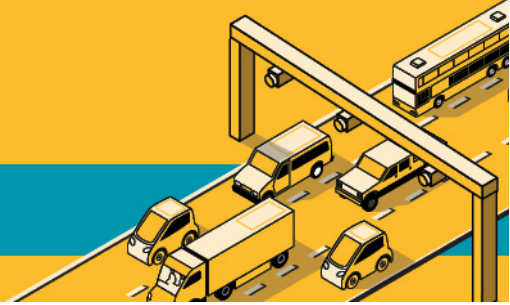


I-205 Toll Project

MEMORANDUM



Date September 1, 2021
To Lucinda Broussard, Susan White, Carol Snead, and Michael Holthoff (ODOT)
From Emily Benoit, WSP
Subject Social Resources and Communities Methodology Memorandum
CC

INTRODUCTION

This memorandum describes the methods that will be used in the I-205 Toll Project (Project) Environmental Assessment (EA) analysis to evaluate social resources and communities impacts of the Project alternatives. The analysis and results will be documented in a technical report and summarized in the EA that will be developed to comply with federal guidelines and regulations, including the National Environmental Policy Act (NEPA) and local and state policies, standards, and regulations.

The social resources and communities analysis will evaluate impacts from the construction, operations, and maintenance of the Project and will identify mitigation measures as needed.

LEGAL REGULATIONS AND STANDARDS

Laws, Plans, Policies, Regulations, and Guidance

The following is a list of federal, state, and local laws, regulations, plans, policies, and guidance documents that guide or inform the assessment of social resources and communities:

Federal

- National Environmental Policy Act of 1969 (NEPA)
- Title VI of the Civil Rights Acts of 1964, 42 U.S.C. 2000, Section 601
- Title 23.109(h) United States Code, Federal-Aid Highway Act of 1970
- Age Discrimination Act of 1975
- Americans with Disabilities Act of 1990
- Presidential Executive Order 12898 – Federal Actions to Address Environmental Justice to Minority Populations and Low-Income Populations
- Presidential Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency

- U.S. Department of Transportation (USDOT) Order 5610.2 – Order to Address Environmental Justice in Minority Populations and Low-Income Populations
- USDOT Federal Transit Administration (FTA), Circular FTA C 4702.1B, Title VI Requirements and Guidelines for Federal Transit Administration Recipients (October 1, 2012)

State

- Oregon Department of Transportation’s Title VI Guidance for Transportation Planning

Regional

- Metro plans and reports including, but not limited to, the Metro Region 2040 Concept Plan, Metro Urban Growth Management and Functional Plan and the Metro 2018 Urban Growth Report.

Local

- Comprehensive plans and neighborhood plans for counties, cities, and neighborhoods.

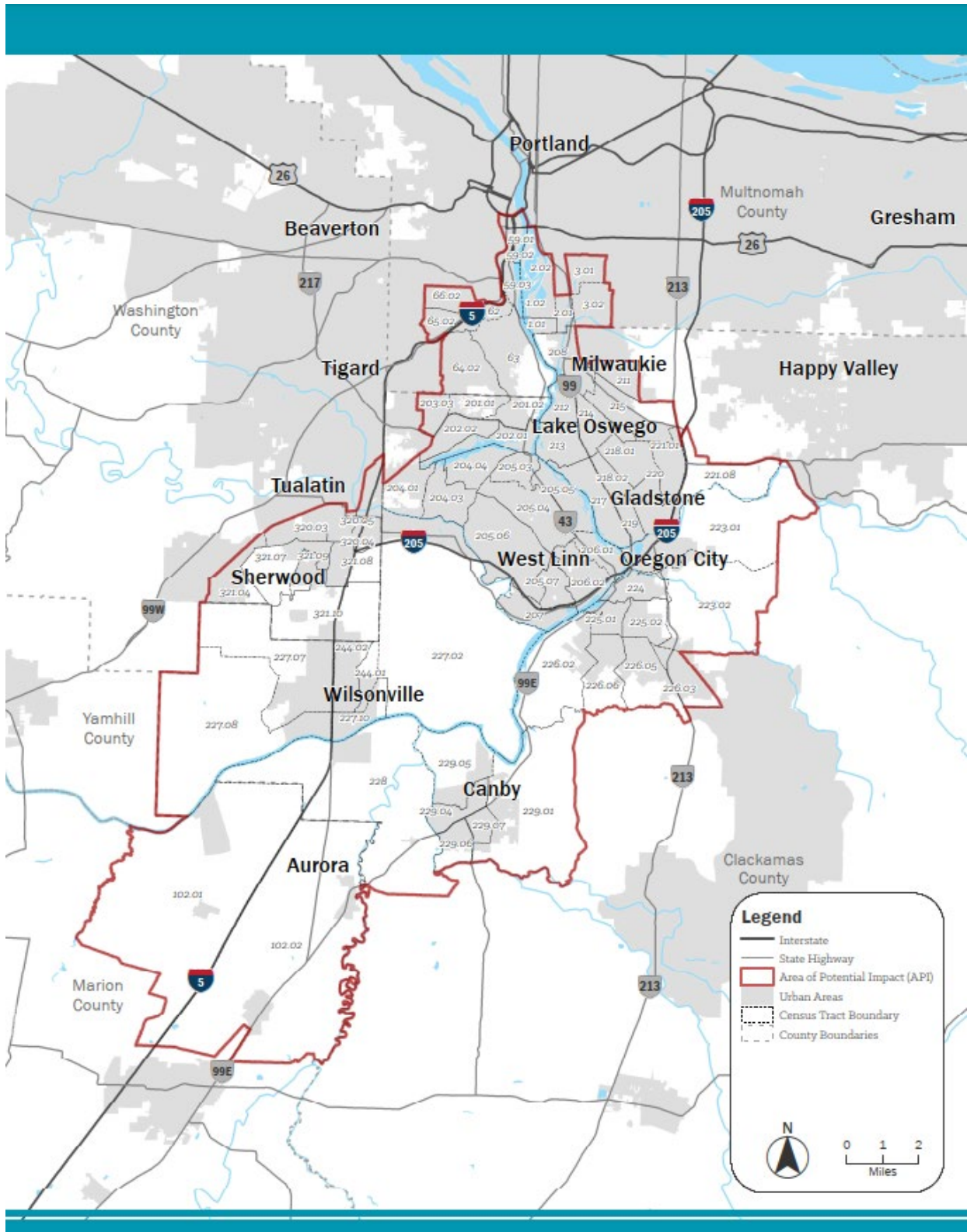
AREA OF POTENTIAL IMPACT

An Area of Potential Impact (API) is a geographic boundary within which the Project alternatives could cause direct impacts to the human and natural environment. For tolling projects, there are potential impacts to the physical and natural environment, such as rerouting impacts on neighborhoods, community cohesion and business areas, air quality, and noise impacts, and impacts related to the placement of the toll gantries. For the Project, the largest proposed topic area APIs include air quality, economics, and energy and greenhouse gases. Therefore, the API for social resources and communities adopts these individual resource topic area APIs as the “outer boundaries” of potential impacts; this API also matches the API identified for environmental justice.

The social resources and communities analysis will use U.S. Census Bureau data at the census tract geography and will consider those census tracts that are entirely within or intersect the social resources and communities API shown on Figure 1.

Toll projects also have potential impacts on users of the toll facility such as changes in travel time and traffic flow, the cost of the toll and, the potential disproportionate economic burden on drivers from historically or currently excluded and underserved communities and ability to access to the electronic toll payment system. These types of impacts are not necessarily geographically constrained to the area discussed above where physical and natural resource impacts might occur. Thus, in addition to analyzing the physical and natural resource impacts within the API described above, the Project will also consider the impacts of the tolls and accessibility of the electronic tolling system on different groups such as households with no access to vehicles, limited English proficiency, and seniors, that travel through the API.

Figure 1. Social Resources and Communities API



DESCRIBING THE AFFECTED ENVIRONMENT

Affected Populations in Environmental Justice Memo versus Social Resources and Communities Memo

Table 1 below identifies which underserved and excluded populations and communities will be assessed in the Environmental Justice Methodology Memo and which will be assessed the Social Resources and Communities Methodology Memo. Populations are considered in only one memo, not both memos.

Table 1. Underserved and Excluded Populations by Discipline

Population	Discipline
Minorities (Race and Ethnicity)	Environmental Justice
Low-Income	Environmental Justice
Houseless and Geographically Dispersed/Transient	Environmental Justice
Migrant Workers	Social Resources and Communities
LGBTQ+	Social Resources and Communities
Disability	Social Resources and Communities
Seniors (65+)	Social Resources and Communities
Children (under 18)	Social Resources and Communities
Limited English Proficiency	Social Resources and Communities
No Vehicle Access Households	Social Resources and Communities

Identifying Excluded and Underserved Populations

Excluded and underserved populations will be identified through a no threshold approach using the most currently available decennial census and ACS census tract data¹. These populations are listed in the Oregon Toll Program’s Equity Framework². The Project team will report the demographic data described below. Margins of error for ACS data will be reported.

Published Sources and Databases

Data used in the 2018 Documented Categorical Exclusion (DCE) prepared for the I-205 Improvements Project will be reviewed to confirm its relevancy and applicability to this study. The following is a list of the data that will be used to determine and describe existing conditions for social resources and communities and a develop demographic profile for populations that reside within the API and those traveling in or through the API:

¹ When analyzing census data, the information will also be compared to a dasymetric allocation of population that illustrates where people are most likely to reside within an area based on land cover. This population distribution technique recognizes that people are unlikely to live in uninhabitable areas (e.g. open water, emergent wetlands, areas with slopes greater than 25 percent). By removing these areas and estimating the density of the habitable land, this map provides an improved representation of the population of an area.

² The Oregon Toll Program at the Oregon Department of Transportation (ODOT) published an Equity Framework in December 2020, identifying communities and populations disproportionately affected by local transportation projects. [Toll Projects’ Equity Framework](#).

- U.S Census Bureau
 - Most recent available 5-Year Estimates from American Community Survey. Some of the categories include: Disability type, No vehicle households, Age (senior/65+, child/under 18), LGBTQ+ households (same sex households), Limited English proficiency households.
 - Most recent available decennial census data³
- Metropolitan Portland Regional Travel Demand Model
- Google Maps, Google Street View, Google Earth, MetroMap, CMap, PortlandMaps, and/or Metro’s Regional Land Information System (RLIS) will be used to collect data on:
 - Hospitals, Health Care Facilities
 - Schools
 - Social service providers
 - Public services
 - Churches/Religious institutions
 - Parks and recreational facilities
 - Community cohesion, character and health (air quality, noise and bicycle and pedestrian safety)
 - Transportation mobility and access to opportunity and affordability

Contacts and Coordination

In addition to reviewing published information, the Project team will gather qualitative information on the presence of underserved and excluded communities and facilities and services that are culturally specific or of cultural importance to these populations. This information will be obtained from social service providers, community groups, community engagement liaisons, and from public engagement efforts such as surveys and open houses.

The Project team will consult with the Oregon Toll Program’s Equity and Mobility Advisory Committee (EMAC) to confirm social and community resources (community gathering places, social services, ethnic grocery stores, health clinics, churches, etc.) and demographic data gathered for the description of existing conditions. Equity and mobility strategies identified by EMAC will inform potential avoidance, minimization, and mitigation measures for the underserved and excluded communities.

Observational Site Visit

An observational site visit will be conducted jointly with the Environmental Justice Technical Lead to confirm the presence of social and community resources of importance to the Equity Framework identified populations that are identified through the public engagement process and via a desktop analysis.

³ Although the 2020 U.S. Census is underway, that data may not be available at the time the report is prepared. Census data is rolled out in packages over time, so for some measures 2010 data may still be the most recent available data.

IMPACT ASSESSMENT METHODS

The impacts analysis will address the long-term and short-term impacts upon social resources and communities for each of the Project alternatives. As these impacts have differing levels of severity and duration, historically and currently excluded and underserved communities may be disproportionately affected; the EMAC will work to identify strategies that would be incorporated into the Project to overcome any disproportionate impacts.

Long-Term Impact Assessment Methods

The analysis of direct long-term impacts resulting from the Project will assess whether the alternatives would create disproportionately high and adverse impacts to historically and currently underserved and excluded communities. This analysis will consider the following changes that could potentially result from the implementation of tolls, and assess whether those impacts would be disproportionately high and adverse to these populations:

- Noise changes near neighborhoods, schools, parks, business areas, and other social gathering places in the API
- Traffic pattern changes to neighborhoods, schools, parks, business areas, and other social gathering places including rerouting in the API
- Accessibility to resources such as health care facilities, grocery stores, social service providers, and job centers in the API
- Travel time impacts for motorists and transit users traveling in or through the API, including those who live within and outside the API
- Change in household financial burden from paying tolls for motorists and transit users traveling in or through the API, including those who live within and outside the API
- Accessibility of an electronic toll system for motorists traveling in or through the API, including those who are unbanked and those who live within and outside the API

The Project also has the potential to create benefits to historically and currently excluded and underserved communities. The analysis of long-term impacts will consider potential benefits, such as an improvement in mobility or accessibility, that may offset adverse effects that could not be avoided or otherwise mitigated.

The Project team will also incorporate findings from the public engagement efforts to describe the Project's proactive efforts to ensure meaningful opportunities for public participation. These efforts will include descriptions of activities to increase historically and currently excluded and underserved communities' participation, the views of the affected population(s) about the Project, and what steps are being taken to resolve any controversy that exists. Where specific impacts have been noted by the community, potential mitigation measures will be described. This report will reference the Equity and Environmental Justice Outreach section of the Public Involvement Plan and the Equity and Environmental Justice Impacts Briefing document that describe the degree to which the affected groups of historically and currently

excluded and underserved communities' have been involved in the decision-making process related to the alternative selection and their input to the impact analysis and any mitigation measures. If additional impacts are identified through the Project's public engagement efforts, stakeholder coordination or through the EMAC, the analysis will be updated.

Short-Term Impact Assessment Methods

The analysis of direct short-term impacts resulting from the Project will assess whether construction of the Project would create disproportionately high and adverse impacts to historically and currently excluded and underserved communities. This analysis will consider:

- Construction-related impacts identified in the Project's individual resource memos and technical reports such as, but not limited to, minor sidewalk improvements or road restriping.
- Construction-related impacts related to toll gantry construction and placement and installation or relocation of signs or utilities in relation to historically and currently excluded and underserved communities
- Any other construction-related impacts identified through the public engagement activities or coordination with community groups, community engagement liaisons, and the EMAC.
- Access to community resources, facilities and public services, such as:
 - Changes in availability of, access to, or safety of pedestrian, transit, and bicycle facilities
 - Changes in availability of, access to, or safety to health facilities and social service providers, schools, grocery stores and retail, and parks and recreation facilities
- Neighborhood demographics, community cohesion, and quality of life, such as increased financial cost and travel time between home and social resources

Indirect Impacts Assessment Methods

The analysis of indirect impacts resulting from the Project will assess whether the Project would indirectly create disproportionately high and adverse impacts to historically and currently excluded and underserved communities. This analysis will consider:

- Indirect impacts identified in the Project's air quality, noise, visual, and transportation resource memos and technical reports
- Potential quality-of-life impacts from reduced opportunities for employment and services because of degraded accessibility, mobility, and/or travel reliability

Parts of the assessment will be qualitative and rely on information gathered from the social resources and communities data above as well as findings in the other environmental topic for the Project.

Cumulative Impacts Assessment Methods

In accordance with ODOT guidance (ODOT 2010), the cumulative impacts assessment will consist of an eight-step process to identify and evaluate cumulative impacts. The long-term, short-term, and indirect impacts identified for social resources and communities will be used in Step 1 to identify whether the Project has the potential to contribute to cumulative impacts on social resources and communities when considered in combination with other past, present,

and future actions. For those resources studied in the cumulative impact assessment, the direct and indirect impacts identified in the respective technical analysis will also be used in Step 4: “Identify direct and indirect impacts that may contribute to a cumulative impact.” See the I-205 Toll Project Cumulative Impacts Methodology Memorandum for additional details on the eight-step process and cumulative impacts methodology.

MITIGATION APPROACH

Potential mitigation measures will be identified for any anticipated adverse impacts historically and currently excluded and underserved communities to social resources and will work to:

- Minimize impacts on historically and currently excluded and underserved communities
- Preserve or enhance neighborhood cohesion and quality of life
- Minimize impacts on public and community services and social support services

The analysis may reference mitigation measures from other topics, including strategies identified by the EMAC, and develop additional mitigation measures, as necessary. In accordance with standard practice, the analysis will prioritize mitigation to first avoid, then minimize, and compensate for impacts.

PERFORMANCE MEASURES

Table 2 presents a preliminary list of performance measures identified to evaluate how the alternatives compare in terms of impacts and benefits to social resources and communities.

Table 2. Preliminary Social Resources and Communities Performance Measures

Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
<p>Identify impacts to safety and health for Equity Framework-identified Communities located near roadways experiencing traffic volume changes due to the project</p>	<p><u>Quantitative</u> Traffic volume changes on select roadways (AM peak hour, PM peak hour, off-peak, daily).</p> <p><u>Qualitative</u> Maps will be overlaid with output from the traffic models identifying roadways with vehicle rerouting (AM peak hour, PM peak hour, off-peak) to assess impacts based on the best professional judgement of the project team.</p> <p>For areas of concern, the project team will use targeted community engagement to better understand impacts and what is needed to advance equity.</p>	<p>Regional travel demand model for traffic volume changes and analysis of Metro Equity communities and TAZs identified as representative samples for Equity Framework-identified communities, which includes environmental justice populations (low income and minorities).</p> <p>Dynamic Traffic Assignment (DTA) model results for AM and PM peak hour travel times within the Transportation Area of Potential Impact.</p> <p>Census data mapping of Equity Framework-identified communities, which includes environmental justice populations (low income and minorities).</p> <p>Transportation data and mapping that identifies high injury and crash corridors and locations.</p> <p>Social resource maps, which include: schools, places of worship, community centers, health centers, regulated affordable housing, nursing homes, libraries, parks or natural areas, and culturally-specific businesses or community gathering places.</p> <p>Data mapping of existing heat islands and health outcomes/existing conditions.⁴</p> <p>Targeted community engagement.</p>
<p>Change in vehicle operating costs in the Portland metro area; delineate between general population and Equity Framework-identified communities</p>	<p><u>Quantitative</u> Model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities.</p> <p><u>Qualitative</u> Best professional judgement based on analysis.</p>	<p>WSP Benefit Cost Analysis (BCA) Model and Multi-Criteria Evaluation (MCE) Toolkit (indexed scenario comparison of vehicle operating costs).</p>

⁴ We are searching for the best regional data sources on heat islands and health outcomes to include as data layers in our analysis. For now, we have a research paper on urban flooding and extreme heat from Portland State University and data from a Community Health Needs Assessment for the Portland metro area.

Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
<p>Change in travel costs as a percentage of household income for the general population and Equity Framework-identified Communities</p>	<p><u>Quantitative</u> Model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities.</p>	<p>Metro travel demand model to identify number community of places one can access from a transportation analysis zone (TAZ) during peak hours within a mode-specific travel time threshold.⁵ TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ.</p> <p>Metro travel demand model to identify number of jobs one can access from a TAZ during AM peak hours within a mode-specific travel time threshold.⁶ TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ.</p> <p>Use TAZs identified as representative samples of Equity Framework-identified communities to identify changes in access. Use representative O-D pairs to assess travel time and reliability for other Equity Framework-identified communities.</p>

⁵ For community places, peak period travel time thresholds of 30 minutes by auto, 45 minutes by transit, 30 minutes by bike, and 20 minute walk are applied.

⁶ For jobs, AM peak period travel time thresholds of 20 minutes by auto, 30 minutes by transit, 15 minutes by bike, and 20 minute walk are applied.

Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
<p>Change in travel time, reliability, and access by mode (auto, transit, bike, and walk) and delineated between the general population and Equity Framework-identified communities for:</p> <ul style="list-style-type: none"> (A) Jobs (B) Community places 	<p><u>Quantitative</u> Community places accessible by mode (auto, transit, bike, walk); change in access will be assessed for region and Transportation Area of Potential Impact (areas possibly impacted by diversion), and model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities.</p> <p>Jobs accessible by mode (auto, transit, bike, and walk). Change in access will be assessed for region and Transportation Area of Potential Impact (areas possibly impacted by diversion), and model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities.</p> <p>Change in travel time by mode (auto, transit, bike, and walk) for sample origin to destination (O-D) pairs during average weekday peak periods and selected off-peak period times that represent Equity Framework-identified community commuting patterns.</p> <p><u>Qualitative</u> Best professional judgment for reliability based of travel time impacts and sample origin to destination (O-D) pairs. Targeted community engagement for selected locations to better understand impacts to access.</p>	<p>Metro travel demand model to identify number community of places one can access from a transportation analysis zone (TAZ) during peak hours within a mode-specific travel time threshold.⁷ TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ.</p> <p>Metro travel demand model to identify number of jobs one can access from a TAZ during AM peak hours within a mode-specific travel time threshold.⁸ TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ.</p> <p>Use TAZs identified as representative samples of Equity Framework-identified communities to identify changes in access. Use representative O-D pairs to assess travel time and reliability for other Equity Framework-identified communities.</p> <p>Social resource maps, which include: schools, places of worship, community centers, health centers, regulated affordable housing, nursing homes, libraries, parks or natural areas, and culturally-specific businesses or community gathering places.</p> <p>Targeted community engagement informed by selected O-D pairs.</p>

⁷ For community places, peak period travel time thresholds of 30 minutes by auto, 45 minutes by transit, 30 minutes by bike, and 20-minute walk are applied.

⁸ For jobs, AM peak period travel time thresholds of 20 minutes by auto, 30 minutes by transit, 15 minutes by bike, and 20-minute walk are applied.

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Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
<p>Change in access to health promoting activities (i.e. parks, open spaces, and trails) and health care facilities for the general population and Equity Framework-identified communities within 30-minute trip by mode (auto, transit, walk, and bicycle)</p>	<p><u>Quantitative</u> Medical places accessibility within 30-minute drive will be assessed for region and Transportation API, and model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities.</p> <p>Mode shift from auto travel to active transportation travel modes (transit, bicycle, and pedestrian) for the region and Transportation API.</p> <p>Change in auto travel time for sample origin to destination (O-D) pairs during average weekday peak periods and selected off-peak period times that represent Equity Framework-identified community commuting patterns.</p> <p><u>Qualitative</u> Best professional judgment for reliability based of travel time impacts and sample origin to destination (O-D) pairs. Targeted community engagement for selected locations to better understand impacts to access.</p>	<p>Metro travel demand model to identify the number of medical facilities (community places) one can access from a transportation analysis zone (TAZ) during peak hours within a 30-minute drive. TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ.</p> <p>Metro travel demand model to identify daily mode shift to active transportation modes.</p> <p>Present table of change in auto travel time to health promoting activities (i.e. parks, open spaces, and trails) and health care facilities (including dialysis centers, cancer treatment centers, and drug addiction centers) for representative O-D pairs to assess the populations (low-income, minority, other historically and currently excluded and underserved) and community resources potentially affected by rerouting.</p> <p>Social resource maps, which include: schools, places of worship, community centers, health centers, regulated affordable housing, nursing homes, libraries, parks or natural areas, and culturally-specific businesses or community gathering places.</p> <p>Targeted community engagement informed by selected O-D pairs.</p>

Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
<p>Change in auto volumes in the region, Transportation Area of Potential Impact (areas possibly impacted by diversion), and areas where Equity Framework-identified communities live</p>	<p><u>Quantitative</u> Change in vehicle miles traveled within region, Transportation API (areas possibly impacted by diversion), and model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities.</p> <p>Change in travel time during peak hours on key corridors and selected off-peak period times that represent Equity Framework-identified community commuting patterns.</p> <p>Identify changes on key roadways or areas that are most relevant for (adjacent to) Equity Framework-identified communities, based on community mapping.</p>	<p>Regional travel demand model for Vehicle Miles Traveled measures and analysis of Metro Equity communities and TAZs identified as representative samples for Equity Framework-identified communities, which includes environmental justice populations (low income and minorities).</p> <p>Dynamic Traffic Assignment (DTA) model results for AM and PM peak hour travel times within the Transportation Area of Potential Impact.</p> <p>Census data maps of Equity Framework-identified communities, which includes environmental justice populations (low income and minorities).</p>
<p>Change in the quality of life in areas impacted by diversion; delineate between the general population and Equity Framework-identified communities</p>	<p><u>Qualitative</u> Best professional judgement to impact to quality of life, based on analysis factors.</p> <p>For areas of concern, the project team will use targeted community engagement to better understand impact and what is needed to advance equity.</p>	<p>Consideration of the following (see other performance measures identified in this memo):</p> <ul style="list-style-type: none"> • Social resource mapping, which includes access to health promoting activities and health care facilities • Safety • Access to jobs • Travel costs • Air quality • Heat islands • Health outcomes/existing conditions • Census mapping of Equity Framework-identified communities, which includes environmental justice populations (low income and minorities) • Noise impacts: Traffic noise levels modeled with Federal Highway Administration (FHWA) Traffic Noise Model (TNM) 2.5; Traffic Data from Regional Travel Demand Model and Dynamic Traffic Assignment Model (peak hour and truck peak hour) with vehicle mix and posted speed limits; Project design imported into FHWA TNM 2.5 • Targeted community engagement.

Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
<p>Change in I-205 safety conditions, which includes frequency and/or severity of vehicular crashes , as well as mode shift</p>	<p><u>Quantitative</u> Estimated change in number of crashes on I-205.</p> <p>Change in total daily auto trips in region and Transportation Area of Potential Impact (areas possibly impacted by diversion).</p> <p>Analysis of crash history on I-205 (existing conditions).</p>	<p>Regional travel demand model and Dynamic Traffic Assignment (DTA) model results for traffic volume changes.</p> <p>Highway Safety Manual Part C Methodology for corridors.</p> <p>Regional model mode shift estimates.</p> <p>analysis of existing safety conditions based on crash history database.</p> <p>Proposed mitigation or strategy investments.</p>
<p>Change in roadway safety conditions by mode (transit, auto, bike, and walk) for areas impacted by diversion, especially for high crash corridors and/or locations that result in injury or death</p>	<p><u>Quantitative</u> Analysis of crash history in study area (existing conditions).</p> <p><u>Qualitative</u> Best professional judgement to impact to safety, based on analysis factors.</p> <p>For areas of concern, the project team will use targeted community engagement to better understand impact and what is needed to advance equity.</p>	<p>Regional travel demand model and Dynamic Traffic Assignment (DTA) model results for traffic volume changes Transportation data and mapping that identifies high injury and crash corridors and locations.</p> <p>MCE Toolkit (indexed scenario comparison of crashes) for region or study area.</p> <p>MMLOS (level of service) calculation tool or LTS (Level of stress) for bike and walk.</p> <p>Existing conditions data counts for intersections within the Transportation API Data mapping of existing heat islands and health outcomes/existing conditions⁹.</p> <p>Social resource maps, which include: schools, places of worship, community centers, health centers, regulated affordable housing, nursing homes, libraries, parks or natural areas, and culturally-specific businesses or community gathering places.</p> <p>Targeted community engagement.</p>

⁹ We are searching for the best regional data sources on heat islands and health outcomes to include as data layers in our analysis. For now, we have a research paper on urban flooding and extreme heat from Portland State University and data from a Community Health Needs Assessment for the Portland metro area.

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Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
Change in regional person trips by single occupancy vehicles compared to other modes (transit, vanpooling, or carpooling); delineate between impact to general population and Equity Framework-identified communities	<p><u>Quantitative</u> Change in regional person trips by mode, including high and single occupancy vehicles (HOV and SOV), transit, bike, and walk.</p> <p><u>Qualitative</u> Potential impacts to carpool, vanpool, paratransit, and shared ride modes, not explicitly broken out in regional model.</p> <p>Potential impacts to Equity Framework-identified communities, not explicitly broken out in regional model.</p>	Regional travel demand model. Feedback from the Transit Multimodal Work Group.
Change in level of traffic stress for bicycle and pedestrian corridors impacted by traffic volume changes due to the project	<p><u>Quantitative</u> Roadway corridor MMLOS (level of service) or LTS (level of stress) for bicycle and pedestrian.</p> <p><u>Qualitative</u> Best professional judgement based on the impact to roadway corridors in Equity Framework-identified communities.</p>	MMLOS (level of service) calculation tool or LTS (Level of stress) bike and walk.
Identify barriers and opportunities to encourage greater use of higher occupancy vehicles and other modes of transportation for the general population and Equity Framework-identified communities	<p><u>Qualitative</u> Best professional judgement based on the analysis and community engagement.</p>	Feedback from the Transit Multimodal Work Group and community engagement.
Change in transit level of service and accessibility during peak periods and selected off-peak period times that represent Equity Framework-identified community commuting patterns	<p><u>Quantitative</u> Roadway corridor MMLOS (level of service) for transit.</p> <p>Transit accessibility measures (identified in earlier performance measures).</p> <p>Peak hour travel times and selected off-peak period times that represent Equity Framework-identified community commuting patterns on select roadways corridors with existing or planned transit services.</p>	Regional travel demand model. MMLOS (level of service) for transit users for study corridors within the Transportation Area of Potential Impact (areas possibly impacted by diversion). Dynamic Traffic Assignment (DTA) for peak hours.

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Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
Identify barriers and opportunities to improve feeling of safety and ease for transit, carpooling, and vanpools users within areas impacted by diversion; delineate between the general population and Equity Framework-identified communities	<u>Qualitative</u> Best professional judgement based on the analysis and community engagement.	Feedback from the Transit Multimodal Work Group and community engagement.
Change in transit level of service and accessibility during peak periods and selected off-peak period times that represent Equity Framework-identified community commuting patterns	<u>Quantitative</u> Roadway corridor MMLoS (level of service) for transit. Transit accessibility measures (identified in earlier performance measures). Peak hour travel times and selected off-peak period times that represent Equity Framework-identified community commuting patterns on select roadway corridors with existing or planned transit services.	Regional travel demand model. MMLoS (level of service) for transit users for study corridors within the Transportation Area of Potential Impact (API). Dynamic Traffic Assignment (DTA) for peak hours.
Freight or commercial vehicle throughput on I-205 and nearby roadways impacted by volume changes due to toll project	<u>Quantitative</u> Change in vehicle volume by vehicle type on I-205 and local roadways. Identification of commercial or freight by business or job type . <u>Qualitative</u> Best professional judgement of the impact to Equity Framework-identified populations and businesses based on the analysis and community engagement.	Regional travel demand model (daily) and Dynamic Traffic Assignment (DTA) for peak hours. Employment data by land use codes or other sources (e.g. NAICS). Census mapping Equity Framework-identified populations. Community engagement feedback.

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Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
Vehicle travel time savings: overall and for Equity Framework-identified communities, which includes environmental justice communities	<p><u>Quantitative</u> Vehicle travel time savings by TAZ from regional model.</p> <p>Vehicle travel time savings for an OD pair during peak hour from regional or DTA traffic model.</p> <p><u>Qualitative</u> Identify TAZs that have significant Equity Framework-identified populations.</p> <p>Identify OD pairs that have significant Equity Framework-identified populations.</p>	<p>MCE Toolkit (indexed scenario comparison).</p> <p>Regional travel demand model and/or DTA subarea model.</p> <p>Select sample TAZ-level origin to destination pairs (TAZs that utilize I-205) identified as representative samples for Equity Framework-identified populations.</p>
Change in jobs accessible by mode (auto, transit, bike, and walk); delineate between the overall movement and access that begins or ends in areas within or adjacent to Equity Framework-identified communities or job centers	<p><u>Quantitative</u> Job accessibility by mode (auto, transit, bike, and walk). Change in access will be assessed for region and Transportation Area of Potential Impact (areas possibly impacted by diversion), and model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities.</p> <p><u>Qualitative</u> Best professional judgment for reliability based of travel time impacts and sample origin to destination (O-D) pairs.</p>	<p>Metro travel demand model to identify number of jobs one can access from a TAZ during AM peak hours within a mode-specific travel time threshold.¹⁰ TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ.</p> <p>Use TAZs identified as representative samples of Equity Framework-identified communities to identify changes in access. Use representative O-D pairs to assess travel time and reliability for other Equity Framework-identified communities.</p>
Change in person trips by mode (auto, transit, bike, and walk) for the region; delineate between impact to general population and Equity Framework-identified communities	<p><u>Quantitative</u> Change in daily regional mode share based on the model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities.</p>	<p>Regional travel demand model.</p>

¹⁰ For jobs, AM peak period travel time thresholds of 20 minutes by auto, 30 minutes by transit, 15 minutes by bike, and 20 minute walk are applied.

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Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
Number of sensitive noise receptors experiencing noise levels that reach the ODOT Noise Abatement Approach Criteria	Quantitative	Comparison of modeled traffic noise levels to ODOT Noise Abatement Approach Criteria.
Number of sensitive noise receptors experiencing noise levels that reach the ODOT Substantial Increase (10 dBA over existing noise levels)	Quantitative	Comparison of modeled traffic noise levels to ODOT Substantial Increase.
Anticipated construction noise levels and duration of construction noise at sensitive noise receptors	Qualitative	Qualitative assessment consistent with ODOT Noise Manual.

Additional performance measures may be identified during the course of analysis.

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