

# Memo



Date: July 13<sup>th</sup>, 2022  
To: Metro Transportation Policy Advisory Committee (TPAC)  
From: Eliot Rose, Senior Transportation Planner  
Subject: Proposed approach to the 2018 Regional Transportation Needs Assessment

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## Purpose

This memorandum describes the proposed draft approach to updating the Needs Assessment for the 2023 Regional Transportation Plan for discussion and feedback by the Transportation Policy Alternatives Committee (TPAC). Metro staff will refine the proposed approach to address TPAC feedback as staff continue to develop the Needs Assessment and prepare to present draft findings to Metro Council and regional technical and policy committees in Fall 2023.

## Introduction

A major update to the [Regional Transportation Plan \(RTP\)](#) is underway. The plan guides investments in all forms of travel – motor vehicle, transit, bicycle and walking – and the movement of goods and freight throughout greater Portland. The RTP is a key tool for implementing the [2040 Growth Plan](#) and [Climate Smart Strategy](#) and for connecting people to their jobs, families, school and other important destinations in the region. The current RTP establishes four overarching priorities – equity, safety, climate and mobility – and eleven goals and supporting objectives and policies that together guide planning and investment priorities to meet current and future needs of our growing and changing region.

The Needs Assessment in Chapter 4 of the Regional Transportation Plan provides a snapshot of current conditions and trends within the Portland region and highlights key regional transportation challenges and needs for the plan to address. Each update to the RTP begins with updating the goals of the plan, followed by updating the Needs Assessment based on the latest data available to ensure that the policies and the projects in the RTP address the needs of the region now and in the future based on the updated regional goals.<sup>1</sup> Metro Council and JPACT are currently reviewing the RTP vision and goals as Metro staff start initial work on the Needs Assessment; the vision and goals will be updated before the needs assessment is completed. Once the Needs Assessment is finalized, jurisdictional partners will submit projects through the call for projects, and then Metro staff will evaluate how the transportation system performs in the future by using the regional travel model and other tools. The goal is to have the projects and programs in the RTP meet the needs identified in the Needs Assessment and thereby achieve the RTP vision, goals and objectives. Table 1 below summarizes this process, including the information used and key outputs produced at each stage of the RTP process.

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<sup>1</sup> As with many elements of the RTP, Metro’s established practice is shaped by the Federal regulations that govern the RTP process, which require regional planning agencies to “confirm the transportation plan’s validity and consistency with current and forecasted transportation and land use conditions and trends.”

*Table 1: Summary of key results and information used, by RTP phase*

| <b>RTP Phase</b>                              | <b>Key results of this phase</b>  | <b>Information used during this phase</b>  |
|---|---|--|
| Update vision, goals, objectives and policies | <ul style="list-style-type: none"> <li>• Updates to RTP vision, goals and policies</li> </ul>   | <ul style="list-style-type: none"> <li>• Input from Metro Council, Metro policy/technical committees, agency partners, and community outreach</li> <li>• 2023 RTP scoping engagement</li> <li>• Background research and reports (Emerging Trends, Mobility Policy, Congestion Pricing Policy, Urban Arterials etc.)</li> <li>• Current transportation/land use data</li> <li>• Off-model analyses</li> </ul>   |
| Needs assessment                              | <ul style="list-style-type: none"> <li>• Updated analyses of current regional transportation needs</li> <li>• Updated policy maps (e.g., equity focus areas, high injury corridors)</li> <li>• Identify performance measures and confirm targets</li> </ul> | <ul style="list-style-type: none"> <li>• Current transportation/land use data</li> <li>• Off-model analyses</li> <li>• Base-year travel model analysis</li> <li>• Results and feedback from the 2018 RTP</li> <li>• 2023 RTP scoping engagement</li> <li>• Federal performance reporting results</li> <li>• Input from Metro Council, Metro policy/technical committees, agency partners, and community outreach</li> <li>• Updated RTP vision, goals and policies</li> <li>• Background research and reports (Emerging Trends, Mobility Policy, Congestion Pricing Policy, Urban Arterials etc.)</li> </ul> |
| Call for projects                             | <ul style="list-style-type: none"> <li>• Draft RTP project list</li> </ul>  | <ul style="list-style-type: none"> <li>• Updated RTP vision, goals and policies</li> <li>• Needs Assessment</li> <li>• Project information submitted by leads</li> <li>• Metro staff analysis of projects</li> <li>• Input from Metro Council, Metro policy/technical committees, agency partners, and community outreach</li> <li>• Background research and reports</li> </ul>  |
| Evaluation                                    | <ul style="list-style-type: none"> <li>• Performance results</li> <li>• Refinements to RTP project list</li> </ul>  | <ul style="list-style-type: none"> <li>• Updated RTP vision, goals and policies</li> <li>• Needs Assessment</li> <li>• Policy maps</li> <li>• Base- and future-year travel model analysis</li> <li>• Off-model analysis</li> <li>• Project information submitted by leads</li> <li>• Stakeholder and community outreach</li> </ul>   |

As the region’s transportation needs evolve, so does the structure and focus of the Needs Assessment. Throughout each RTP process, Metro engages elected officials, agency staff, business and community partners, and the public to hear about how transportation needs and priorities have changed since the last update. Metro has heard suggestions about how the RTP can more effectively address long-standing needs, including ideas about how the information in the Needs Assessment can better support decision-making. Through this process, the RTP Needs Assessment continues to evolve from an inventory of multimodal infrastructure needs to a broader focus on transportation’s contribution to systemic issues like climate, equity, safety and mobility (i.e., the currently adopted RTP priorities).

## Proposed approach for the 2023 RTP Needs Assessment

Over the past several years, people from across greater Portland have shared what they need and their priorities for the transportation system. Most recently, during the scoping phase of the 2023 RTP update, Metro Council, JPACT, transportation and land use policy and technical committees, and agency and community partners provided feedback about what priorities are important for this RTP to address and ideas for how the RTP process should evolve during this update to address those priorities. Table 2 below summarizes this feedback and how it is shaping our proposed approach to the Needs Assessment.

*Table 2: Summary of how RTP scoping feedback shapes the draft proposed approach to the Needs Assessment*

| <b>What we heard</b>  | <b>What it means for the Needs Assessment</b>   |
|---|---|
| Stakeholders <b>confirmed safety, equity, and climate as urgent and important priorities</b> for the RTP.   | We will <b>organize the needs assessment around RTP priorities</b> including safety, equity, climate, and others identified through updates to the RTP goals.   |
| Stakeholders acknowledged that the priorities above are often interrelated and expressed a desire to <b>focus on achievable actions that address multiple priorities.</b>                       | Where possible, we will <b>use consistent maps and analyses to examine needs related to different priorities</b> , so that we can highlight opportunities for RTP policies, projects and programs to address multiple priorities. |
| The RTP contains a significant amount of information, and the challenge is to <b>present that information in a way that is clearer and more actionable</b> in order to support decision-making. | Be clear about how the definitions and analyses used in the needs assessment are <b>rooted in RTP priorities, goals and policies.</b>   |

Much of the feedback discussed above echoes what Metro has heard from thousands of community members and decision makers about their transportation priorities during the 2018 RTP update and over the last several years. The 2023 RTP update will carry forward and build upon this important input.

## Proposed approach to assessing RTP priority needs

This section describes the proposed approach to the assessing transportation needs during the 2023 RTP update. Metro is proposing to organize the Needs Assessment around the four adopted 2018 RTP priorities: safety, equity, mobility, and climate. For each of these priorities, we discuss:

- Key elements of the 2023 RTP Needs Assessment and lessons learned from the 2018 RTP update
- Completed updates to key maps and data used in the 2018 RTP
- Proposed elements of the Needs Assessment

## Safety

### *Key elements of the 2018 Needs Assessment*

The 2018 safety assessment analyzed ODOT crash data from 2011-15<sup>2</sup> to compare crashes by mode, location, and demographics of the people involved. This analysis found that:

- Traffic deaths are increasing and are disproportionately impacting people of color, people with low incomes and people over age 65.
- Traffic deaths are disproportionately impacting people who are walking.
- A majority of traffic deaths are occurring on a subset of arterial roadways.

This last finding led Metro to map the region's high injury corridors, which are the corridors where 60% of the region's fatal and serious crashes occur. Metro used these corridors to define "safety projects" – projects that make a significant investment in proven safety countermeasures on high-injury corridors – and reported back on the percent of the RTP budget spent on these projects as part of the system-level evaluation.

### *Completed updates to maps and data*

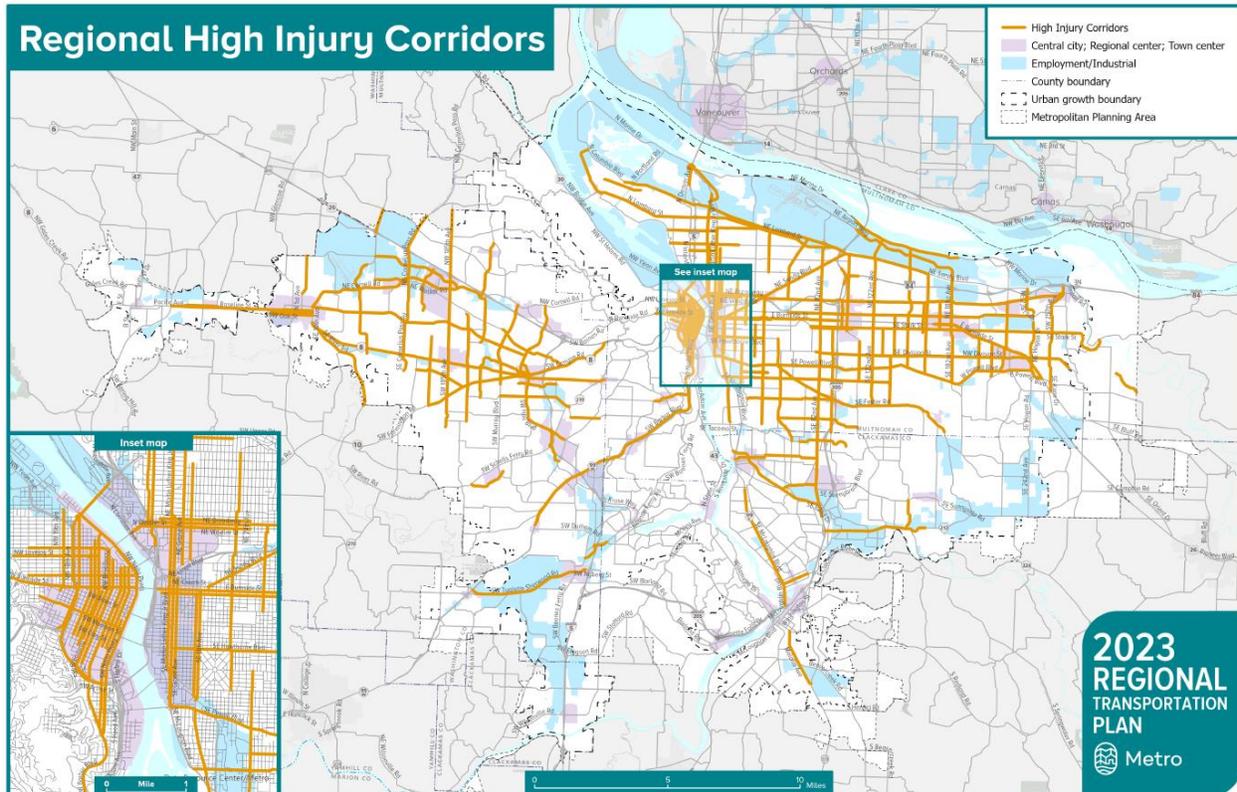
Since the 2018 RTP update, Metro and partners have continued to use high injury corridors to prioritize investments and evaluate the safety impacts of projects and programs. Metro also produced federal transportation safety performance reports in 2020 and 2021 and will complete one for 2016-2020 data this summer. These reports describe progress made towards regional transportation safety targets. In 2021, Metro completed a [2-year Progress Report](#) on the Regional Transportation Safety Strategy, providing updated data on serious crashes, highlighting inequities in safety outcomes and identifying needs to address safety.

For consistency, Metro staff propose to use the updated corridors to assess safety needs in the 2023 RTP update as well. Metro has updated the high injury corridors – using the same definition and methodology as was used in the 2018 RTP – with the most recent five years of data available from ODOT, 2016-2020. This time the analysis includes local and collector roads, some of which are identified as HICs. Figure 1 shows the draft updated map, and Appendix A describes the data and methodology used to create this map in detail. The 2016-2020 High Injury Corridors mapping tool can be accessed and explored online here: <https://experience.arcgis.com/experience/6b5ae16aad814e6e81546bcc4ffdf964>.

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<sup>2</sup> It is common practice to use multiple years of crash data in detailed safety analysis. The number of crashes in any given location can vary from year to year, and using multiple years of data helps to control for these variations and highlight places where there are significant recurrent safety issues.

Figure 1: Draft 2023 RTP High Injury Corridors (2016-2020)



*Proposed elements of the 2023 Needs Assessment*

The 2016-2020 high injury corridors (HICs) will be used to illustrate the roadways with the highest number of serious crashes. Additional analysis for the Needs Assessment will include:

- **Serious crashes by mode in Equity Focus Areas**, in order to assess whether crashes are disproportionately impacting people of color, people with low incomes, and people with limited English proficiency.
- **A list of corridors with the highest injury scores**, to help target safety projects toward the corridors where they are most needed.
- **An analysis of crashes by mode**, including number of serious crashes by mode and designation of high injury corridors for people walking, bicycling and driving, to identify what type of safety improvements will be most beneficial in different corridors.
- **Identifying overlaps between HICs and other transportation facilities**, such as bus routes and Safe Routes to School sites. This will highlight areas where safety might be hampering progress toward reaching RTP goals or implementing RTP programs, such as improving transit speeds and reliability and expanding Safe Routes to School.
- **An analysis of current progress toward regional safety targets**, including analysis of how key indicators like crash rates are changing over time.

## Equity

Compared to previous RTP updates, the 2018 RTP update had an expanded focus on equity. It included equity policies and implementing actions for the first time, and these policies called for regional partners to prioritize investments in the communities where people of color, people with low income, and people with limited English proficiency live. In order to support the implementation of these policies, Metro mapped communities of marginalized people in the region. The mapped areas are called Equity Focus Areas. During the 2023 RTP, there are opportunities to continue to apply these Equity Focus Areas in the Needs Assessment while also updating the equity assessment to build on what Metro and partners have learned from implementing the policies in the 2018 RTP.

### *Key elements of the 2018 Needs Assessment*

The Equity section of the Needs Assessment in the 2018 RTP included the following elements:

- Historical information on how racial exclusion and bias have shaped policy in Oregon and transportation decisions in the Portland region.
- A map of Equity Focus Areas (EFAs), which are Census tracts where (1) the percentage of people of color, people with low incomes, and/or people with limited English proficiency is above the regional average, and (2) population density is more than double the regional average. This map was based on 2011-15 data from the American Community Survey
- Regional information on how homeownership and access to jobs varies by race.
- A map showing patterns of displacement for people of color in the Portland region for the period of time between 1990 and 2010.

The Equity Focus Areas (EFAs) were used throughout the 2018 RTP and continue to be used to inform planning, engagement activities and investment decisions in the region. Metro developed the definition of EFAs through an extensive consultation process with community and agency partners that tested several different ways of examining equity, which is documented in Appendix E of the RTP.<sup>3</sup> Metro and its partners defined EFAs in the RTP as described above because:

- **The region is growing and changing.** Our population is increasing, people of color account for a growing share of the population, and many people of color and people with low incomes are being displaced or moving from communities at the center of the region to communities closer to its edges. Defining EFAs relative to regional averages maintains a focus on the communities with the highest concentrations of people of color, people with low incomes, and people with limited English proficiency, even as those communities move around within the region.
- **Investments in equity should benefit as many people in need as possible.** Metro includes density in the EFA definition so that Metro and its partners can focus our efforts on the communities where underserved people are concentrated, and because investments in affordable and sustainable transportation generally produce greater benefits in areas with greater concentration of people.

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<sup>3</sup> [https://www.oregonmetro.gov/sites/default/files/2018/06/29/RTP-Appendix E 2018 RTP Transportation Equity Evaluation with attachments.pdf](https://www.oregonmetro.gov/sites/default/files/2018/06/29/RTP-Appendix%20E%202018%20RTP%20Transportation%20Equity%20Evaluation%20with%20attachments.pdf)

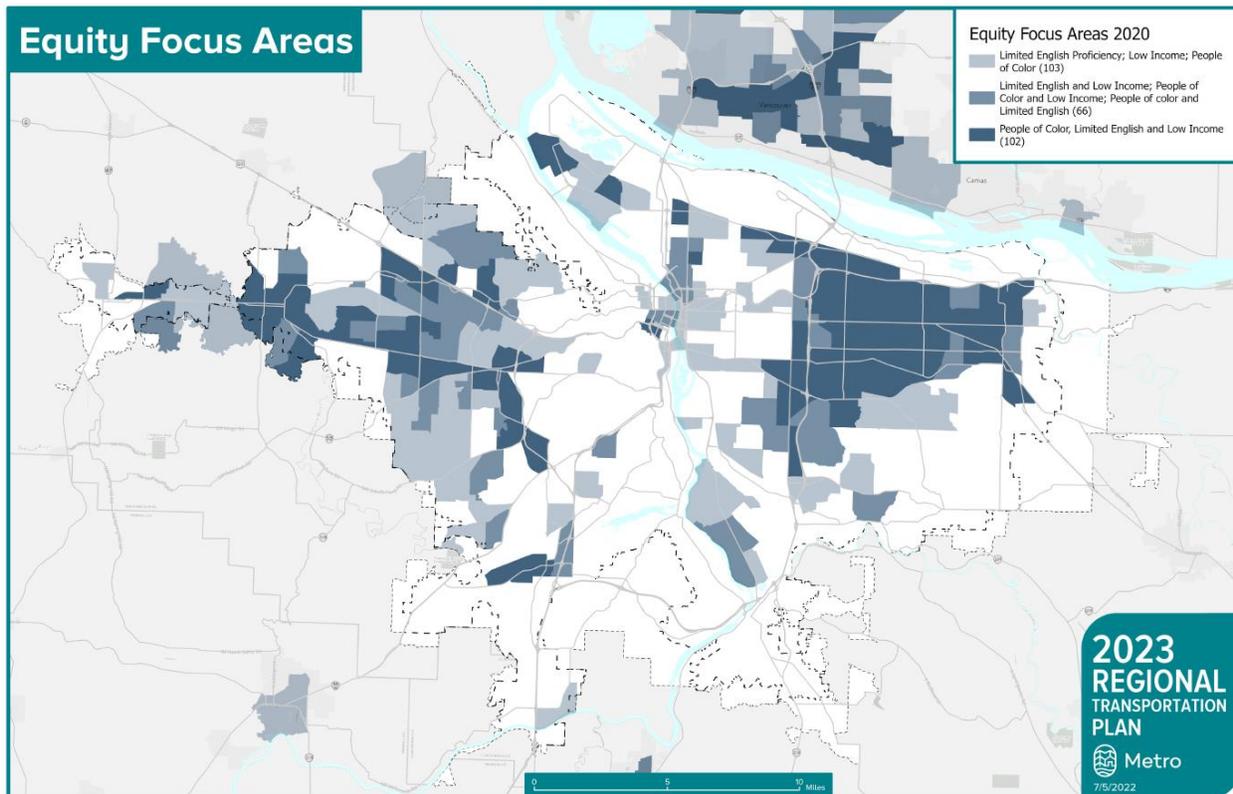
- **The EFA definition captures a variety of equity-related needs.** During the process of developing EFAs, Metro and its partners tested alternate ways of defining EFAs that included other groups commonly used in equity analysis, such as carless households, renters, and people with disabilities. Communities with high concentrations of people of color, people with low incomes, and people with limited English proficiency typically also have high concentrations of many of these other groups.

The other information in the 2018 Needs Assessment provided useful background on racial and other disparities in the region, but was not as widely used in RTP decision-making because it was not very detailed, and in many cases was not specific to transportation or to the Portland region. In the 2023 Needs Assessment there are opportunities to better focus the equity assessment on the transportation needs of people of color, people with disabilities, people with low income, and people with limited English proficiency based on lessons have learned through extensive outreach to these communities during the 2018 RTP update and subsequent engagement conducted to inform development of a regional funding measure and during the scoping phase of the 2023 RTP update.

*Completed updates to maps and data*

EFAs were first used in the 2018 RTP, and were based on 2011-15 American Community Survey data. Since then, Metro has updated the EFAs, continuing to use the same definition, methodology and data, which is described in more detail in Appendix B. Figure 2 shows the draft update to the Equity Focus Areas for use in the 2023 RTP, distinguishing between areas that have one, two or three of the overlapping characteristics that Metro uses in defining EFAs. These EFAs are based on 2016-20 American Community Survey data (for income and English proficiency) and 2020 Census data (for race). Appendix B provides more detail on the data sources and calculations used to create and update EFAs.

Figure 2: Draft 2023 Equity Focus Areas



Though the majority of EFAs in this updated version overlap with the EFAs that were used and adopted in the 2018 RTP, several Census tracts in the region have lost or gained EFA status. This shows that EFAs are changing as the region's population grows and changes, just as Metro and partners intended when they were adopted into the RTP in 2018. However, EFAs can also change due to nuances in the underlying Census and American Community Survey data – which, though imperfect, are the most comprehensive, consistent, and detailed sources of demographic data available.

Here are some of the reasons why the EFA status of a census tract may have changed:

**Conditions have changed in the tract.** Census tracts have anywhere from 1,200 to 8,000 people, with an average of roughly 4,000. At this scale, a relatively small change – such as a new affordable housing development or the movement of several large households – can cause a tract to gain or lose EFA status. A new 100-unit affordable housing development in a tract where residents are otherwise mostly white and affluent could even potentially make that tract an EFA. More of these type of changes could be occurring as the region funds more affordable housing developments. Also, because of the 5-year averages used in the ACS data used in defining the EFAs, updates to the EFAs capture change over a broad time span. Though the 2023 and 2018 RTP updates are only five years apart, there is a nine-year difference between 2011 (the earliest year of data used in the 2018 RTP EFAs) and 2020 (the latest year of data used in the 2023 EFAs).

*Example: In the average Census tract in the Portland region, 15% of people are living on low incomes. According to the data used for the 2018 RTP, Census Tract X had 1,000 people total, 5% of whom were living on low incomes, so it was not identified as an EFA. Since then, it built a new 100-unit deed-restricted low-income housing development with 150 people. The updated data for the 2023 RTP now shows that 17% of the people living in the tract are now people with low incomes, which is above the regional average. Tract X is now an EFA.*

**Conditions have changed in the region.** The regional averages that are used in defining EFAs also change. This is currently happening with race; the share of people of color in the Portland region is growing. This means that the EFA status of a Census tract can change even if the percentage of people of color, people with low incomes, and people with limited English proficiency stays the same; a rising regional average could cause that tract to lose EFA status, and a falling average could cause that tract to gain EFA status.

*Example: According to the data used for the 2018 RTP, 11% of the people living in Census Tract X are people of color, whereas 10% of the people in the average Census tract were people of color, so Tract X was an EFA. According to the updated data, the share of people of color living in Tract X is still 11%, but the regional average has increased to 12%. Tract X is no longer an EFA.*

**The data have changed.** The survey questions that the Census uses to collect the data used by Metro to define EFAs sometimes change. For example, there was a slight change in how the Census question asking about race was presented between the 2010 and 2020 Census that may have led to an increase in how many respondents identified as members of two or more races, and potentially also the percentage of people that are counted as people of color when defining EFAs.

**The data have margins of error.** The American Community Survey is the data source that is most critical to defining EFAs. The ACS estimates the socioeconomic profile of an area based on a limited survey sample of people who live in that area. These estimates are not perfectly accurate, and the Census Bureau presents them with margins of error that represent the uncertainty associated with each estimate. For example, in a tract where the share of people with low incomes is estimated at 12% with a margin of error of 2%, anywhere from 10% to 14% of the population could have low incomes. Metro uses the estimates in identifying EFAs because they are the best data available, but there are many cases where tract values are within the margins of error of the averages used to define EFAs. These tracts may gain or lose EFA status based on the underlying uncertainty in the data.

*Example: According to the data used for the 2018 RTP, 6% of the people living in Census Tract X have limited English proficiency – with a margin of error of 3% - whereas 5% of the people in the average Census tract have limited English proficiency, so Tract X was an EFA. According to the updated data, 4% of the people living in Tract X have limited English proficiency, and the tract margin of error and regional average haven't changed. This causes Tract X to lose its EFA status, even though in both cases it is within the margin of error of the average.*

Typically a combination of these factors is responsible for tracts gaining or losing EFA status, and it is rarely possible to distinguish whether one specific factor is leading to a change in status for a given Census tract. The Census data are the most comprehensive and detailed source of demographic data available, and Metro does not have a similarly detailed and reliable, but independent, data source to compare them to. This lack of ground truth makes it challenging to distinguish changes due to data issues like revised survey questions and margins of error from changing conditions in the region and its communities.

*Proposed elements of the 2023 Needs Assessment*

**Focus on the transportation needs that are important to people of color, people with low incomes, and other underserved groups.** The equity policies adopted in the 2018 RTP direct Metro and partner agencies to both learn more about marginalized people's transportation needs<sup>4</sup> and also to act on what they learn.<sup>5</sup> Since the 2018 RTP update, Metro has conducted extensive outreach to people of color, people with low incomes, and other marginalized people to better understand their transportation needs through the development of the 2020 regional transportation funding measure, the Regional Mobility Policy update, and other processes.<sup>6</sup> Metro has consistently heard that these communities need safer and more accessible travel options – specifically better transit service and safer streets for bicycling and walking, including:

- More fast, frequent and reliable transit service for all types of trips (including at off-peak travel times)
- More affordable transit that connects people to the places and things they need to thrive.
- Better conditions for walking and biking, including adequate street lighting, protected crossings and crossing signals, particularly to improve access to transit.
- Connected and separated walking and biking infrastructure.

The 2018 RTP included several maps and performance measures related to these needs, and there are several opportunities to reflect this feedback and sharpen the focus on equity when presenting this information in the 2023 RTP Needs Assessment, potentially including:

**Identifying gaps in the bike, pedestrian, trail, and transit systems that are within EFAs.** As discussed in the Mobility section, the Needs Assessment typically identifies gaps in the transportation system by comparing the planned RTP system to current facilities. These maps can be overlaid with EFAs to highlight those gaps that most impact underserved communities.

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<sup>4</sup> Policy 5: "Use engagement and other methods to collect and assess data to understand the transportation-related disparities, barriers, needs and priorities of communities of color, people with low income and other historically marginalized communities."

<sup>5</sup> Policy 3: "Prioritize transportation investments that eliminate transportation-related disparities and barriers for historically marginalized communities, with a focus on communities of color and people with low income."

<sup>6</sup> This feedback is collected in the [Summary of input from historically marginalized communities on transportation priorities for Greater Portland](#) that was shared with Metro

**Including maps of access to destinations via transit in the needs assessment, and highlight opportunities to improve access in EFAs.** Marginalized communities not only need better transit service within their communities, they need better connections to jobs, services and other destinations they need to reach on a daily basis. Stakeholders requested that Metro use access to destinations, particularly via transit, as an equity performance measure in the 2018 RTP. The 2018 RTP measured in aggregate how access to jobs and community destinations varies between EFAs and other areas of the region. In the 2023 RTP update, there is an opportunity to highlight where there are opportunities to improve transit accessibility within the region by including a map that compares access to destinations via transit with transit-supportive land use characteristics like concentrations of jobs and housing and with EFAs. Areas that are EFAs and have high levels of transit-supportive land uses, but have low levels of transit accessibility, represent opportunities to improve transit access to destinations for EFA residents.

**Using EFAs as an overlay with a variety of maps to highlight opportunities to advance equity and other priorities simultaneously.** For example, the 2018 RTP overlaid EFAs with high injury corridors to highlight opportunities to address both safety and equity. There may be similar opportunities to overlay EFAs with other maps shown of the Needs Assessment, including some of those discussed below.

#### Mobility

The 2023 RTP update will include an updated Regional Mobility Policy, which is a significant and long-awaited milestone for the RTP that will shape how Metro defines and measures mobility throughout the plan, including in the Needs Assessment. The 20-year old interim mobility policy in the 2018 RTP focused on measures of vehicle congestion, setting volume-to-capacity threshold for roadways in the region. The mobility policy update aims to significantly broaden the policy to address a greater variety of modes (including transit, active transportation, and driving) and outcomes (including safety, equity, access, efficiency, reliability, and options). The new, more comprehensive mobility policy will specify a new set of performance measures and targets that Metro and its agency partners will use to assess whether system plan updates, plan amendments, and land use decisions meet the requirements of the policy. Metro, ODOT and agency partners are currently considering a combination of three new performance measures to include in the policy that will be applied at the system planning level:

- Vehicle miles traveled (VMT) per capita
- System completeness
- Travel speed on throughways<sup>7</sup>
- Comparisons of all measure results between equity focus areas and non-equity focus areas (to examine whether impacts of plans and projects are equitable)

The 2023 RTP Needs Assessment will be consistent with the updated Regional Mobility Policy by weaving together the variety of information that the Needs Assessment provides

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<sup>7</sup> This measure is also used by Metro as part of the region's federally-required transportation performance reporting. The next report is due in October 2023 and will inform the 2023 RTP Needs Assessment.

on different aspects of mobility and by providing base year information on the performance measures used in the policy.

*Key elements of the 2018 Needs Assessment*

Information about mobility is spread throughout the 2018 RTP Needs Assessment in Chapter 4. The “How the system is working” section includes information on congestion, transit reliability, and gaps in the bicycle and pedestrian system. The “How we get around” section includes information on mode shares, vehicle miles traveled, and other key indicators of multimodal transportation. The “How we get around” section also includes information on freight movement. The Needs Assessment includes information on several of the potential Regional Mobility performance measures listed above:

- **Travel speeds, hours of congestion and reliability** are discussed in Section 4.6.4 (Congestion and Reliability), which includes a map and table from ODOT identifying congested stretches of freeway (based on analyses of speeds), and a map of transit reliability from TriMet data.
- **System completeness** is discussed in Section 4.6.7 (Gaps in Transit, Biking and Walking Connections), which includes maps that show the current regional bicycle, pedestrian, transit and trail networks; gaps in the bicycle, pedestrian, transit and trail networks that show where regionally-planned facilities have not yet been built; and the level of sidewalk completion in the region.
- **Access to destinations** is discussed in Section 4.6.9 (Housing and Transportation Affordability and Displacement), which includes a chart comparing access to jobs by race. Access to destinations is also used as a performance measure in Chapter 7, which includes tables showing access to jobs and community places by mode and for Equity Focus Areas vs. other areas of the region.
- **VMT per capita** is discussed in Section 4.3.1 (Travel), which shows charts of historical average regional VMT per capita and comparisons of VMT per capita between the Portland region and other regions. Regional VMT per capita is also used as a performance measure in Chapter 7.

*Completed updates to maps and data*

Metro, ODOT and agency partners are still determining which performance measures will be used in the updated mobility policy. However, stakeholder discussions so far have emphasized the importance of **system completeness** in assessing multimodal mobility. The motor vehicle network map and the bicycle and pedestrian gap maps in the 2018 RTP highlight key locations where the system is incomplete by comparing the regional visions (i.e., planned systems) for these networks – which are based in extensive coordination with stakeholders and analysis of transportation and land use data – to the facilities that are on the ground today. Metro has used these gaps to evaluate active transportation projects through the Regional Flexible Funds Allocation process, and found them useful in prioritizing projects that complete the system. However, in order to identify projects that complete the transit system,<sup>8</sup> Metro has created a new map of transit gaps, based on the

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<sup>8</sup> Metro also has policies to complete the region’s arterial, collector and local street networks. However, Metro staff are not proposing to add a map of gaps in collector and local street networks to the Needs Assessment in the 2023 RTP update. The needs assessment will identify new connections identified in the regional motor

2020 transit network, by comparing planned transit service to existing service, similar to how other network gaps in the RTP are identified. Though this map is technically new to the RTP, it is derived from on the transit network vision (i.e., planned system) that was adopted in the 2018 RTP.

Figure 3 shows the draft transit network gap maps. The map distinguishes between gaps in the frequent- and regular-service transit networks, since completing the frequent transit network is critical to meeting the region’s climate goals, and between gaps in service that are based on the financially-constrained network (i.e., gaps that the region currently has identified funding to complete) and those that are based on the network vision (i.e., gaps that the region has not yet identified funding to complete). Metro is still updating the motor vehicle network and pedestrian, bicycle and trail network gap maps based on recent updates submitted by agency partners, but Figure 4, Figure 4: 2018 RTP regional motor vehicle network map (dashed lines indicate gaps)

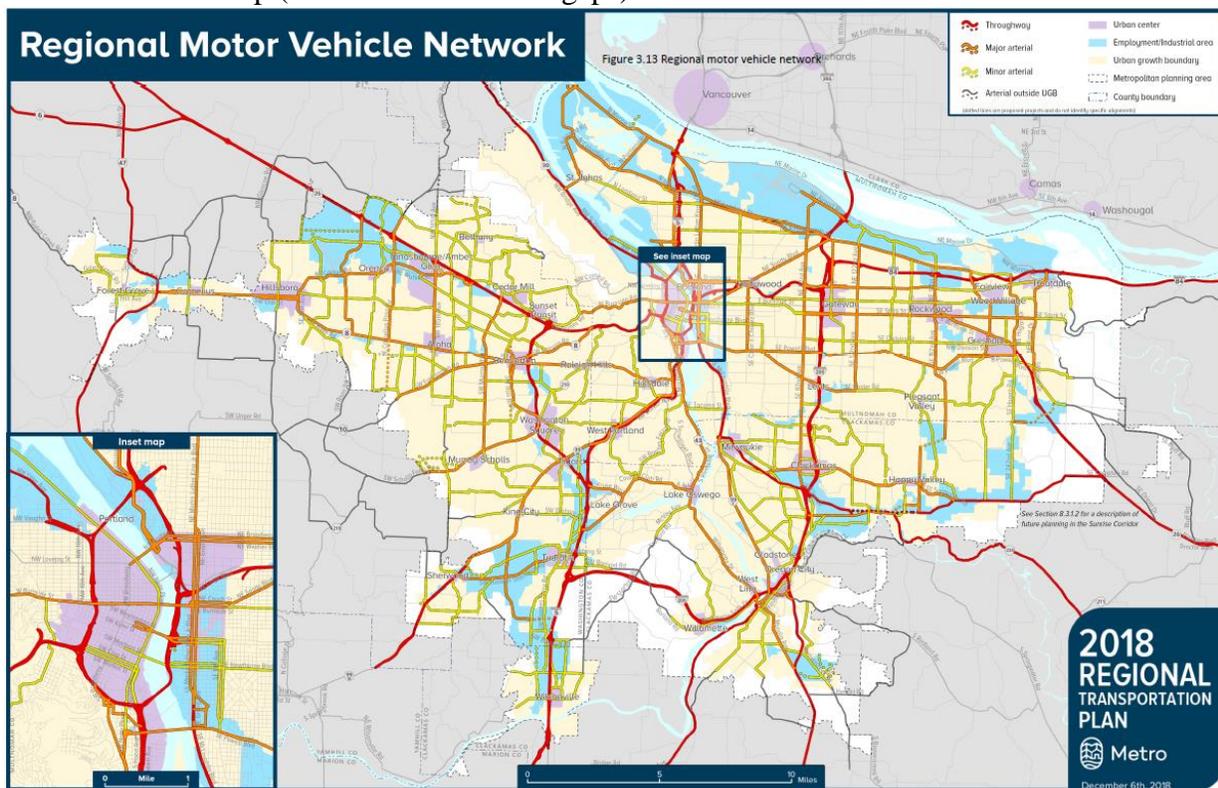


Figure 5, Figure 6, and Figure 7 show the versions of those maps that were published in the 2018 RTP for reference.

vehicle network map. There are relatively few gaps in the motor vehicle network – roughly 15 of them, with the majority less than two miles long, out of over 7,000 current and planned road-miles in the region – whereas significant portions of the transit and active transportation networks remain incomplete.

Figure 3: Draft regional transit network gap maps

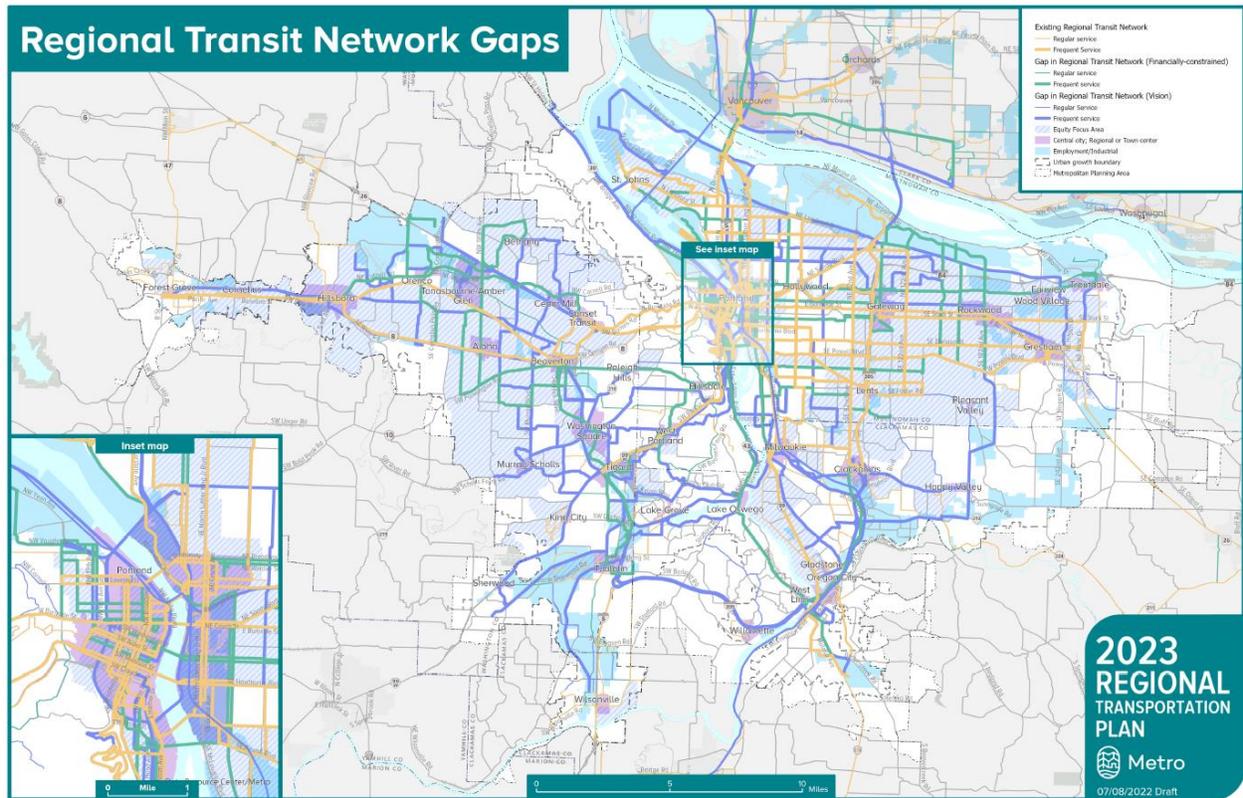


Figure 4: 2018 RTP regional motor vehicle network map (dashed lines indicate gaps)

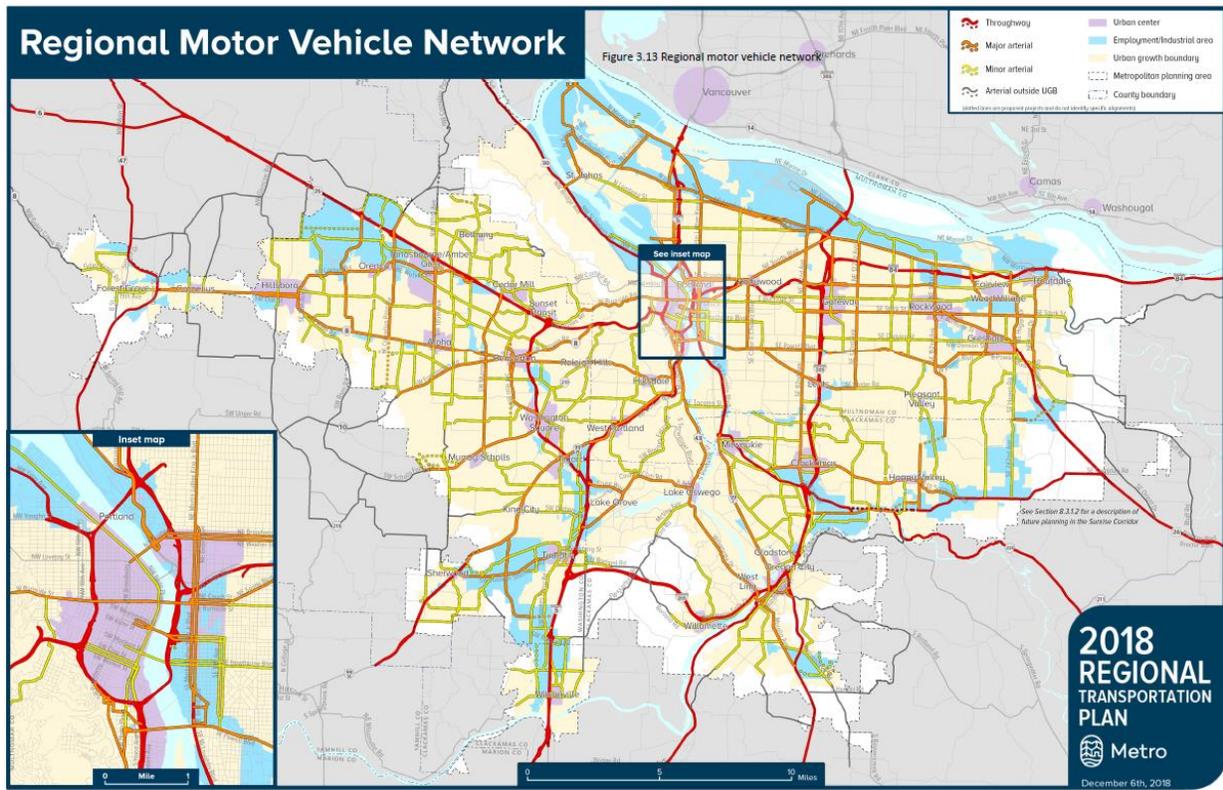


Figure 5: 2018 RTP map of regional pedestrian network gaps

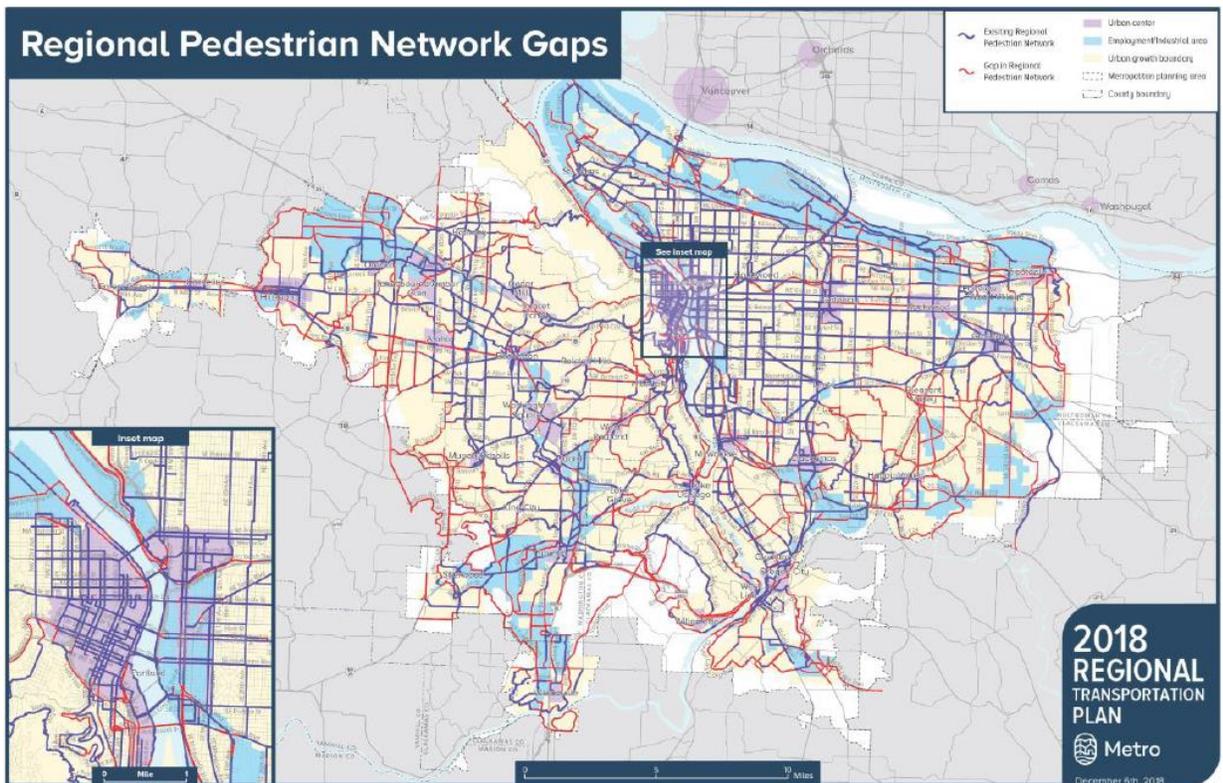


Figure 6: 2018 RTP map of regional bicycle network gaps

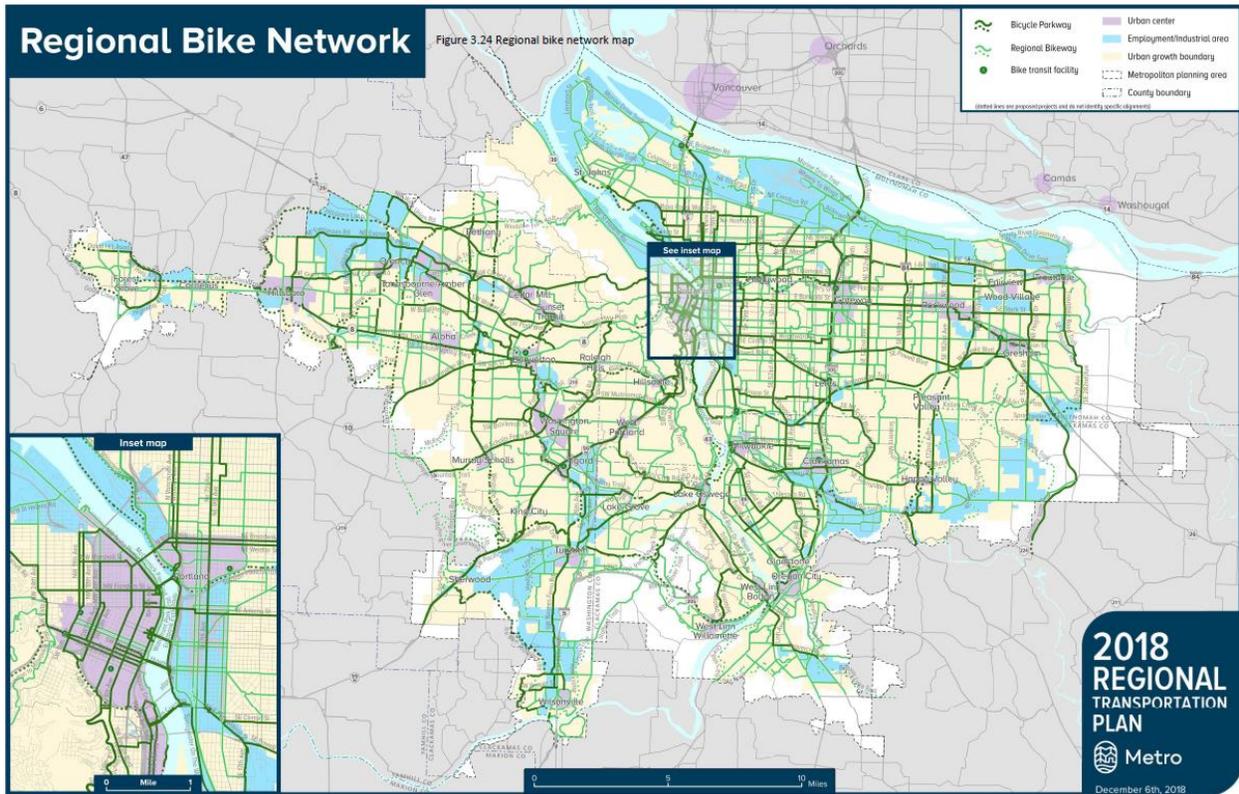
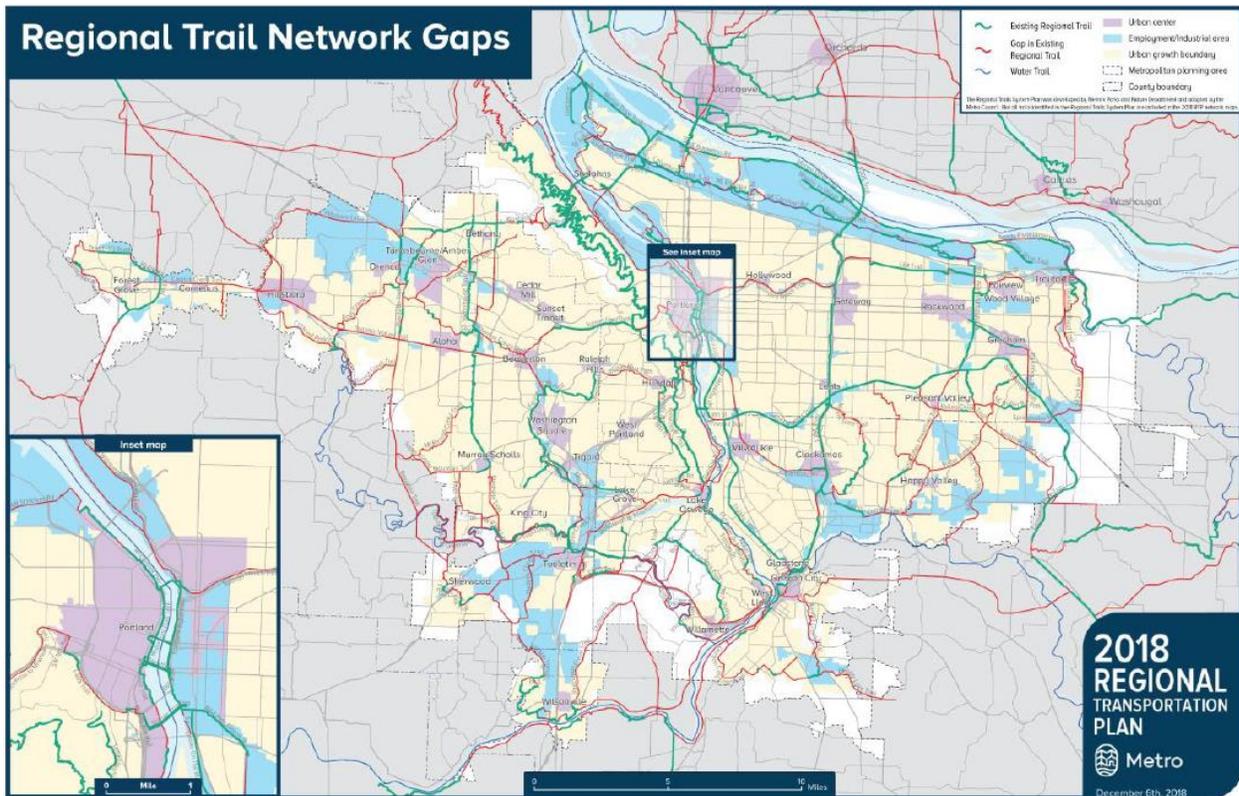


Figure 7: 2018 RTP map of regional trail network gaps



*Proposed elements of the 2023 Needs Assessment*

System completeness is emerging as a priority measure for the Regional Mobility Policy Update, and Metro has a longstanding method to analyze system completeness by mapping network gaps. Other aspects of the mobility policy are not supported by this same level of consensus and experience. Pending JPACT and Metro Council support to apply the updated Regional Mobility Policy in the RTP update in November 2022, the Needs Assessment will be updated for consistency, potentially including the following updates:

**Combine all relevant information into a single section on Mobility.** The Updated Mobility Policy Vision aims for a region where “people and businesses can safely, affordably, and efficiently reach the goods, services, places, and opportunities they need to thrive *by a variety of seamless and well-connected travel options and services* that are welcoming, convenient, comfortable, and reliable.”<sup>9</sup> Instead of dividing people up into drivers, transit riders, pedestrians, and cyclists, it recognizes that people take an integrated view of their travel options and choose the one that best fits their needs for a given trip. To the extent possible the RTP should reflect this perspective as well, and present comprehensive multimodal mobility information in a single section instead of discreetly analyzing individual modal needs.

**Include base year information for Mobility Policy performance measures.** Once JPACT and the Metro Council agree on a recommended set of performance measures for the updated Regional Mobility Policy, information on RTP base year (2020) conditions will be included for these measures. This information will provide a baseline against which partner agencies can measure changes in mobility and implement the policy, and help regional stakeholders identify high-priority mobility needs to address in the 2023 RTP update. Though there is still some uncertainty surrounding the final set of Regional Mobility Policy measures, two of the potential measures overlap with performance measures and data that are discussed in other sections of the Needs Assessment, as well as elsewhere in this memorandum. VMT per capita is also discussed in the Climate section, and access to destinations is also discussed in the Equity section.

- VMT per capita (discussed under Climate)
- Access to destinations (discussed under Equity)
- Comparisons of all measure results between equity focus areas and non-equity focus areas (to examine whether impacts of plans and projects are equitable)

#### Climate

The region’s efforts to address climate change are guided by the Climate Smart Strategy, which was adopted in 2014. Approved by the Land Conservation and Development Commission in 2015 and incorporated in the RTP in 2018, the strategy was created in response to State legislation and supporting administrative rules that set greenhouse gas reduction targets for the Portland region and required Metro to adopt and implement a plan to meet these targets. The strategy identifies a wide-range of greenhouse gas emissions reduction policies, strategies and near-term actions to guide climate action in the

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<https://www.oregonmetro.gov/sites/default/files/2022/03/17/Discussion%20Draft%20Mobility%20Policy%20Draft%20Options%20Report%2001%2020%202022.pdf>

RTP and other ongoing efforts. The strategies are categorized by potential impact reducing greenhouse gas emissions. High potential impact strategies include congestion pricing, 2040 Growth Plan implementation, coordinated investment in compact, mixed-use areas served by transit, walking and biking connections, and expanding transit coverage and high-frequency service.<sup>10</sup> Moderate potential impact strategies include investing in active transportation connections, travel information and incentives, and system management and operations strategies.

*Key elements of the 2018 Needs Assessment*

The 2018 RTP Needs Assessment included a high-level overview of the background and focus of the region's climate strategies. 2018 RTP Appendix J, Climate Smart Strategy implementation and monitoring, included more detailed information on the region's progress in meeting its greenhouse gas (GHG) reduction targets.<sup>11</sup> It found that the 2018 RTP was on track to meet State targets to reduce per capita greenhouse gas emissions from passenger vehicles by 25 percent by 2040, as well as targets set for interim years. It also found that the region was on track to implement many of the actions the Climate Smart Strategy relies upon to reduce greenhouse gas emissions, such as increasing transit service and locating new housing in mixed-use communities. However, the region was not on track to meet its target for reducing vehicle miles traveled (VMT) per capita – which is closely related to reducing greenhouse gas emissions – nor for completing the regional active transportation network by 2035 (a target identified in the 2018 RTP). Furthermore, since the 2018 RTP was adopted, statewide rulemaking resulted in new VMT per capita reduction targets for the region that will need to be met through the 2023 RTP.

*Completed updates to maps and data*

There are currently several ongoing developments that will have a significant influence on regional greenhouse gas emissions and climate policies, described in more detail below. Because of these ongoing developments, Metro staff do not currently have specific updates to the climate needs assessment to share, but have started to develop a progress report on Climate Smart Strategy implementation that will inform updates to Appendix J and the 2023 RTP Needs Assessment. Available information will be reported to TPAC and MTAC at an upcoming joint workshop this summer. JPACT and Metro Council will be discussing potential updates to the Climate Smart Strategy at a workshop this fall.

Metro continues to explore opportunities to evolve and enhance its capabilities to and approach to forecasting greenhouse gas emissions and monitoring progress implementing the Climate Smart Strategy. Most recently, Metro convened a transportation and climate expert panel on June 22, 2022 consisting of senior staff from transportation agencies around the country that are working to implement climate policies and analyze the greenhouse gas impacts of transportation decisions. The panel highlighted the variety of

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<sup>10</sup> The Climate Smart Strategy also identifies investing in clean vehicles and fuels as a high-impact strategy, but progress in implementing this strategy does not count as progress toward meeting the region's climate goals. Under Oregon's climate policy the State is responsible for accelerating the adoption of clean vehicles and fuels, and regions are responsible for VMT-related greenhouse reductions.

<sup>11</sup> Metro, Climate Smart Strategy implementation and monitoring, 2018 Regional Transportation Plan Appendix J, December 6, 2018. [https://www.oregonmetro.gov/sites/default/files/2019/04/02/RTP-Appendix\\_J\\_Climate\\_Smart\\_Strategy\\_Monitoring181206.pdf](https://www.oregonmetro.gov/sites/default/files/2019/04/02/RTP-Appendix_J_Climate_Smart_Strategy_Monitoring181206.pdf)

tools and approaches that are available to assess transportation projects and policies at different levels of detail and/or stages in the project development process.<sup>12</sup>

Based on the lessons from this panel, along with development of new and updated analysis tools (including VisionEval, which is the tool that the State uses to set the greenhouse gas targets used in the RTP), Metro staff will recommend an updated approach for assessing progress toward meeting the region's greenhouse gas targets and identifying climate needs for the 2023 RTP.

*Proposed elements of the 2023 Needs Assessment*

Since 2018, there have been several important developments related to the State's greenhouse gas reduction targets and our region's progress in implementing them.

Studies have found that **changes to the climate are stronger and are happening more rapidly than expected, and that emissions need to fall dramatically by 2030** to prevent irreversible global damage.<sup>13</sup> Oregon did not meet its 2020 goal to reduce emissions to 10 percent below 1990 levels; at last count emissions were roughly 10 percent above 1990 levels.<sup>14</sup> Though our region demonstrated it was on track to meet our greenhouse gas reduction targets in 2018, the global pandemic and other urgent challenges suggest the region may now be falling behind implementing some of the policies and investments called for in the Climate Smart [Strategy](#). In addition, the region is contemplating new and updated policies that should be considered for inclusion in an updated Climate Smart Strategy. These developments lend new urgency to meeting our region's climate goals.

Since 2018, the Land Conservation and Development Commission adopted new rules through the **Climate Friendly and Equitable Communities rulemaking** process. These rules require cities and counties in Oregon's eight metropolitan areas to designate higher density, mixed use communities that are served by transit and other sustainable transportation options, and to demonstrate that land use and transportation system plan updates reduce vehicle miles traveled and greenhouse gas emissions. As part of this Rulemaking, the State clarified that regional GHG reduction targets are intended to be equivalent to household-based VMT per capita reduction targets. These targets reflect additional greenhouse gas emissions reductions needed beyond what was expected to be achieved through State-level policies and actions identified in the [Statewide Transportation Strategy \(STS\)](#) that aim to advance Oregon's transition to cleaner, low-carbon fuels and zero and low-carbon emissions vehicles.

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<sup>12</sup> A video and summary of the panel discussion, background materials and lessons learned will be posted on Metro's website at <https://www.oregonmetro.gov/events/climate-and-transportation-expert-panel/2022-06-22>.

<sup>13</sup> Intergovernmental Panel on Climate Change (IPCC), Climate Change 2021: The Physical Science Basis, Summary for Policymakers, October 2021. [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_SPM\\_final.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf)

<sup>14</sup> Oregon Department of Environmental Quality, Oregon Greenhouse Gas Sector-Based Inventory Data. <https://www.oregon.gov/deq/aq/programs/Pages/GHG-Inventory.aspx>

In addition, Metro, ODOT, and City of Portland have all **made progress on planning for congestion pricing**, and Metro has committed to including an updated regional congestion pricing policy in the 2023 RTP. Development of the updated policy is underway. This represents significant progress on one of the most effective greenhouse gas reduction strategies included in the Climate Smart Strategy.

The State has adopted **new policies and programs to support the transition to cleaner, low carbon vehicles and fuels**, and is in the process of revising its projections of vehicle efficiency and use of alternative fuels.

Finally, the COVID-19 pandemic disrupted travel in the region, demonstrating that telework has significant potential to reduce commute trips and that people can make significant changes to adapt how they travel when circumstances demand it. It also led to significant loss of transit riders and major cuts in service, which have been exacerbated by an ongoing shortage of transit drivers. **These cuts call into question whether the region is on track to increase transit service as envisioned in the Climate Smart Strategy and 2018 RTP.**

Metro staff are proposing several updates to the Climate section of the Needs Assessment that address these developments:

**Provide a high-level progress report on Climate Smart implementation this summer.**

In order to meet our regional greenhouse gas reduction targets, Metro and its partners need to understand whether the strategies that the region has relied upon so far are working, and to understand the impact of the developments called out above. This progress report will be provided so that partners and decision-makers have clarity on whether and how much the RTP needs to be updated to meet the region's mandated GHG reduction targets.

**Include a map showing how VMT per capita varies throughout the region:** In order to comply with the new Climate Friendly and Equitable Communities rulemaking, agencies in the region need to plan to increase development in communities where people can drive less and still meet their daily needs, and also to demonstrate that plans reduce VMT per capita. Mapping VMT per capita at as fine a scale as Metro's planning tools allow will help agency partners identify areas of the region with low rates of driving and provide baseline data against which to measure projected changes in VMT per capita. As discussed in the Mobility section, VMT per capita is also a recommended Regional Mobility Policy performance measure, so including a VMT per capita map could also support local and regional implementation of the updated Mobility Policy and CFEC rules.

**Map opportunities to increase transit ridership in the region.** This would involve comparing access to destinations via transit with transit-supportive land use characteristics like concentrations of jobs and housing. Areas that have higher densities of people and jobs and/or a mix of homes and destinations but have low levels of transit accessibility, represent opportunities to improve transit access in a way that attracts more riders. As discussed in the Equity section, transit access to destinations is an important

equity performance measure, and overlaying this map with Equity Focus Areas can highlight opportunities to provide better options for the people in our region who need them most.

*Other information to be included in the needs assessment*

Re-organizing the needs assessment around our regional priorities should provide more clarity on how the RTP can best address those priorities. However, some of the information that is required to be included or has traditionally been included in the Needs Assessment does not align neatly with these priorities. In addition to the four sections discussed above on Safety, Equity, Mobility, and Climate, the needs assessment will also include sections that describe:

- **General changes in regional population, employment and transportation patterns since 2018:** This information has traditionally been included in the Needs Assessment, and provides important context on how the region is growing and changing.
- **Freight and goods movement:** Many of the priorities discussed above involve freight and goods movement. For example, the Regional Mobility Policy Update envisions moving people and goods safely and efficiently through the region. However, most of the travel in the region is by passenger vehicles, and the data and tools that Metro uses to develop the RTP capture passenger vehicles much better than they do freight. In addition, Metro is conducting a Regional Freight Delay and Commodities Movement Study, which will identify the growing impacts of e-commerce on goods movement and identify freight-related strategies that support the region's goals. Because this is such a significant study, and because freight movement patterns are very different from passenger vehicle travel patterns, freight and goods movement merits its own section within the Needs Assessment.
- **Infrastructure conditions in the region:** this is a required Federal performance measure and important information in understanding whether the transportation system is in a state of good repair, including the region's bridges, roadways and transit systems.

*Next steps*

An update on the Needs Assessment will be provided to TPAC in September for discussion of:

- the draft results and findings of the assessment of climate, safety, equity and mobility needs (addressing feedback received during today's discussion)
- draft results and findings from other components of the needs assessment

## Appendix A: High Injury Corridors data and methodology

### Part 1: Streets

#### *Create dissolved corridors*

Corridors are derived from RLIS streets by creating a standard corridor name for the entire length of the roadway (a dissolved corridor). A data dictionary was created to provide the HIC corridor names for highways (e.g. Hwy 8) and streets (e.g. Division). For highways, add the highway number for numbered roadways as the road name to dissolve on. For example, Hwy 8 is dissolved from Canyon Road and Tualatin Valley Highway. For other roads, use that name, suffix, road type, and direction to dissolve. For unnamed roads, replace null values with 'Unknown' as a base name. All dissolved roads are given an ID. Unknown roads are kept distinct by adding the ID to the name (eg. Unknown00001). There are few unnamed roads in RLIS, and no HICs are unnamed roads. All streets in the region are included in the analysis regardless if they are on the regional network.

#### *Break dissolved corridors into corridors for scoring*

After the dissolved corridors are created they are then broken into corridors between 1 and 5 miles in length, with the goal to have longer rather than shorter corridors. Freeways and non-freeways are treated separately (since freeways don't intersect with other roads except for ramps, and other intersections are over/underpasses). For each, the dissolved corridors are first broken at each intersection into segments; these segments are later used to ensure that no corridor is divided at an intersection. Each dissolved corridor length is then measured. If a dissolved corridor (e.g. Hwy 8) is longer than 5 miles, it is divided into shorter corridors. For example, if a dissolved corridor is 6 miles it would be broken into two 3 mile corridors. When breaking a dissolved corridor into shorter corridors, breakpoints are added mid-segment, rather than at an intersection. This ensures that intersection crashes, which are frequent, are not double counted on two corridors. For final scoring, a scored corridor must be at least 1 mile long.

The relevant RTP network (identified on the RTP motor-vehicle, freight, transit, bicycle and pedestrian network maps) is buffered, and line segments that fall within the buffer are noted as on-network line segments. This is used to assess if a HIC is on the RTP network. Most HICs are, but there are some local roads that are HICs.

- The first iteration of the HICs used location of crashes on a corridor to determine breakpoints for scoring. Since crashes happen in random places, this made it difficult to compare a given road segment of two different time periods (because they would aggregate differently between time periods). For the current method, long corridors are broken consistently at the same point through time.

#### *Create intersections and segment midpoints*

From the corridors, midpoints and intersections are derived, so that crashes can be snapped to these points (Part 2 below). All segments are converted to start, end, and midpoints. Points are buffered to 80 feet and dissolved, and assigned an ID based on unique buffer polygons. This ensures the end of one segment is assigned the same ID as the start of the next, and lets short mis-alignments or dual-lane roads to be given the same

Junction ID at near-coincident intersections. Points are classified into the categories in Table 1.

Table 1.

| Point type categories | Description  |
|-----------------------|--|
| Intersection          | Three or more converging line segments   |
| 2-point intersection  | Two converging line segments   |
| Dead end              | Single line endpoint   |
| Midpoint              | Midpoint of a line segment   |
| Corridor breakpoint   | Breakpoint for a corridor (was a midpoint of a line segment, no crashes snap to this point type) |

## Part 2: Crashes

*Add fields to crashes and calculate*

The crashes used in the analysis are ODOT crashes that Metro copies and keeps locally for analysis as part of RLIS. The crashes are copied from RLIS and the following crash type fields are added to create the HIC crash data. The crash types in Table 2 are identified in sequence using the queries listed. The crashes are identified in sequence, and once a crash is given a type it is not considered for subsequent types (a crash can only have one type assigned). Once crashes are given a type, then an nScore is calculated. An nScore is a weighted score, based on the weights in the table below; nScores are calculated for each crash, then aggregated up to intersections and midpoints and then to corridors (see Part 3 below).

Calculate severity weights (using flagged types of injuries) based on the State of Safety Report (2012):

“A regional arterial safety program to focus on corridors with large numbers of **serious crashes, pedestrian crashes, and bicycle crashes.**” (page 4 or iii)

- Since 2015, ODOT crash data does not have bike/ped PDO crashes. The scripting functions fine even though it doesn’t find any of these crash types to classify. The script has not been modified to remove the PDO classification for re-running analysis from previous years.

Table 2.

| Crash type fields | Query  | Weight |
|-------------------|--|--------|
| Auto_FA           | TOT_MOTOR_FATAL > 0 OR TOT_MOTOR_INJ_A > 0                   | 10     |
| Ped_FA            | TOT_PED_FATAL_CNT > 0 OR TOT_PED_INJ_A_CNT > 0               | 10     |
| Bike_FA           | TOT_PEDCYCL_FATAL_CNT > 0 OR TOT_PEDCYCL_INJ_A_CNT > 0       | 10     |
| Ped_BC            | CRASH_SVRTY_CD = '4' AND TOT_PED_INJ_CNT>0                   | 3      |
| Bike_BC           | CRASH_SVRTY_CD = '4' AND TOT_PEDCYCL_CNT>0 AND TOT_INJ_CNT>0 | 3      |

| Score | Crash types used in scoring (weighted) |
|-------|--|
|-------|--|

|             |   |
|-------------|---|
| nScore_All  | ['Auto_FA','Ped_FA','Bike_FA','Ped_BC','Bike_BC'] |
| nScore_Auto | ['Auto_FA']                                       |
| nScore_Bike | ['Bike_FA','Bike_BC']                             |
| nScore_Ped  | ['Ped_FA','Ped_BC']                               |

*Snap crashes to intersections or midpoints*

1. Spatial join the crashes to the nearest roadway
2. For each crash, measure distance to the start and endpoint of that line segment. If the crash is within 70 feet of an intersection (start or end) then move that crash to that intersection.
3. Otherwise, move that crash to the midpoint of the line segment.

**Part 3: Score corridors**

*Score crashes*

For each intersection and corridor (from attributes of each crash), sum the nScores of all crashes. Crashes may be counted more than once in this process, as intersections are relevant to the score of both (or many) intersecting roads (all intersection crashes are counted once when scoring the intersection, but counted again when scoring each intersecting cross street). Calculate severity score for each corridor and intersections as sum of crashes (frequency \* weight)

Formula:  
 $nScore = (\# \text{ FA} \times 10) + (\# \text{ Ped/Bike BC} \times 3)$   
 After scoring, total scores of corridors are normalized by length of the corridor.

Formula:  
 $\text{Normalization (Severity score)} = nScore * 10,000 / \text{Length of corridor (feet)}$

*Rank and calculate percentiles for each mode of crash types*

Intersections are ranked by descending nScore. All on-network intersections are counted, and the top 1% and 5% of intersections (highest nScores) are identified.

For final scoring of corridors, the ranking method in the following table is used.

Table 3.

| <b>HIC type</b> | <b>Sort field</b>      | <b>Fatal and injury A crash type</b> | <b>Percentile threshold</b> |
|-----------------|------------------------|--------------------------------------|-----------------------------|
| All             | nScore_all_Normalized  | Total_FA_in_period                   | 60                          |
| Auto            | nScore_Auto_Normalized | Auto_FA                              | 50                          |
| Bike            | nScore_Bike_Normalized | Bike_FA                              | 50                          |
| Ped             | nScore_Ped_Normalized  | Ped_FA                               | 50                          |

For each HIC type, totals of FA crashes of relevant type are first summed. Corridors are then sorted by descending relevant Severity score. Cumulative sum of FA crashes is calculated along with percentile rank. Corridors with a percentile rank less than 60 are

considered a High Injury Corridor. For the Auto-only, Bike-only and Ped-only HICs, corridors with a percentile rank of 50 or less are included.

## Appendix B: Equity Focus Area data sources and definitions

### *Equity Focus Areas*

Census tracts in the Metro region that exceed the regional rates and two times the regional density rates for BIPOC, LEP, and LI populations.

Source: Census 2020 Redistricting Data; ACS 2016-2020 5-Year Estimates, Tables C16001 and C17002

### *Definitions and Sources*

- ACS: Published by the Census Bureau, the American Community Survey (ACS) is a primary source for detailed population and housing information about the United States.
- BIPOC: Black, Indigenous, and People of Color (BIPOC), which includes persons that self-identify on the Census as Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, or Two or More Races.  
Source: Census 2020 redistricting data.
- LEP: Limited English proficiency (LEP), which includes persons 5 and over that speak English less than “very well.”  
Source: ACS 2016-2020 5-Year Estimates, Table C16001.
- LI: Low income, which includes persons making less than 200% of the federal poverty level, which is based on family size, composition, and age.  
Source: ACS 2016-2020 5-Year Estimates, Table C17002.
- Metro Region: Oregon Census tracts that intersect the Metropolitan Planning Area.

| <b>Schema Field</b>   | <b>Description</b>   |                 |
|-----------------------|--|-----------------|
| <b>BIPOC_FLAG</b>     | 1 = above regional rate and 2x regional density rate for BIPOC |                 |
| <b>LEP_FLAG</b>       | 1 = above regional rate and 2x regional density rate for LEP   |                 |
| <b>LI_FLAG</b>        | 1 = above regional rate and 2x regional density rate for LI    |                 |
| <b>EFA_FLAG</b>       | 1 = meeting conditions for BIPOC_FLAG, LEP_FLAG, or LI_FLAG    |                 |
| <b>Regional Rates</b> |  |                 |
|                       | <b>Percent</b>   | <b>Per acre</b> |
| <b>BIPOC</b>          | 34%  | 0.69            |
| <b>LEP</b>            | 7.4%   | 0.14            |
| <b>LI</b>             | 23.6%  | 0.47            |