



## CHERRIOTS 2018 SERVICE PLAN

# APPENDIX A

## EQUITY ANALYSIS



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# 1. Background

As part of the project **A Better Cherriots**, staff have been developing service proposals for September 2018 and September 2019. This service plan is for the changes coming in September 2018.

This service change process began with the FY17 Annual Performance Report. Published in September 2017, this report included revenue hours, revenue miles, boardings, and on-time performance. In November 2017, Cherriots staff conducted a needs assessment. In addition to analyzing shifts in population and travel demand, staff conducted a rider and community survey, as well as a survey of Cherriots frontline employees—those who interact directly with riders on a daily basis.

Using the result of the needs assessment, staff developed a service proposal. That proposal was presented to the public in February and March 2018. Feedback gathered during that process was published in the 2018 Public Engagement Report, which was finalized at the end of March.

Based on the input presented in the 2018 Public Engagement Report, staff have made changes from the service proposal presented to the public to develop the final 2018 Service Plan. This is the equity analysis for that service plan.

## 2. Title VI requirements

As a recipient of Federal financial assistance, Salem Area Mass Transit District (SAMTD) must ensure that service changes – both increases and reductions – comply with Title VI of the Civil Rights Act of 1964, which states: “No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”

The FTA has provided specific implementing guidelines and regulations for complying with Title VI in Circular 4702.1B (“Circular”). Due to the interrelated nature of race/ethnicity and income, the Circular instructs transit agencies to consider impacts on low-income populations as well as minority populations; the assessment of potential Title VI issues related to service changes is completed through a service equity analysis.

### 3. SAMTD Title VI compliance

In the spring of 2014, SAMTD submitted its Title VI program to comply with the latest FTA Circular. A letter of concurrence was received in December 2015 from the FTA stating that the SAMTD Title VI Program complies with the Circular. The program outlines agency policies, definitions, and procedures for complying with Title VI and performing equity analyses. This includes the agency's Major Service Change, Adverse Effects, Disparate Impact, Disproportionate Burden, and Public Hearing policies. An update to the program was approved by the SAMTD Board of Directors at the May 25, 2017 Board meeting including many changes to the Title VI policies named above. The following summarizes these policies, but if further information is needed, the reader is directed to the full 2017 SAMTD Title VI Program, available on [Cherriots.org](http://Cherriots.org).

#### 3.1 Major service changes policy

All changes in service meeting the definition of Major Service Change are subject to a Title VI Equity Analysis. A Major Service Change is defined as:

1. Either a reduction or an expansion in service of:
  - a. 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)), or;
  - b. 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 or;
  - c. 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;
2. A transit route split where either of the new routes meet any of the above thresholds when compared to the corresponding piece of the former route.
3. A new transit route is established.

A Major Service Change occurs whether the above thresholds are met:

1. Within a single service proposal, or;



2. Due to a cumulative effect of routing, frequency, or span changes over the year prior to the analysis.

## 3.2 Definition of adverse effects

Adverse effects of Major Service Changes are defined as:

1. A decrease in the level of transit service (hours, days, and/or frequency) by 15%; and/or
2. Decreased access to comparable transit service, which is defined as an increase of the access distance to beyond:
  - a. One quarter mile for bus stops served by less than four buses per hour during peak times, or;
  - b. One half mile for bus stops served by four or more buses per hour during peak times, as well as for all regional express service.

## 3.3 Disparate impact policy

Testing for Disparate Impact evaluates effects on minority riders or populations as compared to non-minority riders or populations. “Minority” is defined as all persons who identify as being part of a racial/ethnic group besides white, non-Hispanic.

### 3.3.1 Disparate impact analysis

The determination of disparate impact associated with service changes is defined separately for impacts of changes on individual routes, and for system-level impacts of changes on more than one route, as well as for both service reductions and service improvements:

1. In the event of potential adverse effects resulting from service reductions:
  - a. A Major Service Change to a single route will be considered to have a potential disparate impact if the percentage of impacted minority population in the service area of the route exceeds the percentage of minority population of Marion and Polk counties by at least 5 percentage points (e.g., 36 percent compared to 31 percent).
  - b. To determine the systemwide impacts of Major Service Change reductions on more than one route, the percentage of Marion and Polk Counties’ minority population that is impacted is compared to the

percentage of Marion and Polk counties' non-minority population that is impacted. If the percentage of the minority population impacted is at least 20 percent greater than the percentage of the non-minority population impacted (e.g., 12 percent compared to 10 percent), the overall impact of changes will be considered disparate.

2. In the event of service improvements:

a. A major service change to a single route will be considered to have a potential disparate impact if:

- i. The improvement is linked to other service changes that have disproportionate and adverse effects on minority populations, or;
- ii. The percentage of impacted minority population in the service area of the route is less than the percentage of minority population of Marion and Polk Counties by at least 5 percentage points (e.g., 26 percent compared to 31 percent).

b. To determine the systemwide impacts of Major Service Change improvements on more than one route, the percentage of Marion and Polk Counties' minority population that is impacted is compared to the percentage of Marion and Polk Counties' non-minority population that is impacted. If the percentage of the minority population impacted is at least 20 percent less than the percentage of the non-minority population impacted (e.g., 8 percent compared to 10 percent), the overall impact of the changes will be considered disparate.

### **3.4 Disproportionate burden policy**

Testing for a Disproportionate Burden evaluates potential effects on low-income riders or populations, defined as riders or populations at or below 150% of the federal poverty level.

#### ***3.4.1 Disproportionate burden analysis***

The determination of disproportionate burden associated with service changes is defined separately for impacts of changes on individual routes, and for system-level impacts of changes on more than one route, as well as for both service reductions and service improvements:

1. In the event of potential adverse effects resulting from service reductions:

- a. A Major Service Change to a *single route* will be considered to have a potential disproportionate burden if the percentage of impacted low-income population in the service area of the route exceeds the percentage of low-income population of Marion and Polk counties by at least 5 percentage points (e.g., 36 percent compared to 31 percent).
- b. To determine the *systemwide* impacts of Major Service Change reductions on more than one route, the percentage of Marion and Polk Counties' low-income population that is impacted is compared to the percentage of Marion and Polk counties' non-low-income population that is impacted. If the percentage of the low-income population impacted is at least 20 percent greater than the percentage of the non-low-income population impacted (e.g., 12 percent compared to 10 percent), the overall impact of changes (burden) will be considered disproportionate.

2. In the event of service improvements:

- a. A major service change to a *single route* will be considered to have a potential disproportionate burden if:
  - i. The improvement is linked to other service changes that have disproportionate and adverse effects on low-income populations, or;
  - ii. The percentage of impacted low-income population in the service area of the route is less than the percentage of low-income population of Marion and Polk Counties by at least 5 percentage points (e.g., 26 percent compared to 31 percent).
- b. To determine the *systemwide* impacts of major service change improvements on more than one route, the percentage of Marion and Polk Counties' low-income population that is impacted is compared to the percentage of Marion and Polk Counties' non-low-income population that is impacted. If the percentage of the low-income population impacted is at least 20 percent less than the percentage of the non-low-income population impacted (e.g., 8 percent compared to 10 percent), the overall impact of changes (burdens) will be considered disproportionate.

### **3.5 Requirement for a public hearing**

The following paragraph defines when a public hearing is required in the case of service changes:

SAMTD shall hold a public hearing when any Major Service Change proposed results in a decrease in service. Notice must be published in a general circulation newspaper. In addition, notice will be placed in newspapers, publications, or websites that are oriented to specific groups or neighborhoods that may be affected by the proposed Major Service Change. The notice must be published at least 30 days prior to the hearing. The notice must contain a description of the proposed service reduction, and the date, time, and place of the hearing.



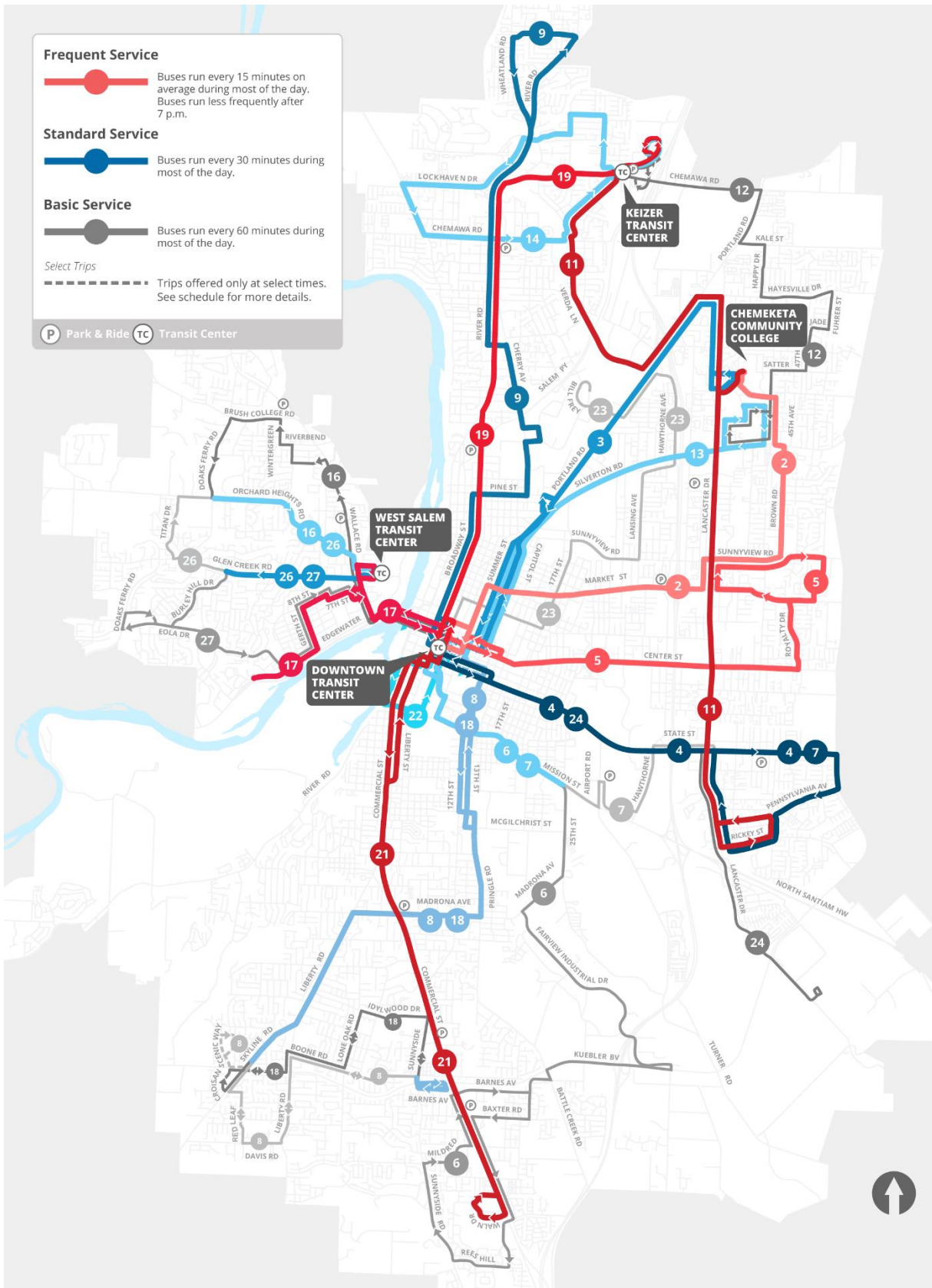
## 4. Equity analysis

In order to determine whether these planned service changes had the potential to lead to a disparate impact or disproportionate burden, staff used the above definitions to analyze the difference between the current service and the planned service.

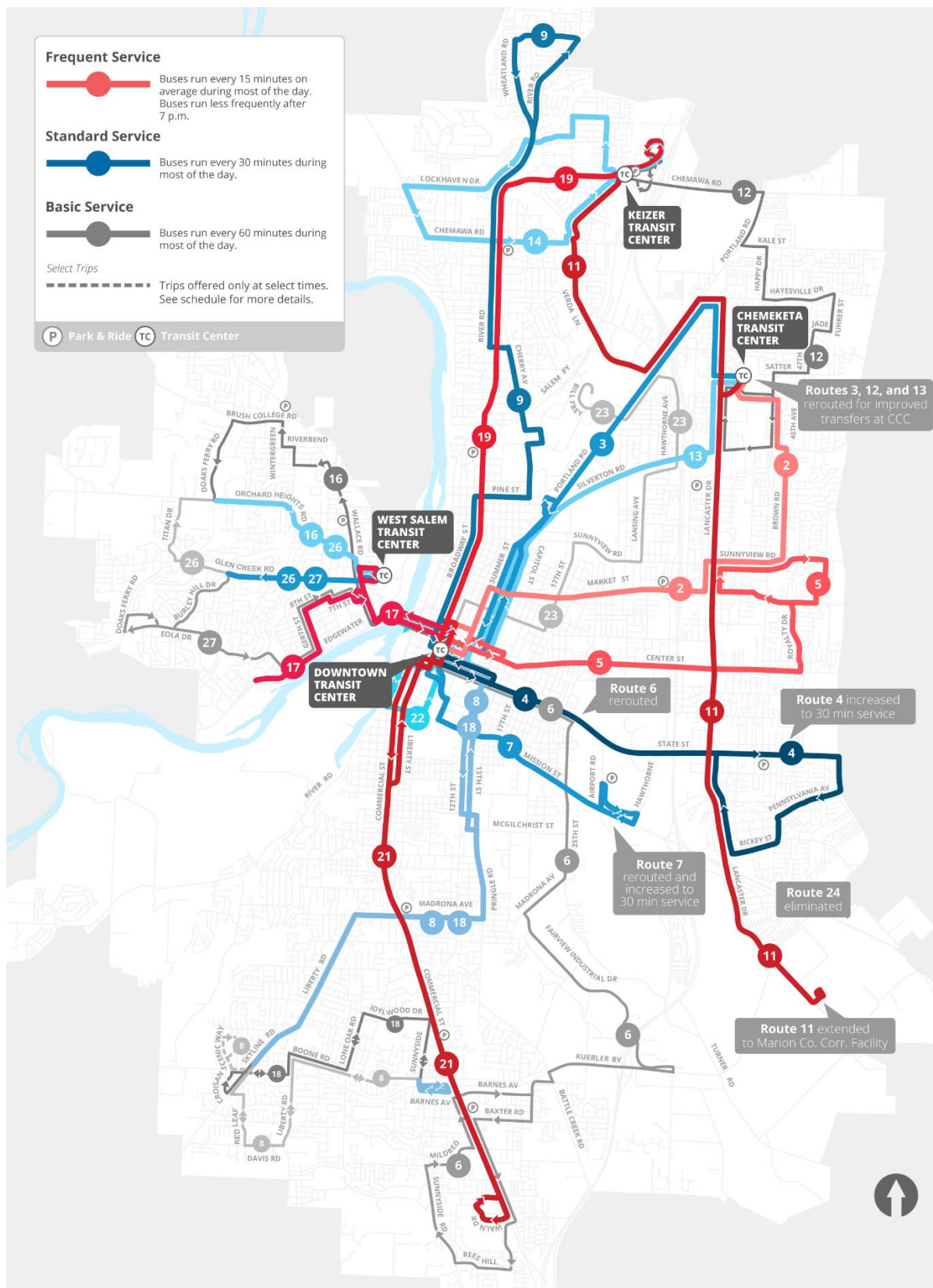
Figure 4-1 shows the route paths and frequencies for the current service. Figure 4-2 shows the route paths and frequencies of the planned service for September 2018, including annotations noting how service will change from today.

Figure 4-3 displays which bus stops will be added, be removed, and remain. Also included is a quarter mile walk buffer around the service for September 2018. All bus stops slated to be removed are within the quarter mile buffer.

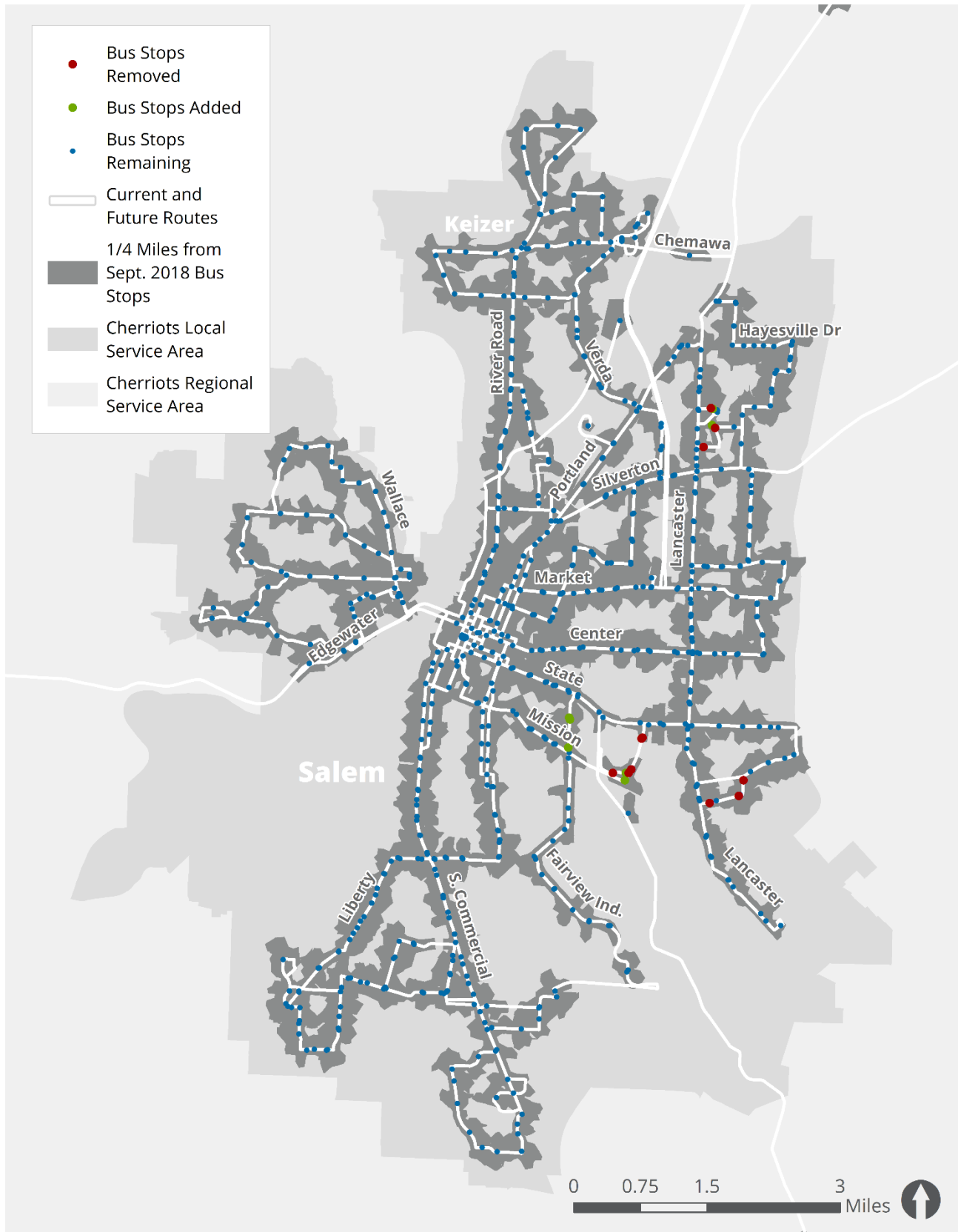
**Figure 4-1.** Current levels of service



**Figure 4-2.** Planned levels of service for September 2018, with changes annotated



**Figure 4-3.** Changes by bus stop



## 4.1 Major service change test

Of the eight routes changing, six of them meet the threshold to qualify as a major service change (Routes 4, 6-16, 7, 11, 13-22, and 24). See Table 4-1 below.

**Table 4-1.** Routes that qualify as a major service change

	<i>Change in Frequency</i>	<i>Share of Route Miles Changed</i>	<i>Change in Hours of Service</i>	<i>Major Service Change?</i>
<b>Route 3</b>	0%	4%	0%	No
<b>Route 4</b>	<b>+100%</b>	0%	+4%	<b>Yes</b>
<b>Route 6-16</b>	0%	<b>21%</b>	0%	<b>Yes</b>
<b>Route 7</b>	<b>+100%</b>	<b>50%</b>	0%	<b>Yes</b>
<b>Route 11</b>	0%	<b>18%</b>	+1%	<b>Yes</b>
<b>Route 12</b>	0%	4%	0%	No
<b>Route 13-22</b>	0%	<b>15%</b>	0%	<b>Yes</b>
<b>Route 24</b>	<b>-100%</b>	<b>100%</b>	<b>-100%</b>	<b>Yes</b>

The six routes that qualify as major service changes need to be evaluated for potential adverse effects, disparate impacts, and disproportionate burdens.

## 4.2 Route-level analysis

A route-level analysis was performed on each route with a major service change.

### 4.2.1 Adverse effects test

Based on the adverse effects definition, there are no changes to qualify as an adverse effect.

- **Route 4** has an increase in frequency, so there is no potential adverse effect.
- **Route 6-16** has a change of route miles of 21 percent. However, all the bus stops that will no longer be served by Route 6-16 will now be served by the new Route 7 at a higher frequency.
- **Route 7's** route miles are dropping by about 50 percent. However, most bus stops that will no longer be served by Route 7 will continue to be served by Route 4 (at a frequency comparable to today). There are five Route 7 bus stops that will no longer be served by any route, but they are all well within a quarter mile of comparable service. The increase from hourly to 30-minute service will not lead to any adverse effects.
- **Route 11's** round trip route mileage is increasing by 18 percent, which does not constitute a potential adverse effect.
- **Route 13-22's** route mileage is changing by 15 percent. However, almost all bus stops that will no longer be served by the 13-22 will continue to be served by comparable service. Of the two that will no longer be served by any route, both are within a quarter mile of comparable service.
- **Route 24** is being eliminated. However, there will be comparable service at every former Route 24 bus stop.



### 4.2.2 Disparate impact test

To determine if there are any potential disparate impacts, staff began by determining the share of minorities in each route's service area. On average, the Cherriots service area has 30.6 percent minorities. Per the disparate impact policy, a share of minorities of 25.6 percent or below would be significantly below that of the region, a share of minorities 35.6 percent or higher would be significantly above that of the region, and a share between 25.6 percent and 35.6 percent would be the same as the regional average.

Of the routes with major service changes, three have both an above-average share of minorities and a decrease in either frequency, round trip miles, or hours of service—routes 7, 13-22, and 24. Because of this, there are potential disparate impacts for all three routes. However, as established earlier, none of these routes have any adverse effects. Therefore, there are no route-level disparate impacts.

**Table 4-2.** Disparate impact test for routes with major service changes

	<i>Minorities</i>	<i>Total Population</i>	<i>Share</i>	<i>Compared to Regional Average</i>	<i>Potential Disparate Impact</i>	<i>Adverse Effect</i>	<i>Disparate Impact</i>
<b>Route 4</b>	14,874	35,735	41.6%	Above	No	No	No
<b>Route 6-16</b>	15,044	63,932	23.5%	Below	No	No	No
<b>Route 7</b>	15,705	36,486	43.0%	Above	<b>Yes</b>	No	No
<b>Route 11</b>	26,729	52,543	50.9%	Above	No	No	No
<b>Route 13-22</b>	19,117	43,200	44.3%	Above	<b>Yes</b>	No	No
<b>Route 24</b>	11,085	28,178	39.3%	Above	<b>Yes</b>	No	No

### 4.2.3 Disproportionate burden test

To determine if there are any potential disproportionate burdens, staff began by determining the share of low-income residents in each route's service area. On average, the Cherriots service area has a low-income share of 29.4 percent. Per the disproportionate burden policy, a share of low-income residents of 24.4 percent or below would be significantly below that of the region, a share of low-income residents 34.4 percent or higher would be significantly above that of the region, and a share of low-income residents between 24.4 percent and 34.4 percent would be the same as the regional average.

Of the routes with major service changes, three have both an above-average share of low-income residents and a decrease in either frequency, round trip miles, or hours of service—routes 7, 13-22, and 24. Because of this, there are potential disproportionate burdens for all three routes. However, as established earlier, none of these routes have any adverse effects. Therefore, there are no route-level disproportionate burdens.

**Table 4-2.** Disproportionate burden test for routes with major service changes

	<i>Low-Income</i>	<i>Total Population</i>	<i>Share</i>	<i>Compared to Regional Average</i>	<i>Potential Disp. Burden</i>	<i>Adverse Effect</i>	<i>Disp. Burden</i>
<b>Route 4</b>	10,471	29,517	35.5%	Above	No	No	No
<b>Route 6-16</b>	15,320	60,102	25.5%	Same	No	No	No
<b>Route 7</b>	11,344	30,154	37.6%	Above	<b>Yes</b>	No	No
<b>Route 11</b>	21,381	51,831	41.3%	Above	No	No	No
<b>Route 13-22</b>	18,143	41,854	43.3%	Above	<b>Yes</b>	No	No
<b>Route 24</b>	8,330	22,174	37.6%	Above	<b>Yes</b>	No	No

### 4.3 System-level analysis

The next step is to evaluate the systemwide impacts of this service improvement. In order to accomplish this, staff compared the share of both minority and low-income populations in block groups affected by the change to the other block groups in the Cherriots service area that are not affected by the change.

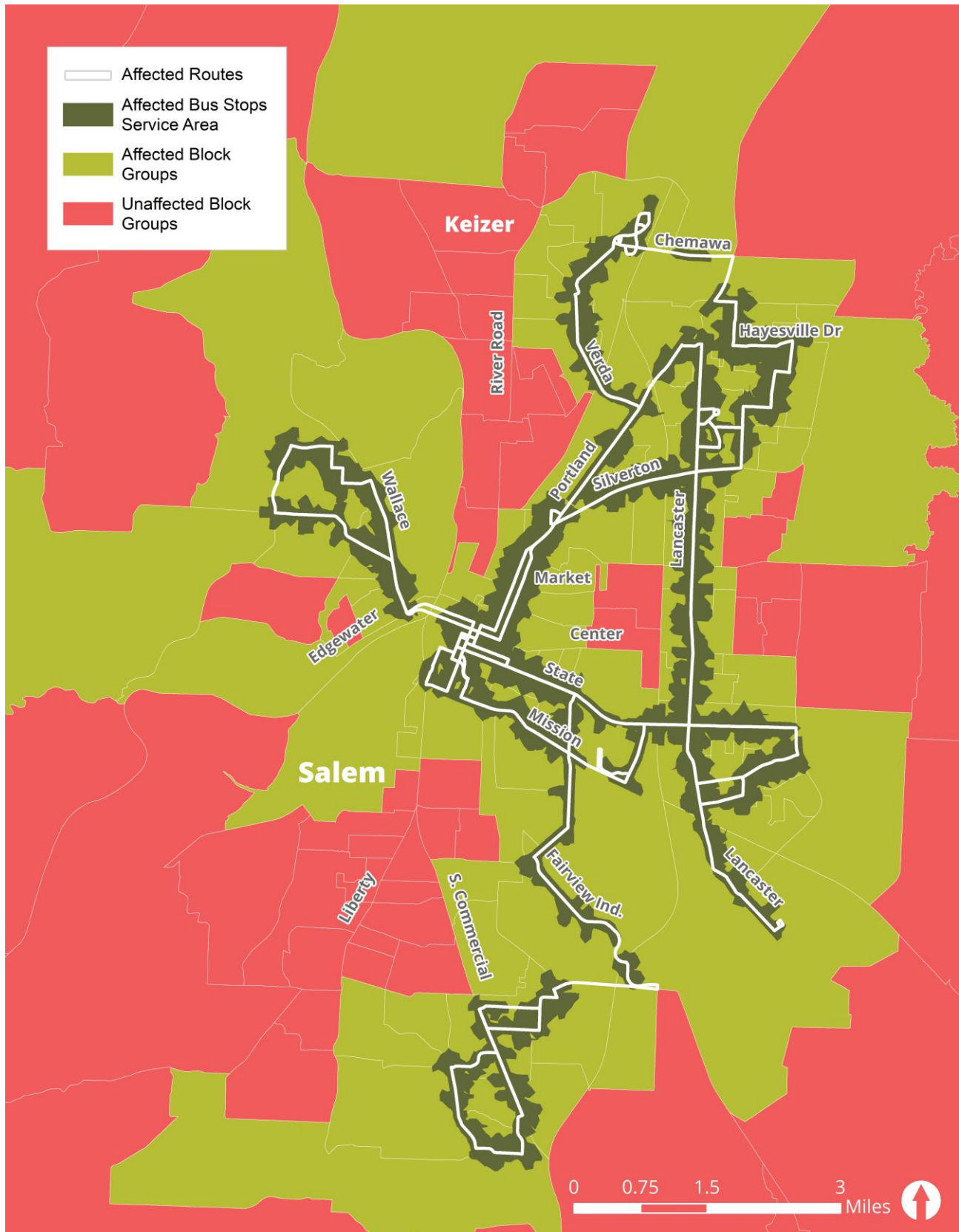
In Figure 4-4, affected routes are in white and the service area (quarter mile walk distance) from their bus stops is in dark green. All block groups overlapping the routes' service areas are highlighted in bright green. Block groups not affected are in red. Note that there are more unaffected block groups in the region that are not pictured. This map is zoomed in on the affected area.

Table 4-3 below shows the difference between the share of minorities and low-income populations and the affected and unaffected block groups. In both cases, the share is higher in the affected block groups. Since overall this is an increase in service, there are no potential disparate impacts or disproportionate burdens.

**Table 4-3.** System-level disparate impact and disproportionate burden test

	<i>Minorities</i>	<i>Total Population</i>	<i>Share</i>	<i>Low-Income</i>	<i>Total Population</i>	<i>Share</i>
<b>Affected Block Groups</b>	58,856	161,716	36.4%	50,249	154,308	32.8%
<b>Unaffected Block Groups</b>	63,509	238,807	26.6%	64,306	235,223	27.3%
<b>Difference Between Unaffected and Affected</b>			+36.8%			+20.1%
			<b>No potential disparate impact</b>			<b>No potential disp. burden</b>

**Figure 4-4.** System level analysis of service change



## **5. Public hearing**

A public hearing is not required for this service change since there is an increase in service overall.

## **6. Summary and discussion**

On the whole, this service change will work better for more people than the current service. These benefits can be realized without disparately impacting minority populations and without disproportionately burdening low-income populations in the Cherriots service area.

Thus, given the available data and established methodology, implementing these changes appears to benefit protected populations equitably. Cherriots therefore finds no disparate impact or disproportionate burden associated with the September 2018 service change.

