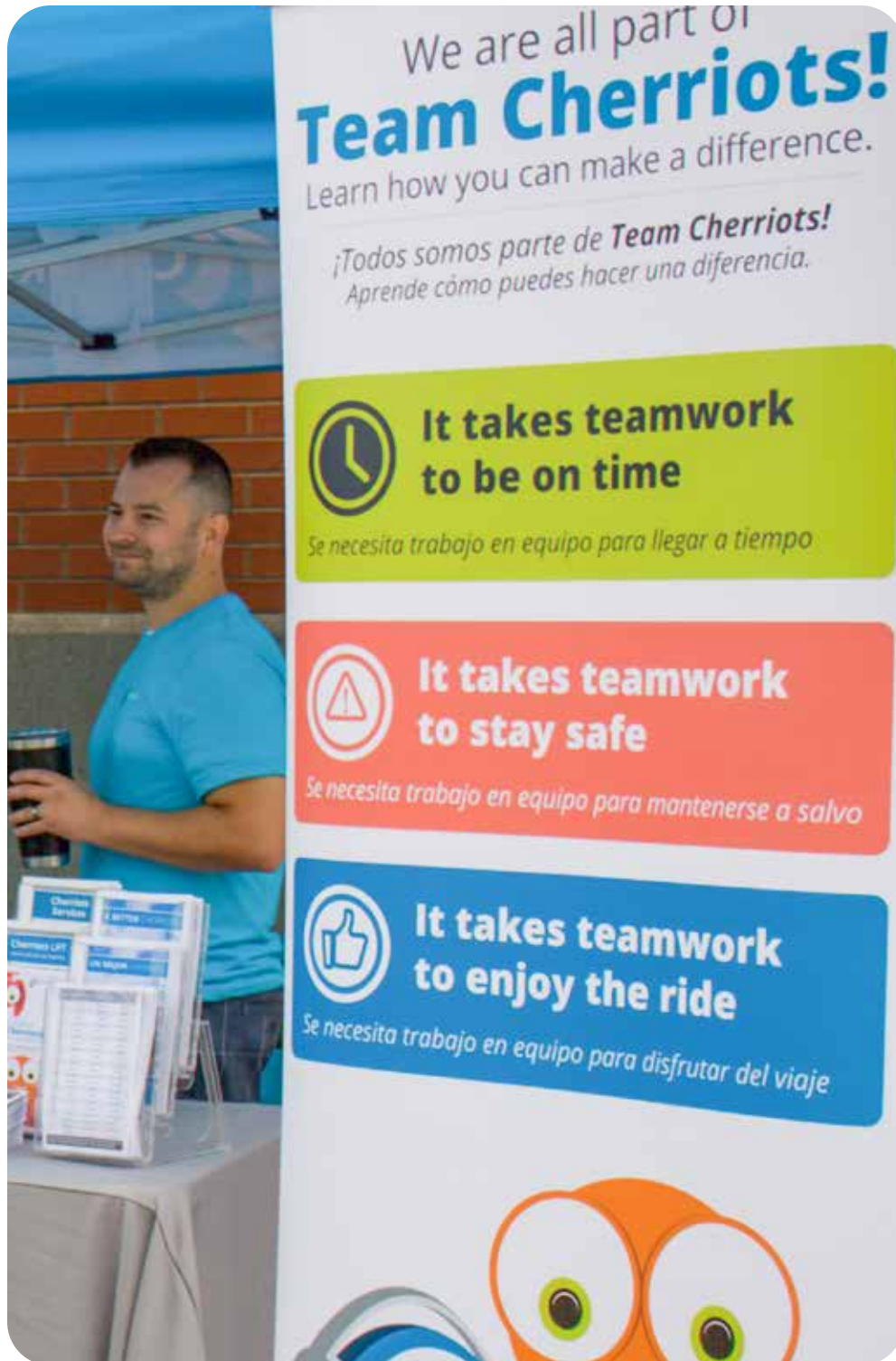
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6

Public engagement

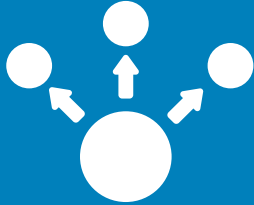
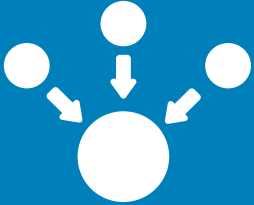
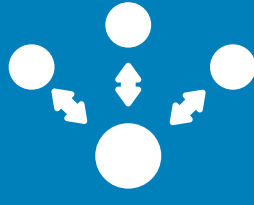
Once the service plan has been drafted, the next step is to bring that plan to the public for their input.

No matter how much thought and effort goes into developing the draft service plan, it is important to engage current riders and the greater community to ensure the plan best meets their needs. It is for them, after all, that Cherriots is creating this plan and delivering this service.

The primary benefit of the public engagement process is that it brings staff multiple perspectives on how the draft plan will impact real people. If done well, the process will identify and eliminate any significant issues with the plan. The end result should be a stronger plan that the public can support.

6.1 Levels of engagement

It is important to be up front with the public about what their role will be in the service planning process so their expectations are grounded in reality. Cherriots staff will typically engage the public through a combination of three different types of engagement – inform, consult, and involve. Below is a chart showing the goal and promise behind each of these three types of engagement, as defined by the International Association of Public Participation (IAP2).

	INFORM	CONSULT	INVOLVE
			
GOAL	To provide balance and objective information in a timely manner	To obtain feedback on analysis, issues, alternatives, and decisions	To work with the public to make sure concerns and aspirations are considered and understood
PROMISE	<i>"We will keep you informed"</i>	<i>"We will listen to you and acknowledge your concerns"</i>	<i>"We will work with you to ensure your concerns and aspirations are directly reflected in the decisions made"</i>

Source: International Association of Public Participation (IAP2)

6.2 Materials for public

Draft service plan

The draft service plan will give the public a comprehensive overview of what service changes are proposed and why those decisions were made. Information in the plan will be presented using text, tables, maps, and other graphics to give riders an easy-to-understand picture of what the new service would mean for them.

The plan will be presented both in print and on a webpage. The purpose of having both versions is to make it easier to conduct outreach in person and online. Both the print version of the plan and the webpage will be translated into Spanish, in accordance with the District's Language Assistance Plan.

Survey form

In order to gather meaningful input about the plan, a short survey form will be developed by staff. This form typically asks riders what they think of the overall plan (Strongly Like, Somewhat Like, Neutral, Somewhat Dislike, Strongly Dislike, or Unsure), and give them an opportunity to make suggestions for making the plan work better for them.

The survey form will be developed in English and Spanish, in accordance with the Language Assistance Plan, and will be available in both a print and online version.



6.3 Audiences

During the public engagement period, there are multiple audiences with whom staff engages. Working with these audiences allows Cherriots staff to hear a variety of perspectives on the draft service plan.

Riders

Those who ride Cherriots buses know more than anyone what issues arise while riding transit. In order to gather their input, Cherriots conducts robust rider engagement.



Frontline employees

Frontline employees are Cherriots employees who engage directly with riders. It is important to engage with frontline employees, both to get their perspectives on service as well as to learn more about the needs of riders.



Partners

Partners are external organizations that work with Cherriots to help advance opportunities and conditions for travelers to use alternatives to driving alone. These partners can help get the draft service plan in the hands of more community members, which in turn helps Cherriots receive more input.



Civic groups

Nonprofit organizations whose official goal is to improve neighborhoods through volunteer work by its members.



Education

Education foundations, school districts, middle and high schools, colleges, universities, and student associations.



Faith community

Community churches, houses of worship, and faith-based nonprofits.



Government

Councils of government, counties, and city governments.



Latino and other minority groups

Groups focused on promoting equity and inclusiveness, including business alliances, college officers, institutes, and associations.



Local business

Small businesses, corporations, hospitals and clinics, business associations, and chambers of commerce.



Neighborhood associations

All neighborhood associations in Salem, Keizer, and nearby areas.



News media and bloggers

Newspapers, radio stations, and local blogs.



Social services and nonprofits

Organizations that provide social services and other services to the community without making a profit.



Transit agencies

Neighboring transit agencies that connect with Cherriots service.



Tribes

The local tribes in the area are The Confederated Tribes of Grand Ronde and The Confederated Tribes of Siletz Indians.

6.4 Committees and meetings

Cherriots may bring service plans to one internal and four external committees. These committees inform and consult on service proposals, and staff informs them of all finalized service changes. Staff also attend a number of meetings in the community on a regular basis in order to learn about community needs and keep each group informed on the latest developments at Cherriots.

Committees organized by Cherriots

Statewide Transportation Improvement Fund Advisory Committee *(STIFAC)*

The Cherriots Board of Directors formed the Statewide Transportation Improvement Fund Advisory Committee (“STIFAC”) pursuant to Oregon law for the purpose of advising and assisting the District in carrying out the purposes of the Statewide Transportation Improvement Fund (“STIF”). The STIF was created with the passage of House Bill 2017 in the 2017 Legislative Session.

The STIFAC will prioritize and recommend projects that will go to the Board of Directors for approval. The District is the designated Qualified Entity for STIF monies received for the public transportation service providers (PTSP) in Marion and Polk counties. The PTSPs include Cherriots Local, Cherriots Regional, Woodburn Transit, and Silverton’s Silver Trolley. The STIFAC may also advise the District regarding opportunities to coordinate STIF-funded projects with other local or regional transportation programs and services to improve transportation service delivery and reduce gaps in service.

Citizens Advisory Committee *(CAC)*

The mission of the Citizens Advisory Committee (CAC) is to act as an advisory committee to the Board of Directors on transportation-related issues. The CAC also makes suggestions for transit service improvements, and advocates for enhanced funding for public transportation.

STF Advisory Committee *(STFAC)*

The Special Transportation Fund Advisory Committee (STFAC) advises and assists the Board of Directors on how STF and Section 5310 grant funds will be spent and provides the Board with information about each community’s special transportation needs.

Employee Transportation Coordinators *(ETC)*

Cherriots Trip Choice organizes a quarterly Employee Transportation Coordinator (ETC) luncheon, at which the ETCs can learn about Cherriots news and transportation options updates. It is also an opportunity for ETCs to network and exchange ideas.

Service Excellence Team *(SET)*

The Service Excellence Team (SET) is an internal group made up of members from many Cherriots departments, including transit operators. SET members discuss service performance, operator ideas, and rider requests for changes to service, stops, and shelters. The team also reviews service plan drafts.



Meetings attended in the community

City of Salem/Cherriots Staff Meeting

A meeting between staff from the City of Salem and Cherriots with a focus on transportation infrastructure and policies. These meetings take place at least once a quarter.

Community and Partners of East Salem

Facilitates community connections, supports children and families, and promotes a safe, healthy, clean environment.

Edgewater Partnership Meeting

Increases community connections, cultivates a safe and healthy environment, and enhances neighborhood pride.

Emergency Housing Network

Brings together advocates and agencies serving the homeless and at-risk populations of greater Salem.

Greeters

Networking programs organized by the Salem, Keizer, McMinnville, and Monmouth/Independence Chambers of Commerce.

Keizer United

Builds and retains a stronger community for those who live, work, worship, and play in Keizer.

Latino Business Alliance

Unites and strengthens the Latino business community.

North Neighborhoods

Raises the voices, identifies priorities, develops plans, and engages resources to make a difference and advocate in Salem's north-central neighborhoods.

Salem for Refugees

Exists to bring people and resources together to empower refugees to thrive in Salem, Oregon.

Salem-Keizer Active Transportation Network

An informational hub for community-based organizations and public agencies in the region to share information on best practices and upcoming funding competitions, and to engage in increasing active transportation investments and policy.

Salem-Keizer Collaborative

Partnering for change in education, educator preparation, and outcomes for Oregonians.

Senior Lifestyles Meeting

Attendees participate in information sharing as well as engage in networking opportunities.

Senior Service Network

Open meeting for those serving the needs of seniors in the Salem area.

Service Integration Teams

Facilitates collaboration among community partners to provide coordinated resources and information for individuals and families. Teams include Dallas, Falls City, Independence-Monmouth, McMinnville, Perrydale, Salem-Keizer, Santiam Canyon, Stayton-Sublimity, Silverton, Turner, West Salem, and the West Valley (Grand Ronde).

South Salem Connect

Works to increase neighborhood livability for children, youth, and families through partnerships, projects, and programs.

6.5 Engagement strategies

6.5.1 Public engagement strategies

Cherriots staff use a variety of strategies to engage the public during the public engagement period. It is not necessary to use every strategy for every outreach period. Instead, strategies are chosen depending on the nature of the service plan and the audience staff wishes to reach.

Strategies are split into six categories: promoting online, promoting on buses, promoting at transit centers, promoting in the community, inviting the public to events, and going directly to the public.



Promoting online

Email blast to all subscribers, posts on Facebook and Twitter, and a feature element on the Cherriots home page.



Email blasts



Social media posts



Homepage features



Project webpages

Promoting on buses

Bus ads on the inside and outside of buses, onboard announcements informing riders of the proposal, and take-one fliers with details of the draft plan on the buses.



Header card ads



Exterior bus ads



Onboard announcements



Take-one fliers

Promoting at transit centers

Posters on the walls of the customer service lobby, and sandwich boards and monitor ads at the transit centers.



Posters



Sandwich boards



Monitor ads

Promoting in the community

Fliers posted on neighborhood bulletin boards and at local businesses, notices on bus stops that could be impacted, press releases, and interviews with the media.



Fliers



Bus stop notices



Press releases



Media interviews

Inviting the public to events

Organizing open houses, workshops, and focus groups, and inviting riders and other members of the public to attend. These are generally in-person events, but sometimes can be virtual meetings to increase accessibility.



Open houses



Workshops



Focus groups

Going directly to the public

Riding buses to talk directly to riders, setting up information tables at popular destinations in the community, and making presentations and announcements to community groups.



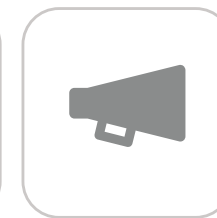
On-board conversations



Information tables



Presentations



In person announcements

6.5.2 Internal engagement strategies

Cherriots Planning staff also use various strategies to engage other Cherriots staff, especially frontline employees, during the public engagement period. The purpose of this process is to synthesize the themes of conversations staff have been having with riders and community members.

Strategies are split into three categories: promoting in staff gathering areas, using staff communication tools, and promoting through personal conversations.

Promoting in staff gathering areas

Information about upcoming service changes, and requests for input are posted on monitors in staff breakrooms, memos posted to staff bulletin boards, and table tent announcements on break room tables.



Monitor ads



Memos



Table tent announcements

Using staff communication tools

Communication tools include articles in the monthly newsletter, news on the staff intranet site, and staff email messages. Opportunities are given through these methods to respond and share what staff are hearing from riders and community members.



Newsletter articles



Intranet site



Staff emails

Personal conversations

Various frontline staff may also be contacted directly and interviewed for their views on public opinions of the service and proposed changes.



Direct contact interviews

6.6 Finalizing the service plan

Public engagement report

Once the engagement period has concluded, all input received will be considered by staff and the draft service plan will be modified to best address the ideas received.

Full results of the engagement will be published in a report and made available to the public.

6.7 Board consideration

For any service plan that includes a change classified as a major service change, both the service plan and the equity analysis need to be approved by the Cherriots Board of Directors. If any of those major service changes result in a decrease in service, a public hearing is required. Staff must post a notice in local

Equity analysis and final service plan

Once the service plan is modified, staff will update the equity analysis to ensure there are no new potential disparate impacts and disproportionate burdens. Adjustments to the service plan will be made in order to avoid any disparate impacts and disproportionate burdens.

The finalized service plan will be made available in both English and Spanish.

newspapers informing the public of the time and location of the hearing at least 30 days in advance. If the service plan is approved by the Board of Directors, the next step is for staff to begin the work necessary to successfully implement the new service.







7

Implementation

Once the service plan is finalized and approved, the final stage of the service planning process is implementation. The key components of implementation are developing schedules and creating the operator bid; designing and producing public materials; notifying riders and the greater public; installing new bus stops and shelters, as well as removing old ones; updating technology platforms with new service data; and training customer service and transit ambassadors and hosts.

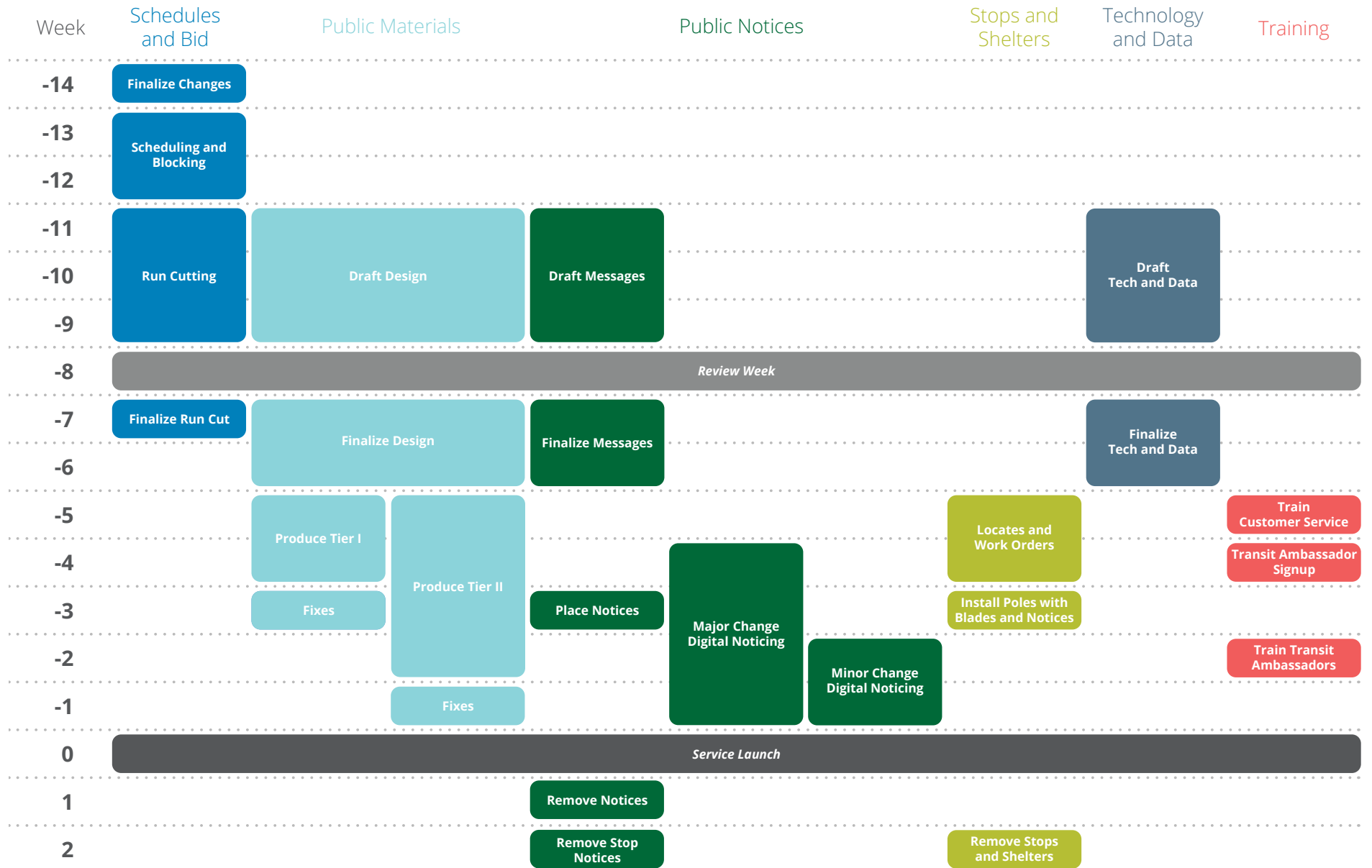
Service changes may be implemented three times a year: January, May, and September. For the most part, the largest changes happen every other September (see Biennial service planning process, page iv).

7.1 Overview

Cherriots has a detailed implementation process, broken up week by week leading up to implementation. The timeline gives staff enough time to create drafts of all materials affected by the service change. These draft materials are reviewed internally to ensure their accuracy. Final materials are installed and digital materials updated the day before the first day of the service change. Once the service change goes live, staff focuses on how the changes are being received by riders, transit operators, and customer service staff.



7.2 Implementation process



7.2.1 Scheduling

Overview

When developing a service plan, planners determine how frequent the bus will run and how long it will run throughout the day for each route. During the scheduling process, planners take this one step further by determining the overall runtime each trip needs and how much time should be scheduled between time points. Once those details are determined, schedules are developed for each route in Trapeze, a scheduling software.

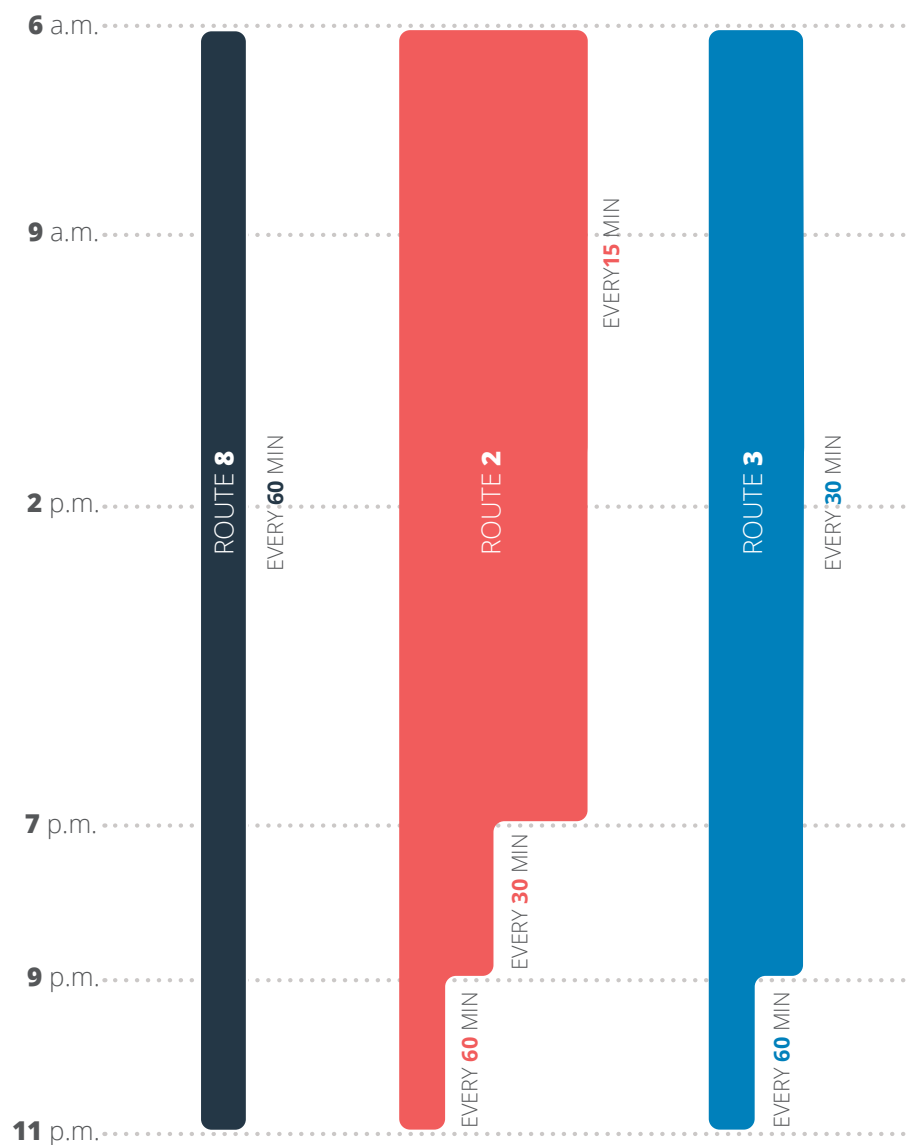
The next step is to create blocks. Blocks represent what each bus does out on the road. The number of blocks required for each route depends on the frequency of the route and the total runtime throughout the day. Sometimes blocks are split intentionally to help with on-time performance. Other times, two or more routes are blocked together, known as interlining, to help with efficiency. A block is not directly tied to a particular bus, as a bus can be swapped due to a breakdown or planned maintenance. Every morning before service begins, a bus is assigned to each block by the dispatcher.

The final step in the scheduling process is to cut each block into smaller pieces and rearrange those pieces into runs. A run is another word for an operator's shift. It is likely each block will be tied to multiple runs. Multiple operators may drive whichever bus is assigned to that block. In the diagrams on the right, you can see an overly simplified version of a run cut. In reality, planners must follow a number of rules agreed to by the union, including requirements regarding lunch breaks, percentage of split shifts, number of part-time operators, etc.

Once runs are cut, the next step is to develop bid materials.

Developing schedules

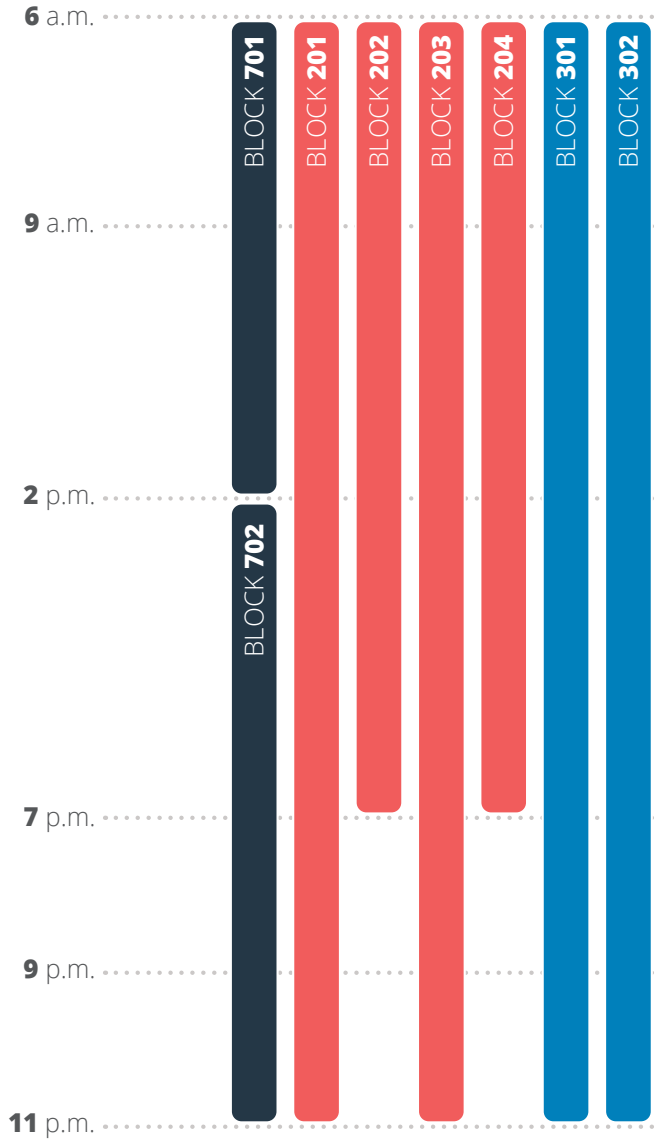
How long and often the route will run, and the round trip time.



Example assumes round trip time is 60 minutes

Creating blocks

When each bus is on the road to make the schedules work.



Cutting runs

Slicing blocks into pieces and reordering into operator shifts.



7.2.2 Bidding

Transit operators bid on their runs through a process called a signup. To help operators understand the details of the runs, staff provide a number of materials—some of which are featured below. These materials are also used by operators to help them learn the path of their assigned routes, as well as the scheduled departure times for each time point along those routes.

Run guide

Overview of each operator shift, also known as a run.

Weekday Run Guide July 12, 2020 (2020.0712)

Run	Type	Start Line	Block	Piece On	From Node	From Time	To Time	To Node	Piece Off	Plat	Report	Clear	Travel Pay	Work Time	OT Paid	Makeup Time	Spread OT	Split Bonus	Total Pay
101	Early Straight	21 6	2102 602	6:27 11:30	Fd_GAR DTC	6:37 11:00	10:30 17:00	DTC	17:00	3H53 6H00 9H53	0h10 0h00 0h10	0h00 0h00 0h15	10h18	1h09	0h00	0h00	0h00	11h27	
102	Early Straight	8 5	802 201	6:11 11:30	Fd_GAR DTC	6:21 11:30	10:30 16:45	DTC	16:45	4H09 5H15 9H24	0h10 0h00 0h10	0h00 0h00 0h15	9h49	0h55	0h00	0h00	0h00	10h44	
103	Early Straight	5 19	203 1901	6:00 10:30	Fd_GAR DTC	6:10 10:30	10:00 15:45	DTC	15:45	3H50 5H15 9H05	0h10 0h00 0h10	0h00 0h00 0h15	9h30	0h45	0h00	0h00	0h00	10h15	
104	Early Straight	18 5	801 205	5:40 9:00	Fd_GAR DTC	5:50 9:00	8:30 15:15	DTC	15:15	2H40 6H15 8H55	0h10 0h00 0h10	0h00 0h00 0h15	9h20	0h40	0h00	0h00	0h00	10h00	
105	Early Straight	11 12 CAR	1104 1201	6:57 10:30 16:30	Fd_GAR KTC KTC	7:07 10:30 16:30	10:00 16:30 16:45	KTC KTC Fd_CAR	16:45	2H53 6H00 0H15 9H08	0h10 0h00 0h10 0h10	0h00 0h00 0h00 0h00	9h18	0h39	0h00	0h00	0h00	9h57	
106	Early Straight	2 3 301	201 301	6:34 10:00	Fd_GAR DTC	6:44 10:00	9:30 16:00	DTC	16:00	2H46 6H00 8H46	0h10 0h00 0h10	0h00 0h00 0h15	9h11	0h36	0h00	0h00	0h00	9h47	
107	Early Straight	11 11 CAR	1102 1105	6:12 10:15 16:00	Fd_GAR KTC KTC	6:22 10:15 16:00	9:15 16:00 16:15	KTC KTC Fd_CAR	16:15	2H53 5H45 0H15 8H53	0h10 0h00 0h10 0h10	0h00 0h00 0h00 0h00	9h03	0h32	0h00	0h00	0h00	9h35	
108	Early Straight	4 5	401 202	5:44 8:30	Fd_GAR DTC	5:54 8:30	8:00 14:30	DTC	14:30	2H06 6H00 8H06	0h10 0h00 0h10	0h00 0h00 0h15	8h31	0h16	0h00	0h00	0h00	8h47	
109	Early Straight	7 23	701 2301	6:19 10:00	Fd_GAR DTC	6:29 10:00	9:30 15:00	DTC	15:00	3H01 5H00 8H01	0h10 0h00 0h10	0h00 0h00 0h15	8h26	0h13	0h00	0h00	0h00	8h39	
110	Early Straight	5 16	202 601	6:30 9:25	Fd_GAR DTC	6:40 9:25	8:30 15:25	DTC	15:25	1H50 6H00 7H50	0h10 0h00 0h10	0h00 0h00 0h15	8h15	0h08	0h00	0h00	0h00	8h23	
111	Early Straight	5 17	207 1702	7:45 10:30	Fd_GAR DTC	7:55 10:30	9:45 16:30	DTC	16:30	1H50 6H00 7H50	0h10 0h00 0h10	0h00 0h00 0h15	8h15	0h08	0h00	0h00	0h00	8h23	
112	Early Straight	19 13	1901 1301	6:35 11:30	Fd_GAR DTC	6:45 11:30	10:30 15:30	DTC	15:30	3H45 4H00 7H45	0h10 0h00 0h10	0h00 0h00 0h15	8h10	0h05	0h00	0h00	0h00	8h15	
113	Early Straight	19 5	1903 204	7:20 12:45	Fd_GAR DTC	7:30 12:45	12:15 15:45	DTC	15:45	4H45 3H00 7H45	0h10 0h00 0h10	0h00 0h00 0h15	8h10	0h05	0h00	0h00	0h00	8h15	

Shuttle schedules

Shuttles are scheduled for operators to get between the Del Webb Operations Center, Downtown Transit Center, and Keizer Transit Center.

Paddles

Operator shifts and details of routes and time points.

```

===== DRIVER PADDLE =====
RUN 106 -- Main -- SCENARIO: SD: 08-22-2017--- 7:51 Weekday EFFECTIVE: September 5, 2017
-----
BLOCK ON OFF BLOCK ON OFF
(902)-(5:59)-(1000) (801)-(1100)-(1548)
-----
PLATFORM: 8h34 WORK TIME: 8h49 OVERTIME: 0h25 SPREAD OVERTIME: 0h00 PAY TIME: 9h14
-----
P-0 -- LEAVE 6:09 FROM Facility -- ARRIVE 6:10 AT Out DelW --
-----
LINE 09 << Downtown T ++ --Cherry / River Rd-- ++ Parkmeadow >>
-----
RTE NOTE DTC Broa Broa Out In Rive Rive Park
Acad Colu DelW DelW Chem Chem Whea
++ -- -- 6:10 6:16 6:24 >>
<< 6:52 6:43 6:38 6:30 6:24 ++
++ 7:02 7:06 7:10 7:16 7:24 >>
<< 7:52 7:43 7:38 7:30 7:24 ++
++ 8:00 8:06 8:10 8:16 8:24 >>
<< 8:52 8:43 8:38 8:30 8:24 ++
++ 9:00 9:06 9:10 9:16 9:24 >>
<< 9:50 9:41 9:37 9:30 9:24 ++
++ (1000)1006 1010 1016 1024 >>
-----
LINE 08 << Downtown T ++ --12th / Liberty-- ++ South Sale >>
-----
RTE NOTE DTC 12th 13th Prin Prin Libe Libe Skyl Croi Boon Skyl Boon Barn
Rura Rura Madr Geor Cunn Frie Kueb Jose Cumb Drc1 Cumb Comm
++ (1100)1108 1113 1122 1125 1132 1139 >>
<< 1220 1210 1206 1158 -- 1153 1146 1141 ++
-----
LINE 18 << Downtown T ++ --12th / Liberty-- ++ South Sale >>
-----
RTE NOTE DTC 12th 13th Prin Prin Libe Libe Skyl Croi Boon Skyl Boon Barn
Rura Rura Madr Geor Cunn Frie Kueb Jose Cumb Hillf Wood Comm
++ 1230 1238 1243 1252 1255 1259 1304 1309 >>
<< 1350 1340 1336 1328 1322 1319 1314 1311 ++
-----
LINE 08 << Downtown T ++ --12th / Liberty-- ++ South Sale >>
-----
RTE NOTE DTC 12th 13th Prin Prin Libe Libe Skyl Croi Boon Skyl Boon Barn
Rura Rura Madr Geor Cunn Frie Kueb Jose Cumb Drc1 Cumb Comm
++ 1400 1409 1414 1424 1427 1434 1442 >>
SD << 1528 1519 1514 1505 1459 1455 1447 1442 ++
-----
P-I -- LEAVE 1528 FROM DTC -- ARRIVE 1543 AT Facility --
=====
SD-- This is a school day paddle
    
```

Bid results

Informs operators which run they will be driving. *Vacation days are bid for on a separate schedule.*

Note: Some of the regional bus routes are contracted to a transportation provider and their bidding process and materials differ. In general, their bid periods line up with Cherriots.

Headway sheets

Time points for each block group by block.

PROCESSED: 9:27a 08-22-17		Headway Sheet		Active Scenario: SD: 08-22-2017--- 7:51		EFFECTIVE DATE: September 5, 2017		REVISION DATE:		Page: 1	
Block	Run	Note	Gar-Out	D-H	DTC	Cent	Cent	Mark	D-H	Gar-In	Run
			Fr-Line			24th	Conc	Clay			To-Line
			Lancaster								
203	163	F	5:50:00		6:00:00	6:06:00	6:11:00	6:17:00			163
202	114	F	02		6:30:00	6:36:00	6:41:00	6:47:00			114
204	113	F	02		6:45:00	6:51:00	6:56:00	7:02:00			113
205	115	F	02		7:00:00	7:06:00	7:11:00	7:17:00			115
206	104	F	02		7:15:00	7:21:00	7:26:00	7:32:00			104

201	112	F	02		7:30:00	7:36:00	7:41:00	7:47:00			112
208	162	F	02		7:45:00	7:51:00	7:56:00	8:02:00			162
203	163	F	02		8:00:00	8:06:00	8:11:00	8:17:00			163
207	169	F	02		8:15:00	8:21:00	8:26:00	8:32:00			169
202	114	F	02		8:30:00	8:36:00	8:41:00	8:47:00			114

204	113	F	02		9:00:00	9:06:00	9:11:00	9:17:00			113
205	115	F	02		9:15:00	9:21:00	9:26:00	9:32:00			115
201	112	F	02		9:30:00	9:36:00	9:41:00	9:47:00			112
208	162	F	02		9:45:00	9:51:00	9:56:00	10:02:00			162

203	163	F	02		10:00:00	10:06:00	10:11:00	10:17:00			163
207	169	F	02		10:15:00	10:21:00	10:26:00	10:32:00			169
202	180	F	02		10:30:00	10:36:00	10:41:00	10:47:00			180
204	113	F	02		10:45:00	10:51:00	10:56:00	11:02:00			113
205	112	F	02		11:00:00	11:06:00	11:11:00	11:17:00			112

206	104	F	02		11:15:00	11:21:00	11:26:00	11:32:00			104
201	176	F	02		11:30:00	11:36:00	11:41:00	11:47:00			176
208	162	F	02		11:45:00	11:51:00	11:56:00	12:02:00			113
203	110	F	02		12:00:00	12:06:00	12:11:00	12:17:00			110
207	102	F	02		12:15:00	12:21:00	12:26:00	12:32:00			102

202	180	F	02		12:30:00	12:36:00	12:41:00	12:47:00			180
204	115	F	02		12:45:00	12:51:00	12:56:00	13:02:00			115
205	112	F	02		13:00:00	13:06:00	13:11:00	13:17:00			112
206	132	F	02		13:15:00	13:21:00	13:26:00	13:32:00			132
201	176	F	02		13:30:00	13:36:00	13:41:00	13:47:00			139

208	113	F	02		13:45:00	13:51:00	13:56:00	14:02:00			113
203	110	F	02		14:00:00	14:06:00	14:13:00	14:21:00			142
207	102	F	02		14:15:00	14:23:00	14:28:00	14:36:00			102
202	140	F	02		14:30:00	14:38:00	14:43:00	14:51:00			140
204	115	F	02		14:45:00	14:53:00	14:58:00	15:06:00			126

205	169	F	02		15:00:00	15:08:00	15:13:00	15:21:00			169
206	132	F	02		15:15:00	15:23:00	15:28:00	15:36:00			144
201	139	F	02		15:30:00	15:38:00	15:43:00	15:51:00			139
208	122	F	02		15:45:00	15:53:00	15:58:00	16:06:00			122
203	142	F	02		16:00:00	16:08:00	16:13:00	16:21:00			142

Block summary

An overview of each block, including revenue time, layover/recovery time, and number of revenue trips.

Route trees

Turn-by-turn directions and points of interest by route.

ROUTE 19

OUTBOUND

Start @ DOWNTOWN TRANSIT CENTER

SOUTH LANE - BAY A

L @ CHURCH ST NE

L @ UNION ST NE

R @ HIGH ST NE

Cont. @ BROADWAY ST NE

Cont. @ RIVER RD N

R @ LOCKHAVEN DR NE

L @ KEIZER STATION BV NE

R @ KEIZER TRANSIT CENTER - BAY D

Arrive

INBOUND

Start @ KEIZER TRANSIT CENTER

R @ KEIZER STATION BV NE

L @ STADIUM DR NE

R @ ULALI DR NE

R @ KEIZER STATION BV NE

R @ LOCKHAVEN DR NE

L @ RIVER RD N

Cont. @ BROADWAY ST NE

Cont. @ HIGH ST NE

L @ DOWNTOWN TRANSIT CENTER

SOUTH LANE - BAY A

Arrive

Pull ins and pull outs

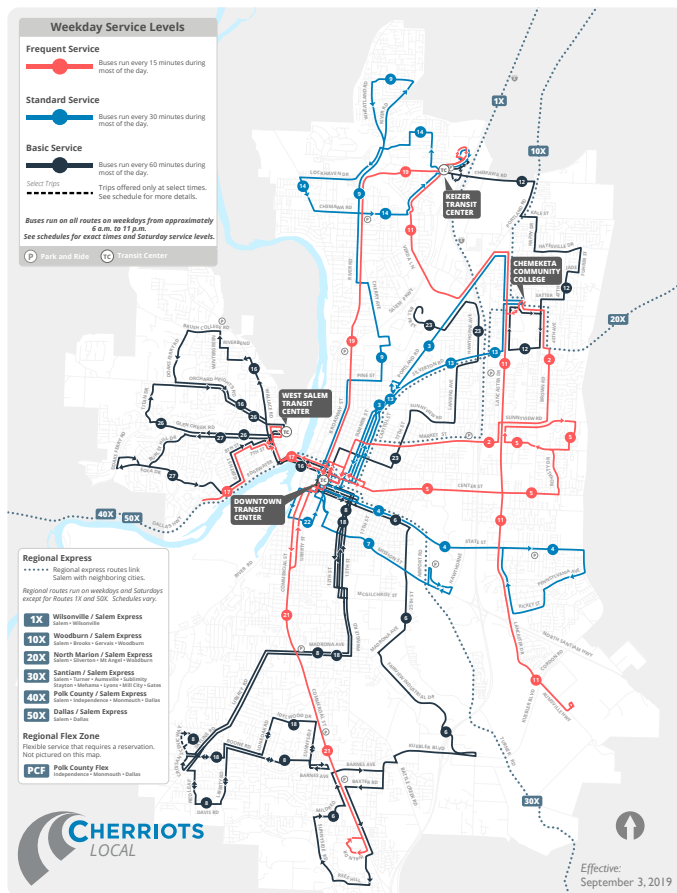
Used to calculate the number of peak vehicles and to determine the vehicle type, pull in time, and pull out time for each block.

7.2.3 Public materials

Cherriots produces maps and schedules in a variety of formats to help riders understand where routes go and when they go there. Materials are available at transit centers, on buses, and at partner locations throughout the community (including local colleges, libraries, and senior centers). Schedules are also posted at shelters to provide information specific to that location.

Maps

Posted at transit centers, as well as made available online and in a foldable format at transit centers.



Shelter schedules

Posted in all of the shelters throughout the system.

Market @ Motor
Stop ID
944

2 Market / Brown

To Chemeketa Community College

Weekdays <small>Días de Semano</small>	Saturdays <small>Sábados</small>	Sundays/Holidays <small>Domingos/Días Feriados</small>
6:42a	1:57p	7:12a
7:12a	2:14p	7:42a
7:27a	2:29p	8:12a
7:42a	2:44p	8:42a
7:57a	2:59p	9:12a
8:12a	3:14p	9:42a
8:27a	3:29p	10:12a
8:42a	3:44p	10:42a
8:57a	3:59p	11:12a
9:12a	4:14p	11:42a
9:27a	4:29p	12:12p
9:42a	4:44p	12:42p
9:57a	4:59p	1:12p
10:12a	5:14p	1:42p
10:27a	5:29p	2:13p
10:42a	5:43p	2:43p
10:57a	5:58p	3:13p
11:12a	6:13p	3:43p
11:27a	6:28p	4:13p
11:42a	6:43p	4:43p
11:57a	6:58p	5:13p
12:12p	7:11p	5:43p
12:27p	7:41p	6:13p
12:42p	8:11p	6:43p
12:57p	8:41p	7:11p
1:12p	9:11p	7:11p
1:27p	10:11p	8:11p
1:42p	11:11p	9:11p

Sunday / Holiday service coming in May 2020
Servicio en domingos / días feriados disponible en mayo del 2020

All times are estimates. Please arrive five minutes earlier than the posted time.
Todos los tiempos son estimaciones. Por favor, llegue cinco minutos antes de la hora publicada.

Effective September 1, 2019

No buses run on these holidays:
 New Year's Day | Presidents Day | Memorial Day
 Independence Day | Labor Day | Veterans Day
 Thanksgiving Day | Christmas Day

In the event of snow or ice, this bus stop may be temporarily out of service.
 Cherriots.org/alerts • 503-588-2877

No hay servicio en los siguientes días feriados:
 Día de Año Nuevo | Día del Presidente | Día de Comemoración
 Día de la Independencia | Día de Trabajo | Día de los Veteranos
 Día de Acción de Gracias | Día de Navidad

En el evento del mal tiempo, esta parada podría estar fuera de servicio.
 Cherriots.org/es/alerts • 503-588-2877

Cherriots.org
 or Call 503-588-2877

Smoking and vaping are prohibited in shelters.

7.2.4 Technology and data

Data is updated across all platforms to ensure riders get the information they need to plan their trips. Cherriots produces a General Transit Feed Specification (GTFS) file with all service information, and most technology platforms read that feed.

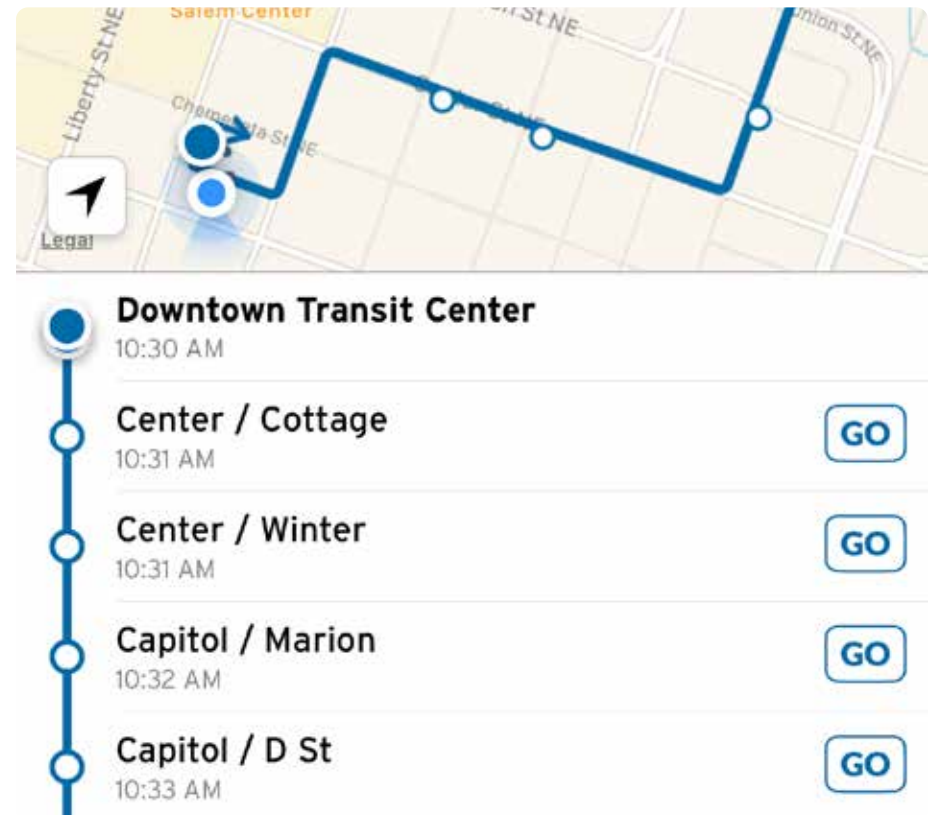
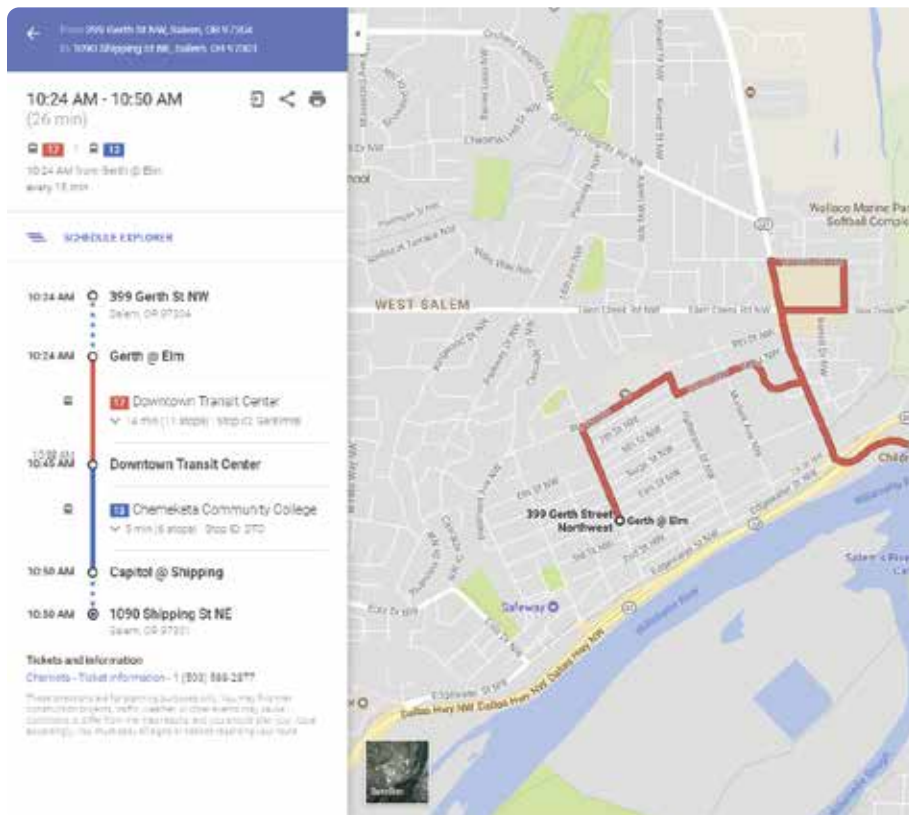
Note: Cherriots is in the process of implementing the GMV Synchronatics CAD/AVL product. One of the features of this product will be a public-facing real time information screen. The implementation project is slated for completion at the end of the 2020 calendar year.

Google Maps

Used by riders for planning trips on desktop or mobile. The Cherriots Trip Planner also uses Google Maps so riders can plan their trips directly from Cherriots.org.

Transit App

Used by riders for planning trips on mobile.



Departure screens

Lists departure times at transit centers.

Route	Destination	Time 1	Time 2
P 2	Market / Brown	10:00a	10:15a
D 3	Portland Road	10:00a	10:30a
H 4	State Street	10:00a	11:00a
M 5	Center Street	10:00a	10:15a
G 6	Mission / Fairview Ind.	10:00a	11:00a
G 7	Mission / Hawthorne	10:30a	11:30a
I 8	12th / Liberty via Red Leaf	10:00a	11:00a
Q 9	Cherry / River Road	10:00a	10:30a
D 13	Silverton Road	10:15a	10:45a
B 16	Wallace Road	10:25a	11:25a
O 17	Edgewater / Gerth	10:00a	10:15a
I 18	12th / Liberty via Lone Oak	10:30a	11:30a
A 19	Broadway / River Road	10:00a	10:15a
K 21	South Commercial	10:00a	10:15a
F 22	Library Loop	N o W	10:23a
N 23	Lansing / Hawthorne	10:00a	11:00a
H 24	State / Lancaster	10:30a	11:30a
Regional			
R 1X	Wilsonville / Salem Express	3:35p	---
S 2X	Grand Ronde / Salem Express	1:30p	3:30p
L 10X	Woodburn / Salem Express	12:00p	2:00p
V 20XN	Marion Co. / Salem Express	10:00a	12:00p
U 30X	Santiam / Salem Express	10:30a	3:00p
T 40X	Polk County / Salem Express	12:30p	3:00p
S 50X	Dallas / Salem Express	5:00p	---

Website timetables

Digital version of print schedules, showing all departure times.



Weekday Service Schedule				
Downtown Transit Center - Bay P	Market @ 17th	Market @ Motor	Brown @ San Francisco	Chemeketa College - Bldg 2 - Bay C
7:00 AM	7:07 AM	7:12 AM	7:17 AM	7:23 AM
7:30 AM	7:37 AM	7:42 AM	7:47 AM	7:53 AM
8:00 AM	8:07 AM	8:12 AM	8:17 AM	8:23 AM

Destination signs and announcements

Tell riders on the bus where they are and where they are going.



Internal platforms

In addition to updating data on public-facing platforms, Cherrriots also has a number of internal tools that must be updated with each service change. They include: GMV Syncromatics CAD/AVL, Bus Stop Inventory, Bus Stop Database, APCs, GFI (farebox), and RouteMatch (demand-responsive services).

7.2.5 Public notices

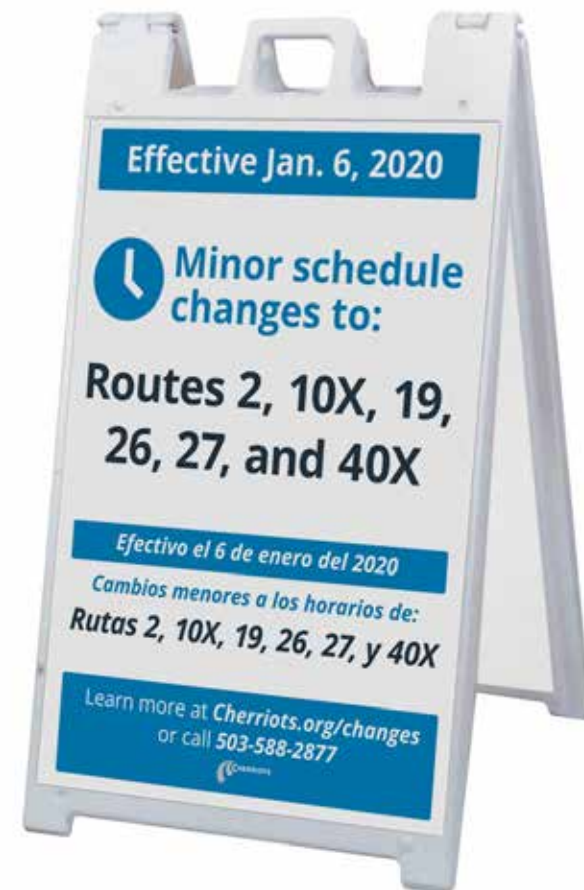
Staff use a variety of methods to inform riders of upcoming changes. A few examples are shown below. Notices are posted in English, but key information is translated into Spanish as well. For a list of all methods used by Cherrriots to ensure riders are aware of all changes that might affect them, see *Chapter 6 - Public Engagement*.

Bus stop notices

Posted on every bus stop being added, removed, or modified.

Sandwich boards

Placed at transit centers to inform riders of major changes to routes and schedules, as well as changes to where buses park.



Header cards

Placed in all buses to inform of the upcoming changes and direct riders to customer service and the Cherriots website.



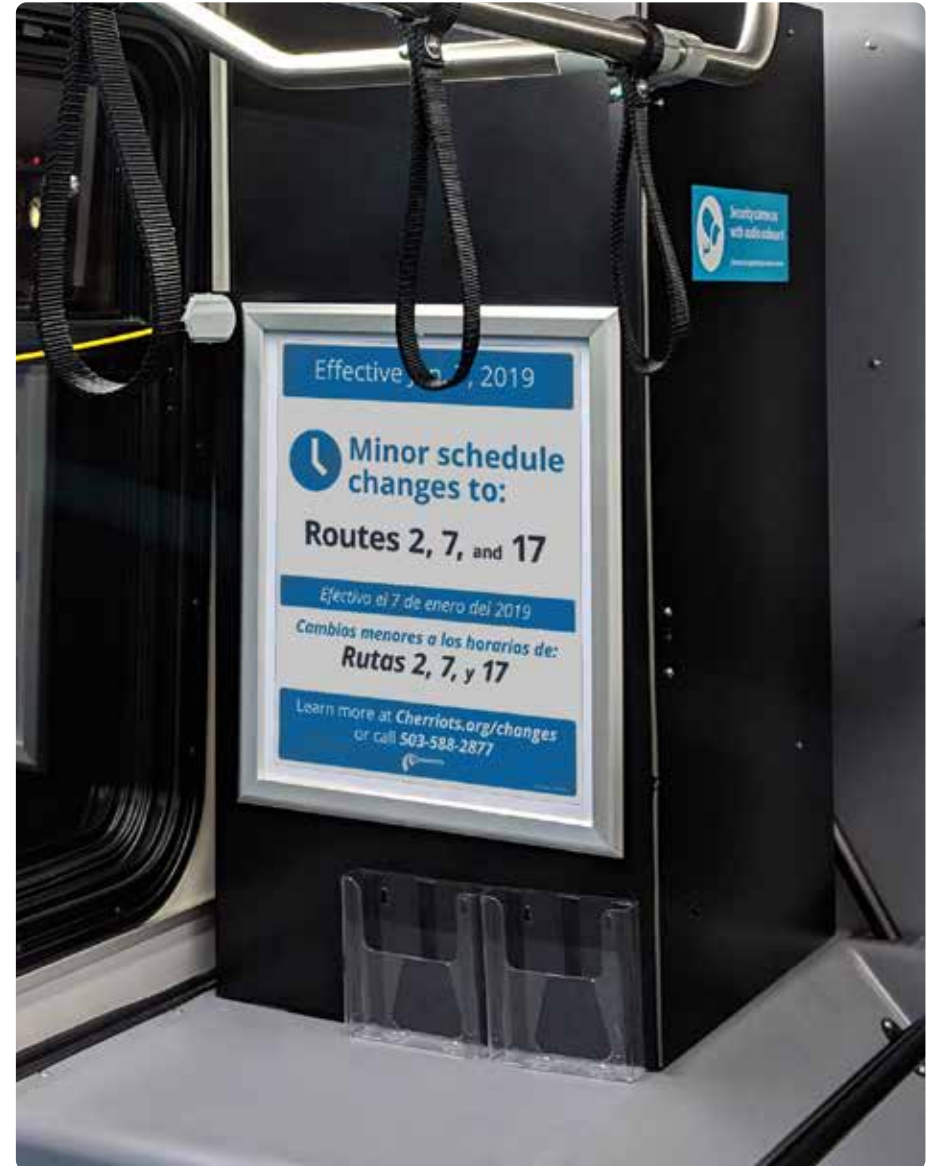
Email blasts

Sent to all riders signed up for the Cherriots mailing list.



Ad frame posters

Placed in all buses to inform of the upcoming changes and direct riders to customer service and the Cherriots website.



7.2.6 Stops and shelters

New bus stops and shelters will be installed in the weeks leading up to the service change or during the weekend before implementation. Old stops and shelters will be removed during the weeks after the service change.

When stops are installed before a service change, notices will be posted on each pole to let riders know when buses will begin serving them. When stops are removed after a service change, notices will be posted in advance to indicate when the stops go out of service.



7.2.7 Training

Planning and Communication staff provide information on the upcoming changes to all frontline employees. Additional training may be required for major service changes to ensure frontline staff can communicate those changes to riders accurately.

Frontline employees are those who directly interact with riders, including transit operators, social media staff, customer service representatives, call center staff, outreach representatives, transit hosts, travel trainers, mobility coordinators, and security officers.



7.3 Materials review

Once all materials are drafted—including the bid materials, public materials, and technology and data—those items are reviewed in detail. Transit operators, operations supervisors, planning staff, marketing staff, and customer service representatives review each other's materials to ensure information is accurate for operators and riders.



7.4 Implementation weekend

Prior to a service change going into effect, finalized materials will be installed by maintenance staff and set live digitally by communication staff. For Cherriots Regional, arrangements will be made with the contractor of the service or with an outside contractor to make sure materials get installed. Materials include bus stop signs, shelter schedules, lobby maps, foldable schedules, the Cherriots website, bus destination signs and announcements, and all trip planners and other technology platforms.



7.5 First day of service

On the day of implementation, all staff will be prepared to discuss and operate the new service. Public materials will be up-to-date and accurate, operators will be aware of their new runs, and customer service representatives will be on hand and ready to answer questions.

If the scale of the service change is large enough, customer service staff will also convene a group of transit ambassadors (made up of Cherriots staff) to help riders at the Downtown Transit Center and other key locations during the first few days of the new service to ensure riders get where they need to go.





CHERRIOTS

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Definitions

On the following pages are definitions for key terms used throughout the document.

Activity centers: Community hubs with a variety of shops, stores, and services.

ADA: Americans with Disabilities Act of 1990.

Arterials: A main street that is built for traffic to travel across town that feeds into highways or freeways.

Audience: Community members who Cherriots seeks to engage for feedback and perspective.

Bay: A designated area for buses to lay over at transit centers.

Bid: Also known as a signup or shakeup, a bid represents all operator shifts for a given time period. For each bid, transit operators bid for their shifts based on seniority. This process takes place every fourth months, often coinciding with changes to service.

Boarding: See *Ride*.

Branch: When two routes share a path for a segment of their routing, the branch represents the part that is not shared. Also see *Trunk*.

Cherriots LIFT: See *Paratransit*.

Cherriots Local: Fixed route bus service that operates within the Salem-Keizer Urban Growth Boundary.

Cherriots Regional: Fixed route and deviated fixed route bus services serving communities outside of the Salem-Keizer Urban Growth Boundary, primarily within Marion and Polk counties.

Cherriots Shop and Ride: A shopper shuttle and dial-a-ride service for seniors and individuals with disabilities.

Core Network: The Core Network is a set of transit corridors where Cherriots has committed to providing stable service with a focus on frequency and reliability. By establishing a sense of permanency and an expectation for high-quality service, the Core Network signals to riders, business owners, and developers where to locate and build if they wish to orient themselves and their businesses around transit.

Corridor: A major transit pathway that connects regional growth, manufacturing, industrial, and/or activity centers; Park and -Ride locations and transit hubs; and major destinations throughout the region.

Coverage: Service that is focused on providing access to transit over building high ridership. Cherriots often provides coverage service using coverage routes. Within the urban growth boundary, 25 percent of resources are spent on coverage service.

Crowding: A transit trip that, on average, has more passengers than the acceptable passenger load, based on each bus type and service type. The acceptable rider load is based on the number of seats and whether the bus is traveling locally or regionally. Also referred to as overcrowding.

Deadhead time: The time a transit vehicle spends getting to or from the base to the point where it goes into or out of service. When a vehicle is deadheading, there is no expectation it will be carrying riders.

Demand-responsive service: Any non-fixed route system of transporting individuals that requires advanced scheduling, including services provided by public entities, non-profits, and private providers. An advance request for service is a key characteristic of demand-responsive service.

Deviation: A bus traveling away from its primary path to serve a specific place.

Deviated fixed route: A type of service that runs along a fixed path with fixed stops, but also can deviate up to three-quarters of a mile away from the route path in order to pick up people who cannot otherwise access a fixed stop. This is done typically in rural areas where ADA paratransit is not cost effective.

Disparate impacts: Potential negative effects of a service change on minority riders or populations as compared to non-minority riders or populations.

Disproportionate burdens: Potential negative effects of a service change on low-income riders or populations, defined as riders or populations at or below 200 percent of the federal poverty level.

Farebox recovery ratio: The amount of revenue received by riders in relation to the total operating costs.

Fixed route service: Scheduled transit service in which trips follow a specified path and passengers can access service from regular bus stops.

Frequency: The number of buses in a given time interval (e.g. four buses per hour). Also see *Headway*.

Frontline employee: Employees who engage directly with riders, including transit operators, customer service representatives, social media communication staff, outreach representatives, travel trainers, transit ambassadors and hosts, mobility assessors, and security officers.

Headway: The time interval between buses traveling on the same route in the same direction (e.g. 15-minute service). Also see *Frequency*.

Interline: When one bus is operated on more than one route, often alternating the routes, one after another. Interlining can reduce the number of required vehicles, improve on-time performance, and help riders avoid transferring.

Lasso: A one-way loop at the end of a route.

Layover: Time built into a schedule between arrival at the end of a route and the departure for the return trip, used for the recovery of delays and preparation for the return trip. Sometimes referred to as layover/recovery.

Layover can also be used to describe a designated location for a transit vehicle at or near the end of the route where the vehicle is out of service and takes its scheduled layover time.

Load: The number of passengers on the bus at a given time. This is a method of measuring the ridership demand on a bus trip at a given time.

Load factor: The measure of how many riders are on the bus compared to the number of available seats. The value is always expressed in decimal form.

Local commuter express: Local commuter express routes connect metropolitan areas with no stops in between.

Loop: Bus routing that may be necessary to turn a bus around along a given route.

Low-income household: A household earning less than 200 percent of the federal poverty level.

Maintained pullout: When a bus successfully leaves the yard to complete its trip. Used as one measure to assess if bus service is reliable.

Major service change: A reduction or expansion in service of:

- 15 percent or more of the number of transit route miles based on the miles of an average round-trip of the route (this includes routing changes where route miles are neither increased nor reduced (i.e., re-routes)).
 - 15 percent or more of a route's frequency of the service (defined as the average hourly frequency throughout one service day for local fixed routes and as daily round trips for regional express routes) on a daily basis for the day of the week for which a change is made.
 - 15 percent in the span (hours) of a route's revenue service (defined as the time between the first served stop of the day and the last stop), on a daily basis for the day of the week for which a change is made;
- OR**
- When a transit route is split where either of the new routes meet any of the above thresholds when compared to the corresponding piece of the former route.
- OR**
- When a new transit route is established.

Maximum load factor: The highest number of riders on the bus at a given time, averaged on a per trip basis over the course of a service change. This is a method of measuring the highest demand for a specific bus trip.

Metropolitan area: A Metropolitan Statistical Area (MSA). MSAs are delineated by the U.S. Office of Management and Budget (OMB) as having at least one urbanized area with a minimum population of 50,000.

Minority persons: All persons who identify as being part of a racial / ethnic group besides white, non-Hispanic.

Minority route: A route that has at least one third of its total revenue mileage in a block group with a percentage of minority population that exceeds the percentage of minority population in the transit service area.

On time: A departure from a time point that is not early, nor more than five minutes late relative to the scheduled departure time.

Operating cost: The expense associated with operating a given service excluding the maintenance costs.

Operating cost per ride: The amount of operating costs it takes to transport one rider.

Operating subsidy per ride: The average operating cost per ride minus the average amount of revenue received by riders.

Operations center: A site where buses are fueled, stored, and maintained. Operations centers include parking, maintenance bays, parts storage, fuel storage, cleaning facilities, and operation facilities. Operations centers also include facilities to support employees such as office space, driver lockers, and meeting rooms.

Cherriots service operates out of the Del Webb Operations Center at 3170 Del Webb Ave NE, Salem, OR 97301.

Overload trips: Trips added to a route to alleviate overcrowding.

Paratransit: Dial-a-ride service provided to individuals with disabilities as required by the Americans with Disabilities Act (ADA). The Cherriots paratransit solution, Cherriots LIFT, operates throughout the Salem-Keizer Urban Growth Boundary during all hours that Cherriots Local service is provided. Riders must be found eligible to use Cherriots LIFT service in advance of scheduling a trip.

Park and ride location: A facility where riders may park their personal vehicles and change their mode of transportation, typically by catching a bus, train, vanpool, or carpool to reach their final destination.

Partner: An external organization that works with Cherriots to help advance opportunities and conditions for travelers to use alternatives to driving alone. This is also one type of external stakeholder.

Productivity: Cherriots uses the term productivity in two ways:

- **Service productivity:** The measure of how well a service is utilized. Often expressed as riders per revenue hour.

- **Productivity-focused:** Routes with a focus on increasing ridership, predominantly on high demand corridors.

Pullout: See *Turnout* and *Maintained pullout*.

Pulse: A timed transfer around a clock schedule that usually takes place at a transit center. The primary Cherriots pulse takes place at the Downtown Transit Center. Cherriots also maintains a pulse at the Keizer Transit Center.

Recovery: See *Layover*.

Revenue efficiency: A measure of how much revenue is collected in relation to the cost of operating that service. See Farebox recovery ratio.

Revenue hour: The time a transit vehicle travels while it is in revenue service, excluding deadhead hours but including recovery / layover time.

Revenue mile: The distance in miles a transit vehicle travels while it is in revenue service.

Revenue service: The operation of a transit vehicle during the period which riders can board and ride on the vehicle.

Ride: Every time a passenger boards a bus. This can also be referred to as a boarding or an unlinked passenger trip.

Rider: A passenger that utilizes any Cherriots service.

Runtime: The time assigned for the movement of a transit vehicle over a route, usually done on a route segment basis by time period.

Service change: A point at which changes are made to routes. Service changes take place in January, May, and September, and correspond with bid changes.

Service levels: For local service, Cherriots classifies service into three levels.

- **Frequent**—Runs every 15 minutes or better for most of the day. Service drops to 30-minute service after 7 p.m.
- **Standard**—Runs every 30 minutes throughout the day.
- **Basic**—Runs every 60 minutes throughout the day.

Regional service is not split into classifications. Instead, service is expressed based on the number of round trips per day.

Service types: Categories of service based on chosen criteria. Current service types are local, regional express, local commuter express, and regional deviated fixed routes.

- **Local routes** serve local streets in the Salem-Keizer area, providing service within the urban growth boundary.
- **Regional express routes** provide express bus service between cities. Stops within cities are limited, as the primary purpose of these routes are to move people between cities, not within cities.
- **Local commuter express** routes connect metropolitan areas with no stops in between.
- **Regional deviated fixed routes** provide local access to rural cities that do not operate their own fixed route or demand responsive system.

Shortline: When a bus is scheduled to turn around before it completes its full path. Shortlining is often used to provide less frequent coverage at the end of a route, while maintaining higher levels of frequency at the start of a route.

Span: The hours over which service is operated. Service span often varies by weekday. For example, a route's service span could be from 6 a.m. to 11 p.m.

Stakeholder: A person or party involved in or affected by a course of action Cherriots is taking. This can include internal stakeholders (e.g., Cherriots staff), external stakeholders (e.g., partners), and other audiences (see *section 6.3 Audiences*).

System cost: The costs to operate and administer transit service.

System cost per revenue hour: The total system cost of each hour revenue vehicles are in service.

Take-one: A printed sheet of paper placed on buses and at transit centers to provide information to Cherriots riders, usually half of an 8.5" x 11" sheet of paper.

Through-route: When a bus on one route reaches the end of its route and immediately begins service on another route without a layover. Passengers can remain on the bus and continue from one route to the other without transferring or paying another fare. This is one form of interlining.

Time period: An interval of time that identifies different rider travel patterns and service levels. Typical time periods include A.M., Midday, P.M., and Evening. Having multiple time periods allows schedules to change based on different conditions on the ground throughout the day.

Time point: A bus stop that has scheduled departure times determined as part of the route planning process. Transit operators will not leave a time point before the scheduled departure time in an effort to maintain schedule adherence.

Title VI of the Civil Rights Act of 1964: The Civil Rights Act of 1964 outlaws discrimination based on race, color, or national origin. Other categories such as religion, sex, and age are protected by Oregon Revised Statute 659A. Title VI prevents discrimination by government agencies that receive federal funds.

Transfer: When riders use more than one bus to reach their destination.

Transit center: A location designed to make it easy for riders to transfer between bus routes and other transportation services.

Triannual: Three times per year. Bids and service changes take place on a triannual basis (January, May, and September).

Trip: A single journey from one place to another. There are two types of trips: a person trip and a vehicle trip.

- **Person trip:** An individual's journey from an origin to a destination; can involve multiple rides and multiple modes.
- **Vehicle trip:** The scheduled movement of a transit vehicle from an origin (often a route start point) to a destination (often a route end point) at a particular time on a particular day.

Trunk: When two routes share a path for a segment of their routing, the trunk represents the part that is shared. Also see Branch.

Turnback: See *Shortline*.

Turnout: Also known as a pullout, a turnout is a place where a bus can pull out of traffic. Turnouts are often located at bus stops on high-speed streets and allow the bus to safely pick up riders.

Unmet transit need: An expressed or identified need of the community for additional public transportation services to meet existing basic mobility needs which are not currently being met through the existing system of public transit services or private transportation services.

Vanpool: A carpool-type arrangement utilizing a van that can transport six to 15 passengers. Vanpools are organized and subsidized for those with similar travel patterns by Cherriots Trip Choice.

Yard: A secure site where buses are fueled, stored, and maintained. Part of an operations center. See *Operations center*.





B

SAMTD Board Policy 109

Policy:	URBAN SERVICE DESIGN PRINCIPLES	Number: 109
Adopted by the SAMTD Board of Directors on 07-24-2014 by Resolution #2014-08	Effective Date: 07/24/2014	Page 1 of 3

109.01 INTRODUCTION

The Salem Area Mass Transit District (aka Salem-Keizer Transit) Board of Directors wishes to establish Policy and Procedures for Urban Service Design Principles.

109.02 SERVICE ALLOCATION

- A. In the urban area, 75% of revenue hours will be deployed with a focus on increasing ridership, predominantly on high demand corridors. This service will include 15-minute frequency routes, commuter/tripper routes, and limited 30-minute frequency routes which are expected to provide overall high ridership.
- B. The remaining 25% of urban revenue hours will be allocated to service which provides needed coverage throughout the community without consideration for expected boarding's per revenue hour. This service will predominantly include 60-minute and 30-minute frequency routes.
- C. An entire route or individual segments of a route may be classified as either Ridership or Coverage focused.

109.03 SERVICE DESIGN DEFINITIONS

- A. **Service Day Periods:** Distinct route structures and frequencies may be provided during different time periods of the service day. Where possible, route structures should remain consistent between time periods to promote usability and clarity. The service day may contain three separate periods of time:
 1. Daytime service - 5:00 am - 7:00 pm
 2. Evening service - 7:00 pm - 11:00 pm
 3. Night service - 11:00 pm - 5:00 am
- B. **Service Day Types:** Distinct route structures and frequencies may be provided during different types of service day. Where possible, route structures should remain consistent to promote usability and clarity. The three types of service days may include: Weekday, Saturday, Sunday or Holiday service.
- C. **Consistent Frequency:** Transit service will be deployed where it will provide the greatest use to the most people for access to the most activities and jobs. As one of the strongest drivers for high ridership, where possible and practical, route frequency should remain consistent throughout the service day period.
- D. **Route Types:** Salem-Keizer Transit will maintain four types of routes, generally aligned with the frequency of service provided:
 1. **15-minute frequency** (4 trips per hour) - Often referred to as Corridor service, 15-minute frequency routes provide reliable, frequent service along

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- corridors. 15-minute frequency routes should be deployed with an expectation of relatively high ridership, above 25 boarding's per revenue hour.
2. **30-minute frequency** (2 trips per hour) - Often referred to as Connector service, 30-minute frequency routes provide reliable connectivity to Transit Centers or to 15-minute frequency routes. 30-minute frequency routes should be deployed with an expectation of moderately high ridership, above 20 boarding's per revenue hour.
 3. **60-minute frequency** (1 trip per hour) - Often referred to as Circulator or Coverage service, 60-minute frequency routes provide service coverage over large areas and provide critical life-line connectivity to many sections of the community. 60-minute frequency routes should be deployed with an expectation of moderate ridership, above 10 boarding's per revenue hour.
 4. **Commuter/Tripper** (various) - Commuter and tripper routes provide connectivity to a specific, remote location or provide service at particular times when significant travel demand is expected. Commuter/Tripper routes typically have few trips throughout the day. Commuter/Tripper routes should be deployed with an expectation of moderately high ridership, above 20 boarding's per revenue hour.

109.04 RELIABILITY AND COMFORT STANDARDS**A. Service Reliability**

1. 90% of buses will arrive no later than two minutes after their scheduled end-of-trip arrival time. 100% of buses will not depart before their scheduled start-of-trip departure time. 90% of buses will depart within four minutes of their scheduled start-of-trip departure time.
2. The number of missed trips will be less than 0.5% of total scheduled trips.
3. Road calls will occur less frequently than every 4,000 vehicle miles.

B. Service Capacity

1. Additional service will be considered when load levels routinely exceed 1.5 times the seated capacity of the vehicle.
2. Additional service will be considered when customers must routinely stand longer than 20 minutes on an individual trip.

109.05 EVALUATION PROCESS**A. Annual Review**

1. A comprehensive review of existing service will be produced after the completion of the Fiscal Year, by no later than the end of the subsequent first quarter.
2. This review will include individual route profiles detailing overall route and system performance and expectations. At a minimum, measurements will include:

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- a. Revenue hours at the system and route level
- b. Revenue miles at the system and route level
- c. Total Boarding's at the system and route level
- d. Boarding per hour at the system, route, and segment level
- e. Percentage of trips which are early at the system and route level
- f. Percentage of trips which are on-time at the system and route level
- g. Percentage of trips which are late at the system and route level
- h. Average and maximum load levels at the route level
- i. Farebox recovery rate at the system and route level

Approved by:



Jerry Thompson
Board President

Date:

7/24/13





C

Core Network Policy 118

Policy:	Core Network	Number: 118
Resolution #2017-10 adopted by the SAMTD Board of Directors on 07/27/2017	Effective Date: 07-27-17	Page 1 of 2

118.01 PURPOSE

To establish a Core Network of bus service corridors in Salem and Keizer that represents the highest priority for service run by Salem Area Mass Transit District (SAMTD). The Core Network will ensure riders, residents, developers, businesses, and municipal planning organizations know where SAMTD plans to invest the most in transit service. Routes serving the corridors of the Core Network may change over time, but service along these corridors will be maintained and prioritized, both in the case of service reductions and service expansions.

118.02 APPLICATION

To set guidelines to facilitate the decision making process in the case of future service reductions and service expansions.

118.03 CORRIDORS DEFINED

The following streets define SAMTD's Core Network -

- High St NE, Broadway St NE and River Rd N (*from Union St NE to Lockhaven Dr NE*)
- Lockhaven Dr NE (*from River Rd N to Chemawa Rd NE*)
- Summer St NE, Capitol St NE, Fairgrounds Rd NE, and Portland Rd NE (*from Union St NE to Hayesville Dr NE*)
- Lancaster Dr NE (*from Hayesville Dr NE to Rickey St SE*)
- Market St NE (*from Capitol St NE to Lancaster Dr NE*)
- Center St NE (*from 13th St NE to Lancaster Dr NE*)
- State St (*from 13th St NE to Lancaster Dr NE*)
- Commercial St SE (*from Trade St SE to Kuebler Blvd SE*)
- Liberty St SE (*from Commercial St SE to Trade St SE*)
- Skyline Rd S and Liberty Rd S (*from Madrona Ave S to Kuebler Blvd*)
- Marion and Center Street Bridges (*from Wallace Rd NW to Commercial St NE*)
- Edgewater St NW (*from Eola Dr NW to Gerth St NW*)
- Madrona Ave SE from Commercial St SE to Liberty St S
- Salem's Downtown (*between Front St NE, Union St NE, 13th St NE, and Trade St SE*)

118.04 RULES OF THE CORE NETWORK

1. Corridor Changes

The Core Network corridors cannot be added to or altered without formal action by SAMTD Board of Directors.

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2. Service Priorities

Priority will be given to service on the Core Network on all days of service, with the highest frequency prioritized on these corridors. All Core Network corridors will have service operating with a minimum of 30 minute headways during all hours of weekday service, and a goal of 15 minute headways during peak periods. Weekend and holidays service, will have a minimum of 60 minute headways, and a goal of 30 minute headways for all. The Salem Downtown area will always have service. However, the paths of the buses traveling through this area may change over time as streets change (one-way to two-way, additional bike lanes, etc.)

3. Service Reductions and Expansions

In the event of service reductions and expansions, the Core Network will be prioritized over coverage in other areas of the system.

4. Public Hearing Requirements

SAMTD shall hold a public hearing when any Core Network change is proposed that results in removal or reduction of service in a corridor. The public hearing process must be conducted in accordance with SAMTD Policy 707.04 (A).

5. Implementation of Changes

No Core Network removal or reduction shall be instituted until after a public hearing is held and after consideration to views and comments expressed in the hearing is given.

118.05 EXCEPTIONS

There may be exceptions to the above policies for emergency situations such as a long term closure of a section of roadway.

Adopted by:


 President, SAMTD Board of Directors / General Manager

Date:

July 27, 2017

