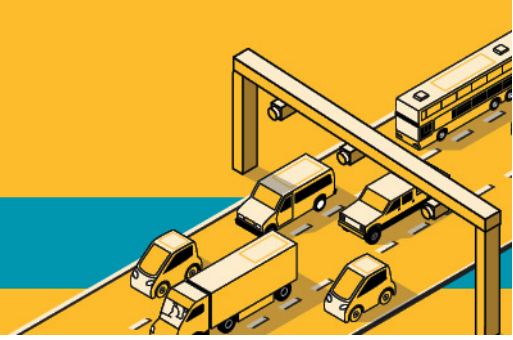
I-205 Toll Project

MEMORANDUM



Date	September 1, 2021
To	Lucinda Broussard, Becky Knudson, Carol Snead, and Michael Holthoff (ODOT)
From	Tim Thornton, WSP
Subject	Economics 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 economic 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 economic 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 economics:

- National Environmental Policy Act (1969)
- U.S. Department of Transportation Federal Highway Administration, Community Impact Assessment. A Quick Reference for Transportation, 2018 Update
- U.S. Department of Transportation, Benefit-Cost Analysis Guidance for Discretionary Grant Programs, 2020 Update
- Local land use planning documents, regulations or ordinances as listed in the Land Use Methodology Memorandum

AREA OF POTENTIAL IMPACT

An area of potential impact (API) is a geographic boundary within which impacts to the human and natural environment could occur as a result of implementing Project alternatives. The appropriate API for economics can vary depending on the direct and indirect impacts being analyzed. For the purposes of this analysis, a primary focus of the economic analysis will be on

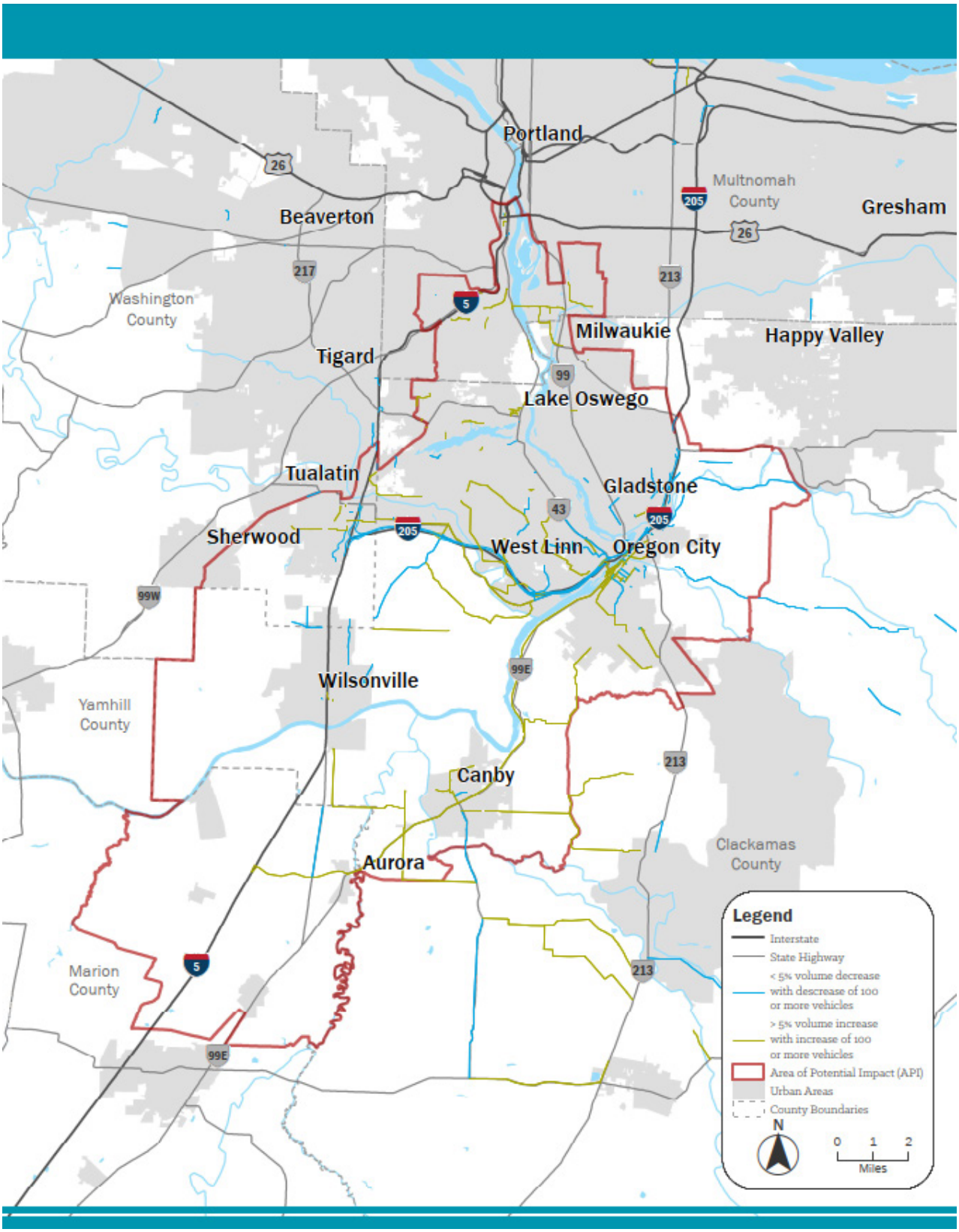
the potential direct and indirect impacts on businesses stemming from changes to traffic volume on local streets resulting from the Project, as well as the population that would use the Project at the highest frequency. This determination was made from the initial screening results from the Metro regional travel demand model where observed changes in volume exceeded plus or minus five percent as a result of the Project. The economics API encompasses those roadways forecast to experience changes in traffic volumes of plus or minus five percent and with an annual average daily traffic (AADT) increase or decrease of at least 100 or more vehicles, as shown in Figure 1.

These roadways will be overlaid with additional geospatial information to identify commercial corridors, business districts, and employment concentrations in the API that the Project may impact, with a focus on those identified that may be the most sensitive to changes in traffic patterns such as convenience retail and other industry categories reliant on vehicular traffic volume.

Additional impacts, such as those from tolling revenue and expenditure, as well as freight impacts, would extend to a much larger geographic area given that the origin and destination of end-users of the Project corridor are likely to be at a more regional scale. As such, certain economic impacts will be evaluated at larger regional levels[1] as well as at the state level, while estimates of other various benefits of the Project (such as those used in a benefit-cost analysis) will be calculated based on all users of the Project, regardless of geography.

[1] Such as the Portland-Vancouver-Hillsboro Metropolitan Statistical Area (MSA) or the greater Portland urban growth boundary as defined by Metro

Figure 1. Economics Direct Impacts API



DESCRIBING THE AFFECTED ENVIRONMENT

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 would be used to determine and describe economic resources/existing conditions:

- Current and forecast socioeconomic data, such as households, household income, population, and employment from several sources, including the Oregon Office of Economic Analysis, U.S. Census American Community Survey (ACS), municipal planning documents from jurisdictions within the API, and/or the Metro's Regional Travel Demand Model
- Business community profile (businesses by industrial categories) based on Google maps, local business directories, municipal planning documents, purchased business data, and other relevant documents
- Inventory of businesses and business districts based on an initial desktop analysis using Google Earth, Google Street View, and other online resources on selected corridors in the API with the largest forecast changes in traffic volume and concentrations of businesses
- Economic structure, such as industry sector multipliers, based on Impact Analysis for Planning (IMPLAN) data files and ODOT job impacts multipliers to estimate economic impacts of Project expenditure
- In coordination with the land use impact analysis, property value information from Metro's Regional Land Information System (RLIS)
- Various available freight data sources such as INRIX-fused National Performance Management Research Data Set (NPMRDS), HERE, American Transportation Research Institute (ATRI), and any other federal, state (ODOT), or third-party data/sources to measure freight impacts (with the goal of supplementing/updating findings from prior freight studies)

Contacts and Coordination

Local governments and business organizations may be contacted to gather information on: (1) the availability of data on businesses in the Project vicinity (number of businesses by category, average revenue, employment, etc.); (2) experience with past construction projects and their impacts on local businesses; and (3) anticipated impacts of the Project.

Field Surveys or Testing

No field surveys or testing will be conducted for the economics analysis.

IMPACT ASSESSMENT METHODS

The impacts analysis will address the Project alternatives' long-term, short-term, and indirect economic impacts on local businesses, residents, and freight transport. Several impacts will be analyzed, including: (1) business impacts resulting from changes in traffic patterns; (2) population impacts resulting from changes in travel times, travel costs, and job accessibility; (3) impacts on freight economics resulting from changes in travel costs, congestion and reliability; (4) broader impacts resulting from toll collection and expenditure of net toll collections; and (5) short-term economic impacts from construction spending. Existing conditions will also be described, including economic trends such as at-place employment and employment by industry sector, and socioeconomic data such as households by income.

Long-Term Impact Assessment Methods

The analysis of direct long-term economic impacts resulting from the Project will consider:

- The adverse and/or beneficial impacts on businesses due to traffic changes, changes in access, and changes in business clustering, including any net economic impacts from business and/or household relocation[2]
- The overall change in household vehicle operating costs in the region[3]
- The resulting change in travel costs as a percentage of household income[3]
- The resulting overall share of regional jobs accessible within a 30-minute drive
- The monetary value of travel time savings to users
- The adverse and/or beneficial impacts to freight transportation resulting from changes in reliability, travel times, and travel costs
- Monetary valuation of all other Project impacts, including changes in safety, emissions (in coordination with the Energy and Greenhouse Gas Emissions Technical Report), pavement maintenance costs, nonmotorized travel benefits, and other identified impacts

Transportation modelling combined with an examination of local maps will be combined to develop an inventory of businesses and business concentrations with the most potential to be impacted by changes in traffic volume. These businesses will be classified by industry category to evaluate overall sensitivity to changes in traffic volumes, based on analyses conducted on other U.S. projects, previously gathered data on business and customer intercept surveys conducted within business corridors, and literature reviews.

[2] Estimation of the long-term impacts from business and/or household relocation potential will be coordinated with land use analysis .

[3] The extent to which the increased household vehicle operating costs and travel costs are a burden on specific types of households (e.g. low-income households) and households in general will be addressed in the Environmental Justice and Social Resources and Communities Technical Reports.

Net benefits to users of the Project, including the freight industry, will be analyzed using a benefit-cost analysis framework. The analysis will be based on industry accepted practices and federal guidance regarding benefit-cost analysis including the valuation of benefits such as travel time savings and reliability. Where applicable, Metro's Multi-Criteria Evaluation (MCE) Toolkit will be used with travel demand model data to generate several of the Project benefits described above.[4]

Short-Term Impact Assessment Methods

Short-term economic impacts resulting from construction spending will be estimated using ODOT's Long Range Planning Unit regional job impacts multipliers and construction dollar conversion table.

Indirect Impacts Assessment Methods

Indirect impacts are those that would take place later in time or are further removed in distance but are still reasonably foreseeable to occur. The analysis of indirect economic impacts that would result from the Project will consider the potential regional economic impacts from toll collections and use of toll revenue. Total toll collection estimates from a net revenue financial analysis conducted by the Project team will be used to inform this analysis.

Regional economic impacts will include an economic input-output approach using IMPLAN, a widely recognized economic impact modeling tool used for forecasting the effect of a given economic change in the economy's activity on a regional economy.

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 economics will be used in Step 1 to identify whether the Project has the potential to contribute to cumulative impacts on economics 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.

[4] Metro's MCE Toolkit is designed to estimate the monetary project benefits based on changes in travel demand. WSP also maintains its own benefit-cost analysis (BCA) model designed to generate similar outputs. Both the WSP BCA model and the MCE Toolkit will be used to ensure accurate benefit calculations.

MITIGATION APPROACH

The analysis will identify potential mitigation measures for economic impacts, if any, as a result of the Project. The analysis may reference mitigation measures from other environmental topics, including strategies identified by the Project's Equity and Mobility Advisory Committee, and develop additional mitigation measures, as necessary. In accordance with standard practice, the analysis will prioritize mitigation to first avoid, then minimize, and mitigate for impacts.

PERFORMANCE MEASURES

Table 1 presents a preliminary list of performance measures identified to evaluate how the alternatives compare in terms of impacts and benefits to the economy.

Table 1. Preliminary Economic Performance Measures

Performance Measure	How	Tool and/or Data Source used for Assessment of Measure
Change in vehicle operating costs in the Portland metro area; delineate between general population and Equity Framework-identified communities	Quantitative Model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities. Qualitative Best professional judgement based on analysis.	WSP Benefit Cost Analysis (BCA) Model[5] and MCE Toolkit (indexed scenario comparison of vehicle operating costs).
Change in travel costs as a percentage of household income for the general population and Equity Framework-identified Communities	Quantitative Model outputs for Metro Equity groups and selected transportation area zones (TAZs) that represent areas with Equity Framework-identified communities	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.[6] TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ. 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.[7] TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ.
Monetary value of vehicle travel time savings to users	Quantitative	WSP Benefit Cost Analysis (BCA) Model and MCE Toolkit (indexed scenario comparison)

[5] An overview of the WSP Benefit-Cost Analysis (BCA) model is attached to this memo.

[6] 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.

[7] 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
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: (A) Jobs (B) Community places	<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 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 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 <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.	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.[8] TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ. 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.[9] TAZ measures are aggregated to report average impacts for region and Transportation API, based on weighted average of households in each TAZ. . Use TAZs identified as representative samples for Equity Framework-identified communities, which includes environmental justice populations (low income and minorities) to identify changes in access. Use representative O-D pairs to assess travel time and reliability for environmental justice populations. 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. Targeted community engagement informed by selected O-D pairs.

[8] 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.

[9] 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
Impacts from (current or new) traffic diversion on identified business concentrations in the study area	Qualitative	Primary research and analysis of identified commercial corridors or concentrations, Metro Regional Travel Demand Model for diversion patterns
Changes in economic conditions (employment, labor income, economic activity) from project construction	Quantitative	IMPLAN economic modeling software
Changes in economic conditions (employment, labor income, economic activity) from collection and use of toll revenue	Quantitative	IMPLAN economic modeling software; inputs from a net revenue financial analysis estimating total toll collections
Change in reliability, travel times, and travel costs for freight users	Quantitative	Dynamic Traffic Assignment Model, MCE Toolkit (indexed truck segmentation of benefits, where applicable)
Monetary value of changes in safety, emissions, noise. pavement maintenance costs, and other identified impacts	Quantitative	WSP BCA Model

All quantitative data and assumptions related to dollars and household costs will be reflective of regional consumer price indices (CPI) wherever possible/applicable.

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

REFERENCES

Oregon Department of Transportation (ODOT). 2010. Environmental Impact Statement Annotated Template, Chapter 4: Cumulative Impacts.