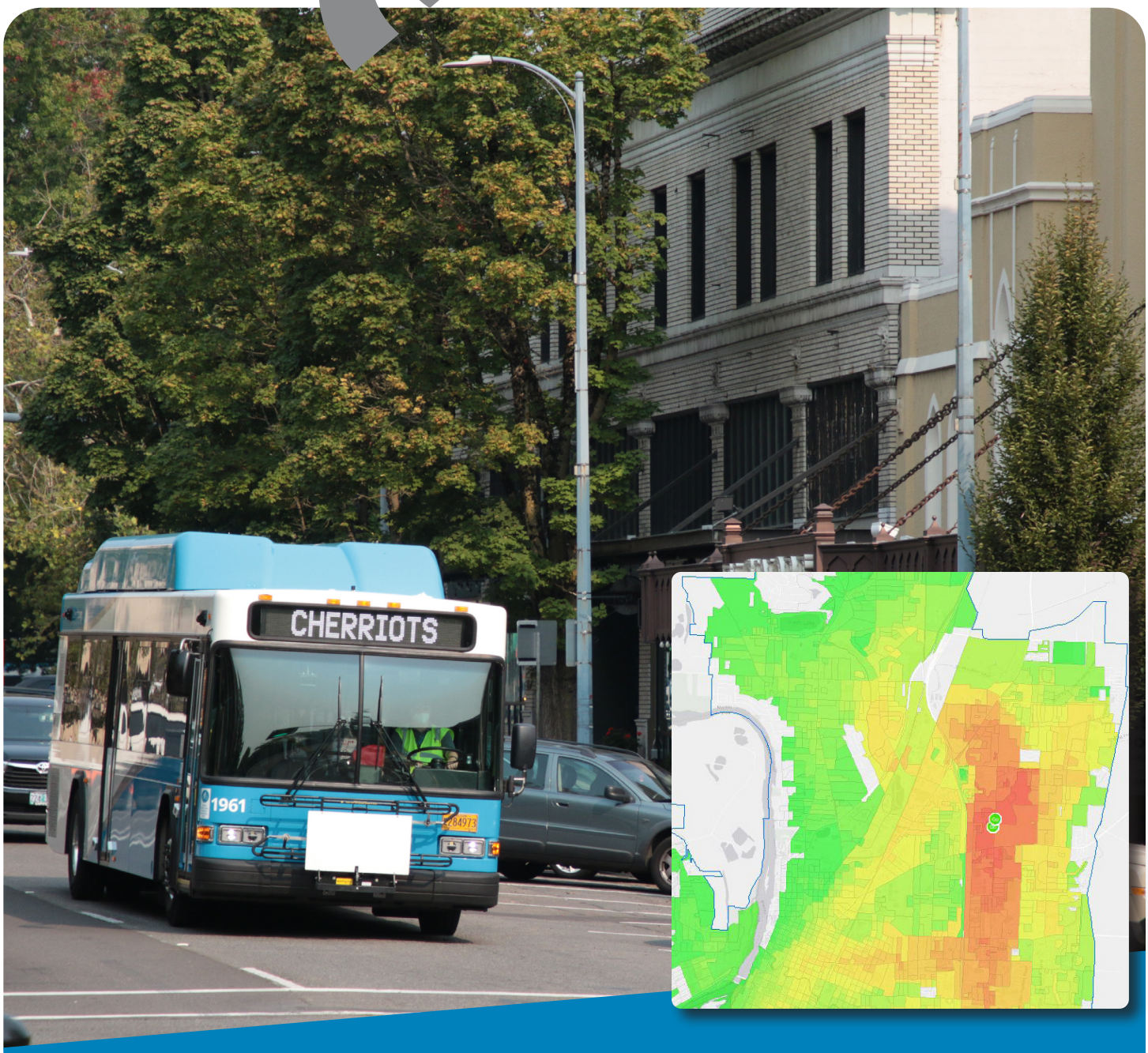
CHERRIOTS



Scenario Evaluation and Strategy Development Report

LONG RANGE TRANSIT PLAN

JULY 2022

Contents

Introduction

Cherriots, also known as the Salem Area Mass Transit District (SAMTD), is the public transportation agency serving Salem, Keizer, and the mid-Willamette Valley area in Oregon. This report describes how the Long Range Transit Plan team used scenario planning methods to evaluate different ways the Cherriots transit system could grow over the next 20 years. Scenario planning is a process to evaluate how different plans, policies, and systems may operate in and affect communities in the future. Transportation scenarios, represented by evaluation metrics, are used by stakeholders to explore and provide feedback on alternatives and trade-offs.

This report summarizes the scenario planning process used in the Cherriots Long Range Transit Plan. The results of the scenario planning will be used to solicit feedback from stakeholders through the public engagement process and provide information to help identify and develop transit strategies for the future.

Exploratory Scenarios

One lens that Cherriots and other transit districts design their services with is the balance between how often buses come by (frequency) and how much geographic area the routes cover (coverage). To explore the tradeoffs for Cherriots, the project team developed and modeled two exploratory transit systems. The scenarios were designed to illustrate "what if" frequency and coverage transit networks, at opposite ends of the service design spectrum. The results will help illustrate the choices Cherriots will need to make in the future.

The project team analyzed each scenario using a 2043 model year, which corresponds with the most recent transportation and land use data the Salem-Keizer Area Transportation Study (SKATS) developed in its regional travel demand model. The future 2043 scenario results were compared to the year 2019 existing model results.

It's important to note that the scenario planning analysis is used to test two exploratory, or hypothetical scenarios. The scenarios do *not* represent complete choices for what the future network will look like. While Cherriots planners and others may use the resulting data to inform plans and decisions, the scenarios do not represent future alternatives. Transit strategies will be further developed in the Draft and Final Long Range Transit Plan.

The modeled exploratory scenarios are described below. Maps of each scenario are located in Appendix B.

Future No Build Scenario

The no-build scenario incorporates the existing and planned Cherriots transit network. The existing routes represent the transit system as of 2022. Planned routes are those that Cherriots has developed and is planning to implement in 2022 and 2023. Some of these changes include:

- Adding clockwise and counterclockwise loops to Route 14 (Keizer)
- Re-route Route 9 to Keizer Transit Center via Dearborn Avenue, Verda Lane, and Chemawa Road
- Add Route 24 to link new South Salem Transit Center to Mill Creek Industrial complex near Marion County Correctional Facility

Benefits include:

- Incremental, low-cost changes to improve transit connections and efficiency

Frequent Core Network Scenario

The frequency scenario is designed to substantially improve local travel times through new routes and modifying existing service, allocating increased frequency to the majority of Cherriots core local routes. Key elements of this high-frequency scenario include:

- Implementation of Bus Rapid Transit (BRT) on Salem's most productive ridership corridors
- Frequencies of 8-15 minutes on Salem's major corridors, such as Lancaster Drive
- Increased service on routes with buses every 60 minutes (Basic) to 30 minutes (Standard)
- Increased service on regional routes to have a minimum 60 minute frequency at all times of day, and added extended service on high ridership regional routes.

Benefits include:

- More riders, because focusing service near the most dense neighborhoods and employment, or on the busiest routes, means more potential customers
- Faster and more reliable trips, because we would combine added frequency with measures to ensure trips stay on time and take direct routes. As an example, a bus trip between northeast and West Salem could be about 10 minutes faster than today
- More access to opportunity, as people would be able to reach more places in the same amount of time

Coverage Scenario

The coverage scenario is designed to spread coverage across the region, so more people have direct connections to their neighborhoods and workplaces. Core elements of this scenario include:

- Adding bus stops and routes where people are expected to live and work 20 years from now, with the addition of flexible services for low-density areas
- Maintaining current frequencies, with minimal changes even in busy corridors

Benefits include:

- People get to their bus stops quickly and stop at the places they want to go, with more bus routes in new areas and more flexible services for low density areas
- Bus frequencies stay similar to today, with minimal changes even in busy corridors
- Flexibly expand and adapt Cherriots service to more people as the region grows

Methodology

The scenario evaluation was created using two primary modeling tools and additional analysis.

- The Cherriots team used **Transit Boardings Estimation and Simulation Tool (TBEST)** to create and analyze future transit scenarios. TBEST is based on geographic information system (GIS) tools and presents a comprehensive way to assess transit systems based on changes in transportation, land use and socioeconomic factors.
- Cherriots was supported by the staff at SKATS, which is the transportation planning department of the Metropolitan Planning Organization for Salem and Keizer. This partner evaluated future transit using the SKATS regional travel demand model to analyze changes in future multimodal transportation demand. Results from this scenario evaluation will also contribute to SKATS regional modeling performed for the upcoming Metropolitan Transportation Plan.
- The project team also used transportation planning research to apply post-modeling factors to the performance measures. This was done for modes that don't often respond well in transportation models such as vanpools, bikeshare, and flexible transit services.

Stakeholders

The project team is led by the Cherriots project managers with the Jacobs consultant team. Other stakeholders in the strategy development and evaluation process included:

- Cherriots subject matter experts, representing planning, operations, maintenance, facilities, finance, and executive leadership
- Technical Advisory Committee (TAC), representing partners in regional governments, social services, and businesses
- The Cherriots Citizens Advisory Committee (CAC), which is a board-appointed committee that advises the Cherriots Board of Directors on various issues
- SKATS staff, representing regional long range planning at the Mid-Willamette Valley Council of Governments, which acts as the region's Metropolitan Planning Organization (MPO)
- TBEST consultants, supporting SKATS and SAMTD in developing ridership modeling scenarios and analysis

The public, regional partners, social service organizations, and businesses will engage in the strategy evaluation through public engagement activities (e.g. presentations, interviews, comment opportunities) delivered in Task 5 (Summer 2022).

Performance Measures

The project team designed the process to develop and evaluate strategies on Cherriots strategic vision and goals, existing conditions analysis, staff and partner expertise, and transit industry practices. **Cherriots values**, identified in the Cherriots Strategic Plan, are:

Safety – We emphasize safety by providing safe, secure, and clean public areas and work sites.

Service Excellence – We serve the public, each other, and our community partners with friendliness, courtesy, empathy, respect, and dignity. We recognize that our customers, internal and external, are why we exist, and we take pride in the positive impact we make in their daily lives.

Communication – We promote an open and respectful culture that values candor. Cherriots listens to its customers, community partners, and employees, actively engaging them in conversations.

Innovation – We encourage and respect new ideas from employees, partners, and the public. The District embraces innovation, environmentally responsible technology, and best practices.

Accountability – We hold ourselves accountable as stewards of public funds, community trust, and the environment. Cherriots will honor this commitment with transparency, honesty, and integrity.

To understand benefits and needs, the performance measures incorporate transportation needs and opportunities identified through the Long Range Transit Plan, the existing conditions analysis, and by reviewing past plans. The needs and opportunities are listed below (for more information see the Winter 2021-2022 Public Engagement Report).

- Frequent Service
- Fast, reliable service
- Access to transit, safe and comfortable stops
- Social equity
- Community livability
- Reduce greenhouse gas emissions
- Passenger and operations safety
- Customer information
- Cost and efficiency

The performance measures provide ways to understand the scenarios at the route and network level using available data analysis tools. Figure 1 describes each performance measure and how the team analyzed the data for that measure.

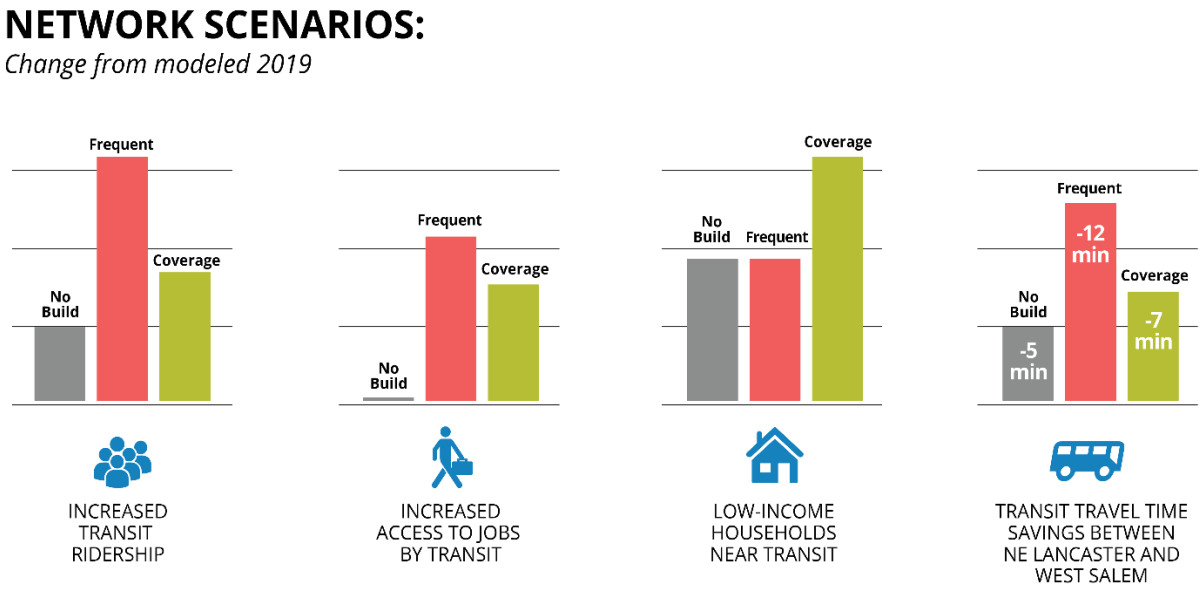
Figure 1 Performance Measures and Evaluation Methodology

Performance Measure	LRTP Evaluation Methodology
Increase NON-SOV mode share	Use SKATS travel demand model. Apply non-modeled adjustments from national research on non-modeled strategies such as transportation options and flexible shared rides.
Increase transit ridership	Order-of-magnitude estimate from TBEST model. Sum of all rides delivered on all routes over one modeled year.
Improve average travel time between priority origins and destinations	Analysis using SKATS travel demand model. Location pairs: • Lancaster Dr @ Columbia Dr. NE to Glen Creek Rd. @ Parkway Dr. NW • Lancaster Dr @ Cordon to Downtown Transit Center; • Sunnyside Rd SE @ Mildred Ln SE > Salem Center
Increase access to jobs by transit	Travel shed analysis using TBEST. Sum jobs within 40 minute ride on transit, including waiting time, from Lancaster Dr. @ Columbia Dr. NE and Glen Creek Rd. @ Parkway Dr. NW.
Low-income households with access to transit	Buffer analysis using GIS. Sum of low-income households within ¼ mile of transit stops that have bus service available every 30 minutes or less.
Increase passengers per revenue hour	Analyzed using TBEST. Calculation of the total annual ridership divided by the total annual revenue hours of service.

Evaluation Results

Figure 2 summarizes the key scenario evaluation performance measures. These measures provide some of the clearest information about how the scenarios differ. These and other performance measures at the scenario and route level will help Cherriots planners prioritize policies, projects, and other initiatives in the Long Range Transit Plan. More detailed performance measure results are in Appendix A.

Figure 2 Future Scenario Performance At-A-Glance



Note: Scenario performance above is shown as change from the 2019 base year model results.

Analysis Takeaways

Routes and Transit Services

Scenario A, the high-frequency alternative, would generate significantly higher ridership than both the no build and coverage scenarios. Modeling demonstrates the potential ridership gains as the high-frequency scenario would result in approximately 18,000 more riders per weekday, compared to the existing system, whereas scenario B would result in approximately 8,000 more riders. However, scenario modeling suggests that B could potentially outpace future transit demand, as the coverage scenario would result in a decrease in passengers per revenue hour.

Results are generally mixed, without showing a definitive statistical advantage to one scenario. Other key takeaways include:

- Scenario A significantly reduces travel time on priority corridors compared to other scenarios
- Scenario B would most greatly increase the number of low-income households near transit
- No build scenario would offer slight improvements in reducing travel time and increasing access for low-income households

Infrastructure and Facilities

Both the frequency and coverage scenarios will require substantial investment in new infrastructure.

- Scenario A will require additional investment in BRT station infrastructure
- Scenario B will require many new bus stops, in areas not currently served by Cherriots

Regional Connections

Scenario B substantially increases Cherriots regional connections through new regional routes and extensions of existing service. This coverage scenario improves overall access to transit for new neighborhoods and increases access for low-income communities. However, this scenario does not significantly improve travel times or access to employment, and negatively impacts passengers per revenue hour.

Strategies

The Long Range Transit Plan team developed strategy concepts as part of this task. These strategy concepts address Cherriots vision, mission and goals; and address the needs and opportunities identified through public engagement. Cherriots will develop and phase the strategy concepts in the Draft and Final Long Range Transit Plan. Those documents will be available for stakeholder review and comment. The strategy concepts, organized in three groups, are described below.

Continued Service Excellence

These strategy concepts will help Cherriots continue to meet its high service standards and its customers' expectations. The agency will continue to implement and prioritize the services it is offering today with continuous improvement across operations, capital and organizational service delivery.

Cherriots will continue to offer world-class transit service to customers with a balance of local access, frequent core network, and regional connections.

The agency currently operates a network of twenty local bus routes and six regional express routes. Service frequencies range between 15- and 60-minute headways. Future network scenarios will maintain and enhance these connections. Transportation options programs, such as guaranteed rides home, ride planning, and customer education will continue to be utilized. Cherriots will continue to offer these services by:

- Adding routes to more regional cities
- Increasing frequency and providing service earlier and later in the day

Future plans will also maintain bus stop access, comfort, and safety.
There are currently 769 bus stops in the Cherriots service area. All stations include a bus pole and signage, with some having additional amenities such as seating, waste receptacles, and shelters. Among local bus stops, 18% have benches and 16% have shelters. At regional stops, 35% have benches and 28% have shelters. Local and Regional bus stops have waste cans at about 30% of bus stops. Near-term improvements for bus stops and transit centers to enhance new and existing customer experiences include wayfinding, service changes, and real-time bus information. Strategies to achieve this include:

- Employing emerging technologies to provide information to riders
- Leveraging employee training to ensure the safety of both riders and drivers, on and off the bus

Cherriots will transition the fleet to alternative fuel vehicles by 2040

The Cherriots Board of Directors adopted a policy in late spring 2022 that established a goal of a 100 percent zero-emissions fleet by 2040. This is in alignment with the proposed strategies in the City of Salem's Climate Action Plan. In addition, vehicles will be maintained at or above target goals and the fleets will be sized in accordance to trip demand.

Future service investments

This strategy concept group includes strategies to meet future mobility needs of the region. The strategies include investments such as expansions of service to new neighborhoods, increased service on existing routes, and developing new types of shared mobility options. These strategy concepts will take Cherriots beyond what it is offering today and position the District as an innovative and positive resource in the region.

Expand service coverage, span, and frequency

Cherriots will offer transit service for more hours of the day, with service starting earlier in the morning and going until later in the evening. The types of investments that will serve to achieve this goal include increasing the frequency of routes on the core network and expanding the coverage of the network both locally and regionally, creating new and expanding connections between Salem and the surrounding communities. Frequency on these routes will also be prioritized. Examples include:

- Offering bus service earlier and later in the day
- Increasing frequency, including adding more buses

- Adding new routes both locally and regionally

Prioritize speed and reliability and design for comfort and safety

Speed and reliability improvements will include transit priority designs and signals on key corridors and segments of the network. Examples of investment types may consist of strategies to enhance bus stop comfort and safety, with possible development of new stop typologies that accommodate a variety of mobility options, including microtransit or other multimodal strategies. Other examples include:

- Adding lights, shelters, and seats at bus stops
- Providing more rider amenities at transit centers
- Improving safety and security both on and off the bus

Provide flexible shared mobility services, including additional transit centers and other mobility hubs

Flex routes, ride hailing partnerships, and expanded vanpools will be integrated into future scenarios to assure first- and last-mile connections for riders who are traveling throughout the region. The agency will also adapt and grow the network of transit centers. In addition to those existing in downtown Salem, West Salem, and Keizer, future scenarios will include transit centers in the south area of Salem and near Chemeketa Community College to the north. Super stops, or bus stops that are larger than a standard bus stop but smaller than a transit center, will also be constructed to help accommodate all service needs. Examples of these investments include:

- Providing more information to riders about bus stop locations
- Offering employer-based transit benefits that make transit more affordable

Expand nonmotorized transportation network

The agency will work with local government agencies to help complete and repair the local bicycle network while supporting expansion of bikeshare infrastructure. These will link to key transit hubs and further support safe and efficient first- and last-mile connections. There are approximately 17 miles of bicycle facility gaps throughout the core network and 65 miles of proposed bicycle infrastructure that remains in need of funding. In addition to bicyclist infrastructure such as bike lanes and racks, the agency will also advocate for the expansion of pedestrian networks, including completing and repairing sidewalks throughout the region. When possible, these will be delivered

within direct projects. These projects also support a reduced reliance on SOVs and aim toward Cherriots Climate Action Plan goals. Examples include:

- Working with cities and counties to build better sidewalks and bike lanes connecting to transit
- Making it easier to bring along bicycles
- Offering a regional bikeshare program integrated with transit stops

Keep Cherriots resilient and connected

This group includes strategy concepts that Cherriots can undertake to continue to grow and best support the community. This includes growing the district's capabilities and ability to respond to unpredictable changes and disruptions. Cherriots will also be looking for new ways to reach communities and build relationships to underpin comprehensive ways to create livable communities.

Expand Cherriots information sharing

Mobile device applications, message boards and kiosks, and other communication materials provide clarity and instill confidence in both new and current riders. Sharing real-time incident and travel information provides clarity surrounding potential network changes or predicted travel time. Examples include:

- Adding more rider amenities at transit centers
- Making fare purchases available at more locations throughout the region

Explore public private partnerships

Partnerships with local businesses or organizations will help identify and deliver new programs, such as employer fare subsidies. Collaborating with partner entities can also serve the goal of installing, maintaining, and improving bus stops at employment hubs and activity centers. Examples of these investment types include:

- Providing more vanpools and shuttles
- Employer-based transit subsidies to make transit more affordable

Strengthen and create intentional community connections and outreach

This is a critical core strategy for centering equity and ensuring that transit services are directed toward proportionally low-income, zero/one car households, and minority communities. Examples of this strategy include:

- Discounted fares based on income

- Lower fares for students

Continue to support and invest in employees

Workplace training, providing career growth opportunities, and prioritizing employee health and personal growth better support employee retention and workplace satisfaction. Examples include:

- Creation of vanpool groups/trips to share rides with others
- Offering employer-based transit benefits

Next Steps

Cherriots is bringing the scenario evaluation and strategy concepts to the public through public engagement activities across the region. This feedback, along with the technical analysis and continued work with stakeholders, will inform the policies, projects and initiatives included in the Draft and Final Long Range Transit Plan. Cherriots expects to complete the Plan in late 2022.

Appendix A – Evaluation Results Detail

Figure 3 Scenario Evaluation Detail

Performance Measures	No Build	Frequent Core	Coverage
Increase transit ridership	+5,000	+15,000	+10,000
Increase non-SOV mode share	+1%	+1%	+1%
Transit travel time savings between NE Lancaster and West Salem	- 5 minutes	- 12 minutes	-8 minutes
Increase access to jobs by transit	No change	+9,500	+6,500
Low-income households near transit	+13,000	+13,000	+14,500
Passengers per revenue hour	No change	No change	- 3.4

Note: Future scenario performance measure results shown as change compared to 2019 base year. For more information on performance measure methods, see Figure 1 above.

Appendix B – Exploratory Scenario Maps

Figure 4: Frequent Core Network Scenario A (Local)

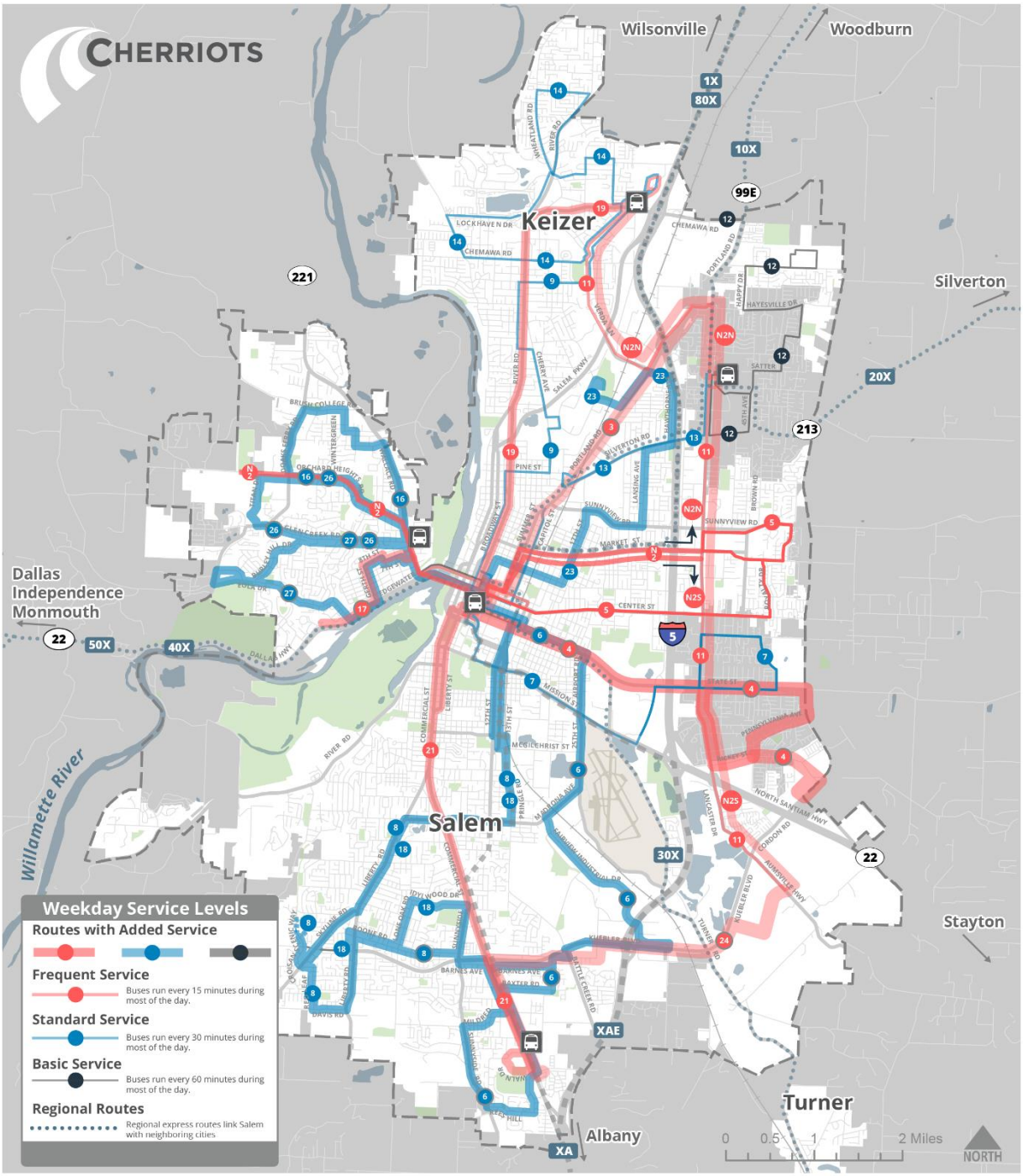


Figure 5: Coverage Scenario B (Local)

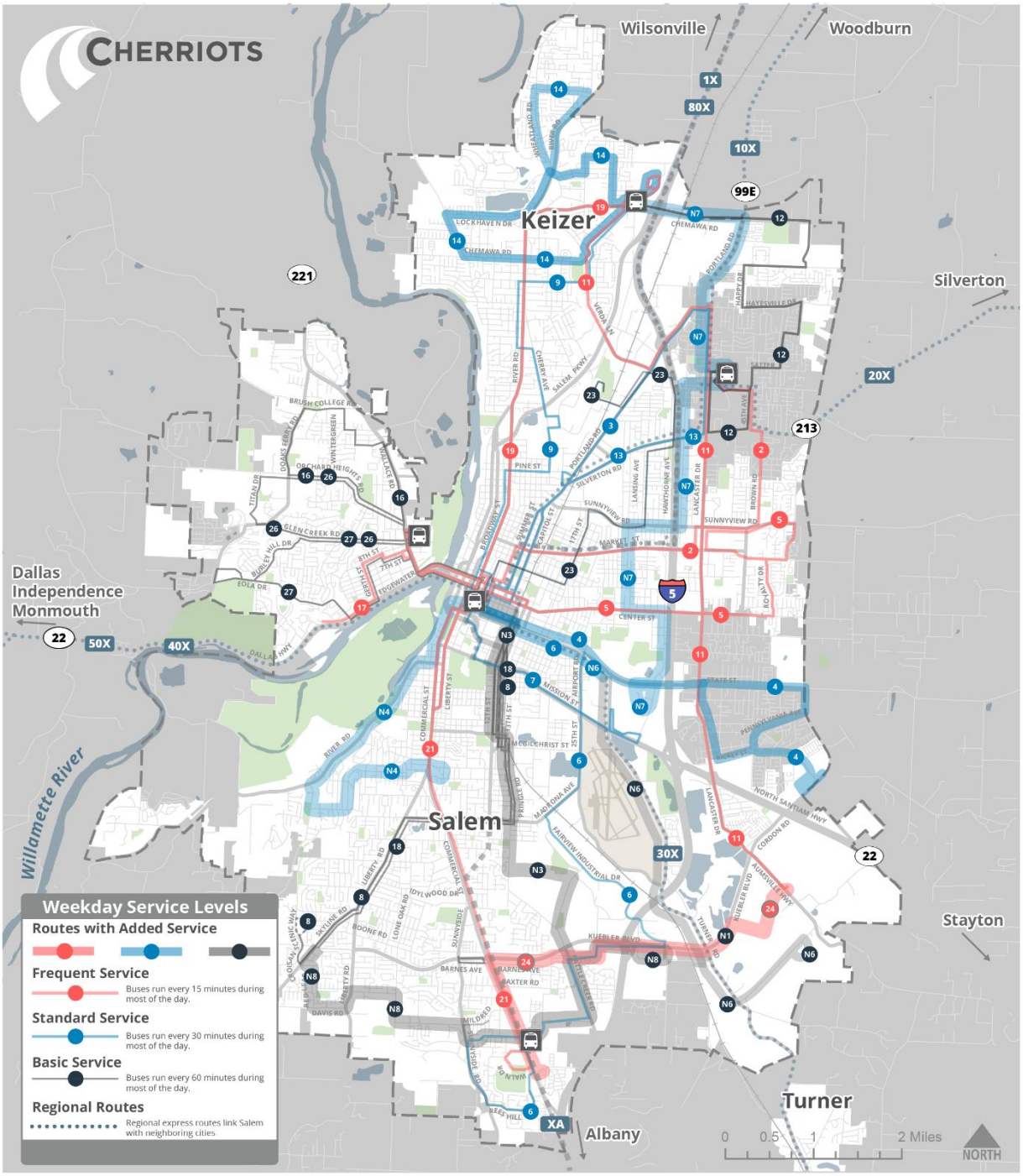


Figure 6: No Build Scenario (Local)

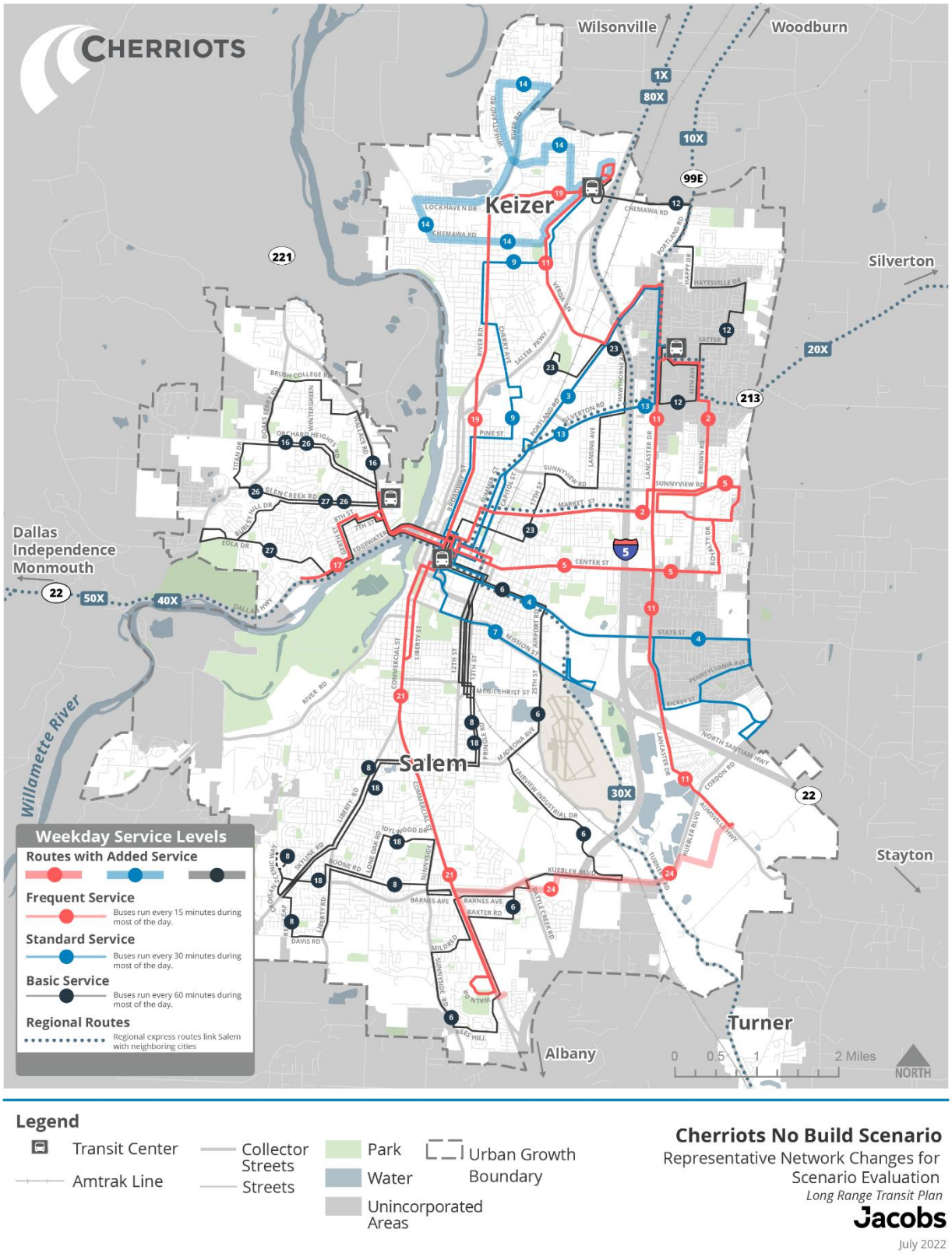


Figure 7: Frequent Core Network Scenario A (Regional)

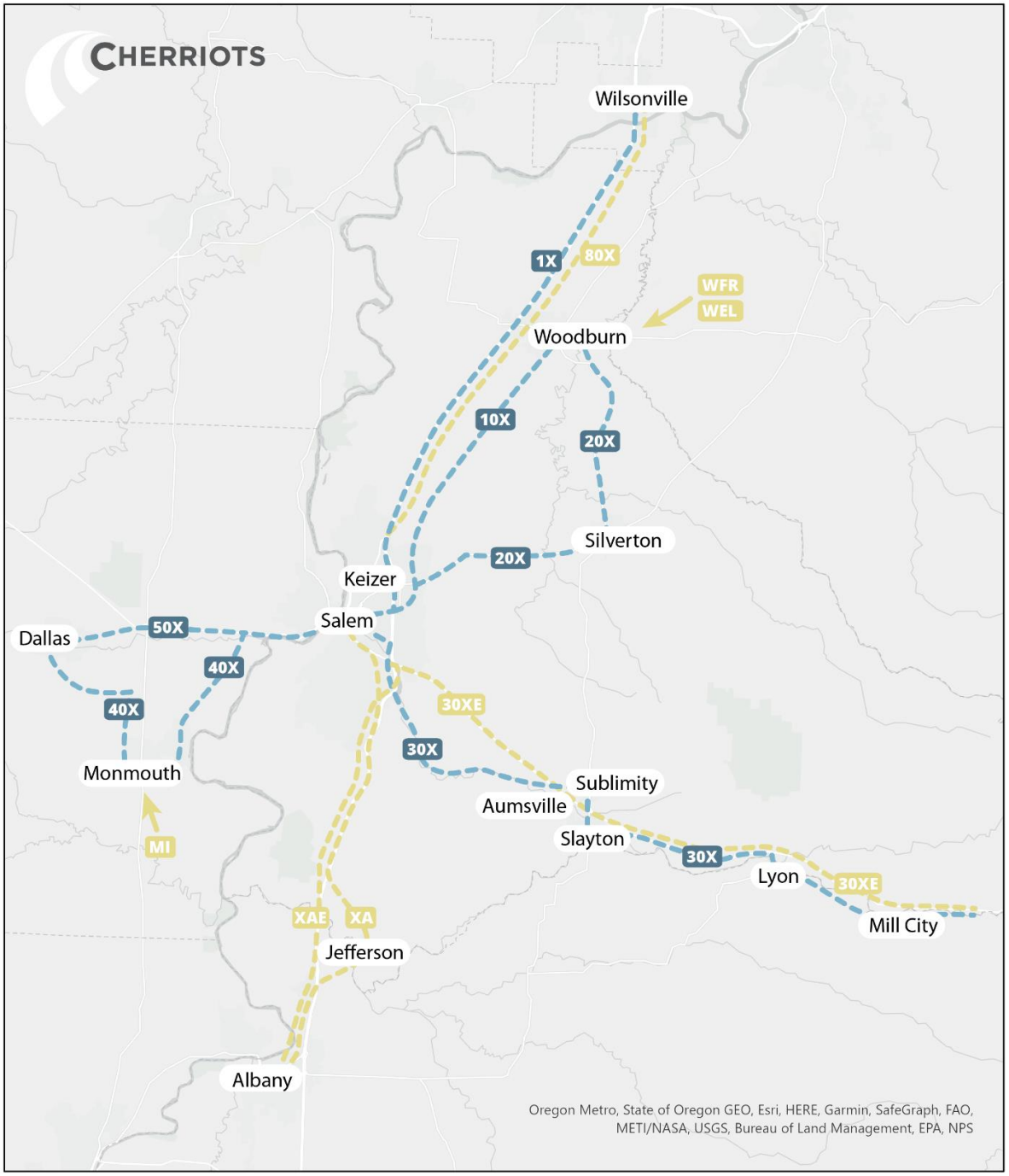


Figure 8: Coverage Scenario B (Regional)

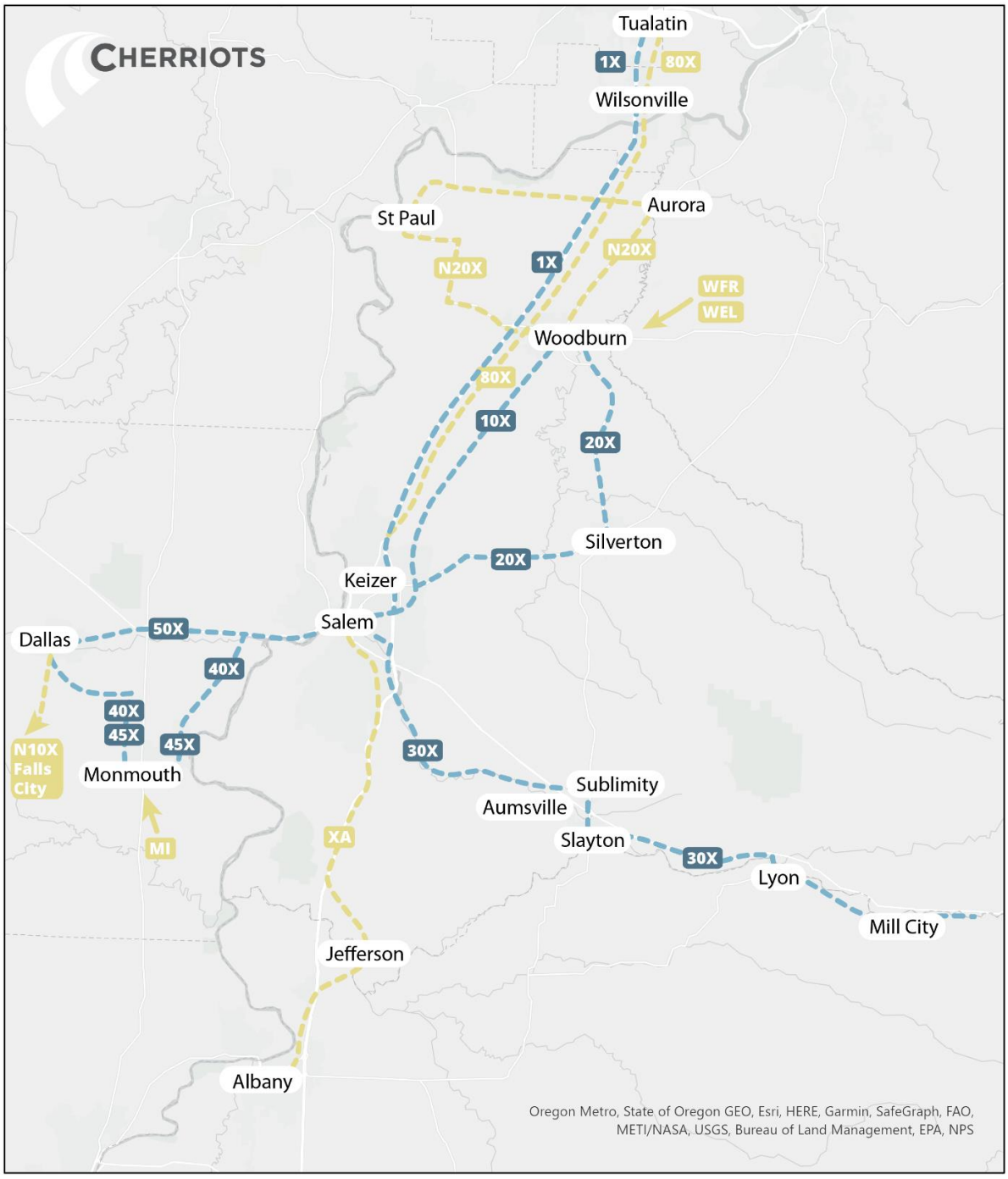
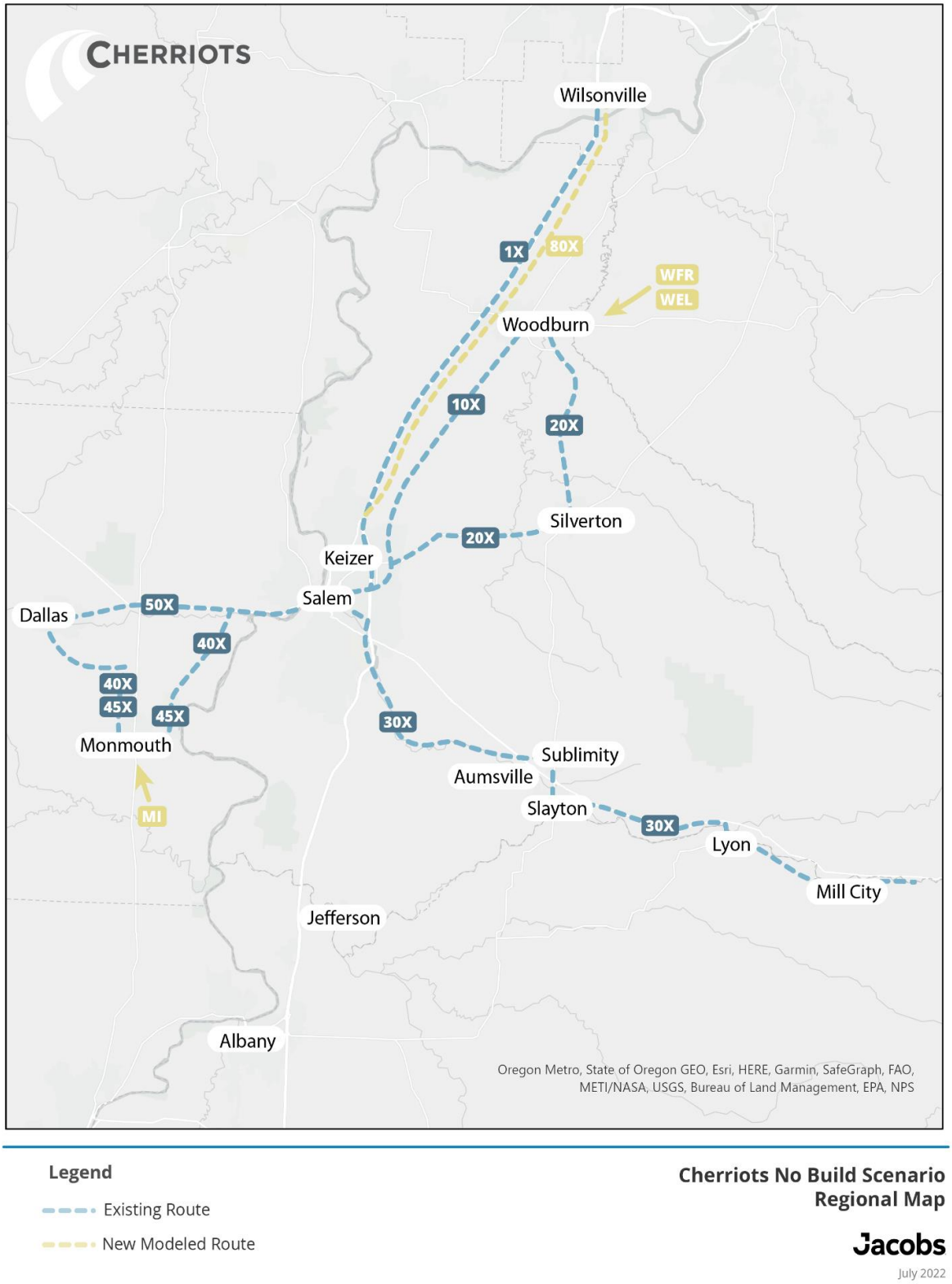


Figure 9: No Build Scenario (Regional)



Appendix C – Access to Jobs

The Access to Jobs performance measure maps show the total number of jobs available from one location in NE Salem (Lancaster Drive NE at Winema Place NE). The red areas show shorter travel time (1-15 minutes), orange is middle travel times (15-25 minutes) and green is longer travel times (25-40 minutes).

Legend

Short travel time (minimum 1 minute)

Mid travel time

Longer travel time (40 minutes)

The analysis includes the following assumptions.

- The origin location is Lancaster Drive NE at Winema Place NE
- The travel shed includes a ¼ mile walk distance from the bus stop
- The travel time includes a waiting time assumption at the origin bus stop.
- The analysis is based on the 2043 transit networks developed for the 3 scenarios.

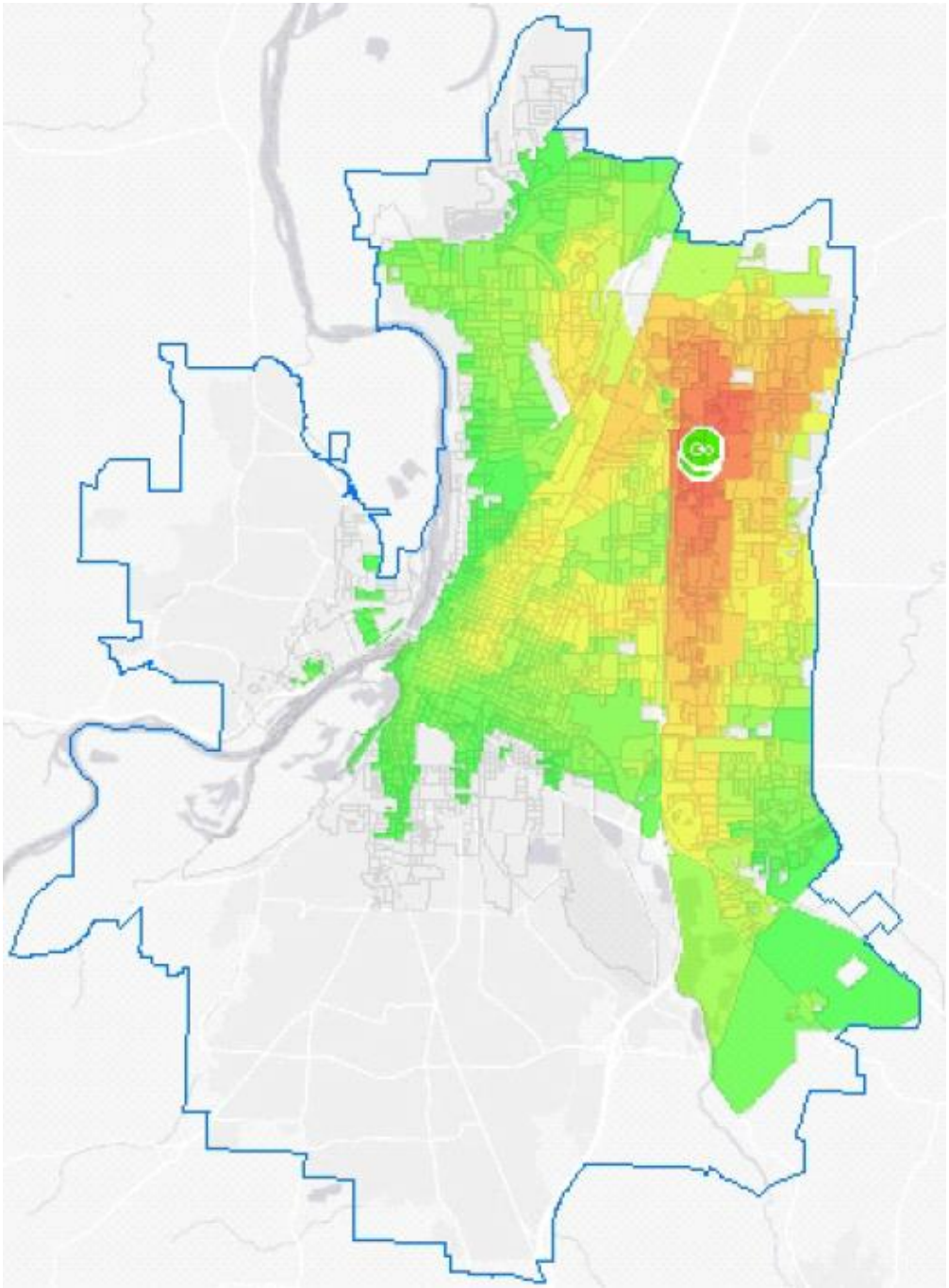
The results by scenario show that the Frequent Core Network Scenario A provided the greatest job access by providing faster trips than existing conditions, allowing riders to reach more areas of the region in the same amount of travel time. Scenario B provides greater access than the no-build scenario by providing greater geographic coverage to some neighborhoods (although not all neighborhoods are employment centers).

Figure 10 Access to Jobs Analysis Results

Scenario	Jobs Reached	% Total Jobs
No Build	106,204	67.3%
Frequent Core Scenario A	120,797	76.5%
Coverage Scenario B	108,792	68.9%

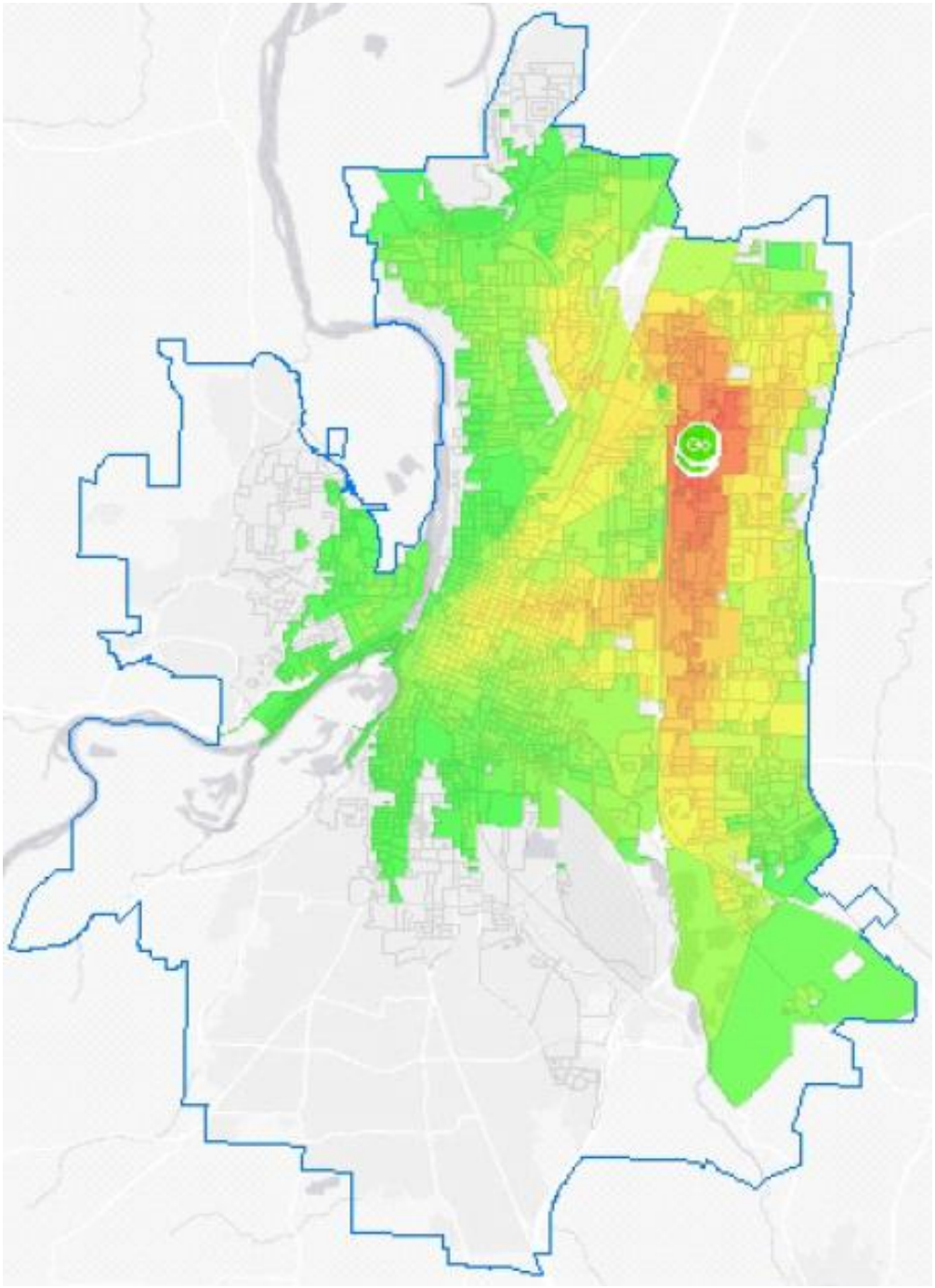
Source: Cherriots TBEST Model

Figure 11: Travel Time Distance – No Build Scenario



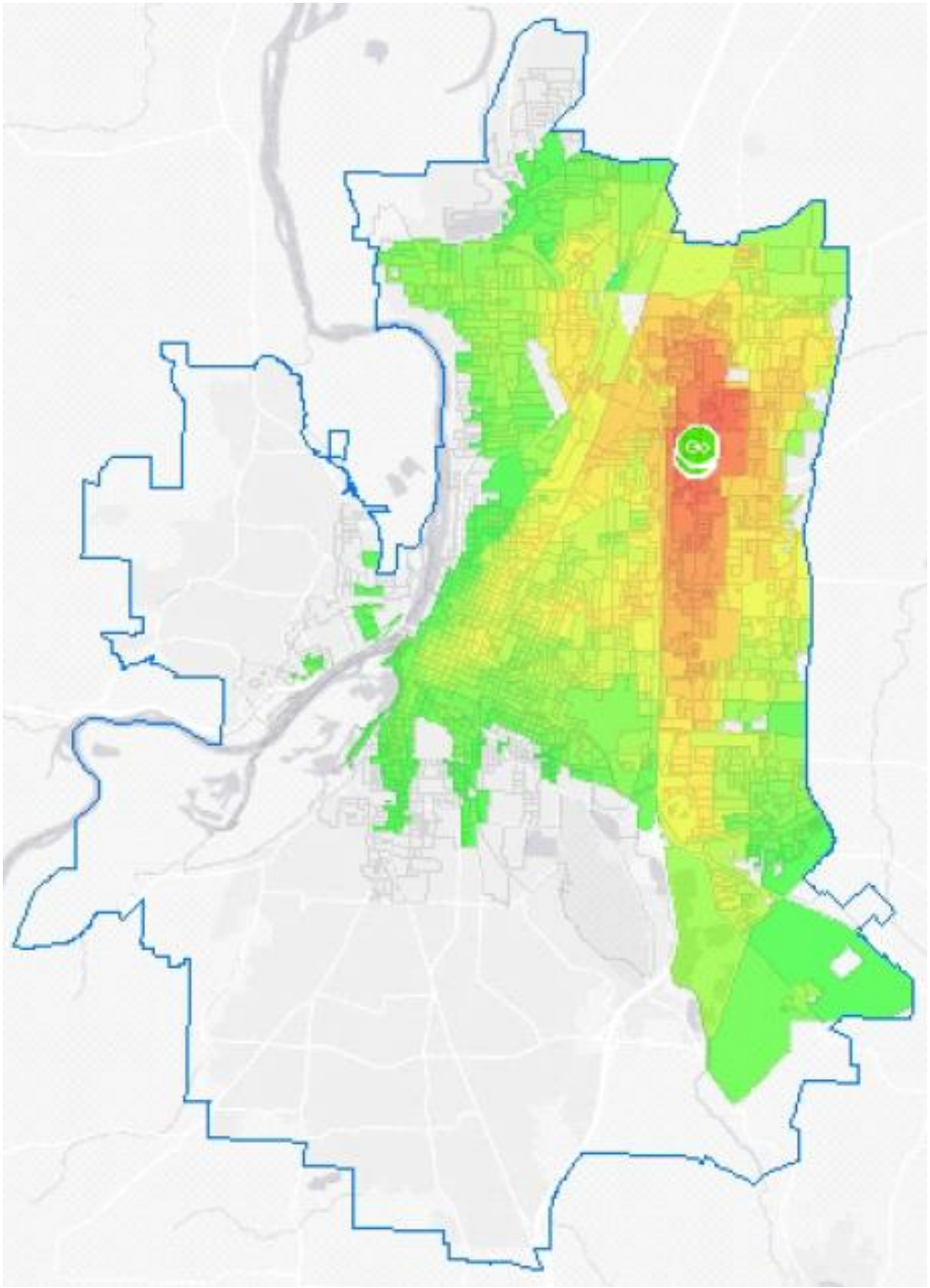
Source: Cherriots TBEST Model Analysis

Figure 12: Travel Time Distance – Frequent Core Scenario A



Source: Cherriots TBEST Model Analysis

Figure 13: Travel Time Distance – Coverage Scenario B



Source: Cherriots TBEST Model Analysis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