Smart Growth America
Improving lives by improving communities

WSDOT Economic Vitality Performance Framework

Recommendations

Developed by Smart Growth America for
the Washington State Department of Transportation
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Preface

This report summarizes and provides recommendations based on a technical assistance project between Smart Growth America and the Washington State Department of Transportation (WSDOT). The purpose of this effort was to advance WSDOT's Practical Solutions Initiative by supporting the development of an Economic Vitality Performance Framework for the state's transportation network, which will constitute one piece of a broader Practical Solutions Performance Framework. The recommendations in this report will inform WSDOT's process to develop the performance framework.

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Smart Growth America also thanks WSDOT's partners and stakeholders who attended workshops in November 2017 and March 2018 for providing input on how to create an economic vitality performance framework. The input received will play a crucial role in ensuring that WSDOT's framework meets statewide needs and adequately elevates and addresses local priorities across diverse regions.

The workshops and this report were developed with the generous support of the Kaiser Foundation.

About Smart Growth America
Smart Growth America is the only national organization dedicated to researching, advocating for and leading coalitions to bring smart growth practices to more communities nationwide. From providing more sidewalks so people can walk to their town center, to ensuring that more homes are built near public transit and that productive farms remain a part of our communities, smart growth builds great neighborhoods across the nation that all Americans can share.

Introduction

Transportation agencies across the country are looking for ways to tie their decisions more directly to promoting economic vitality. In Washington State, economic vitality is one of six transportation policy goals established by the Washington State Legislature and reflected in state transportation plans as well as in eight of fifteen Regional Transportation Planning Organization plans.

The Washington State Department of Transportation (WSDOT) is developing a Practical Solutions Performance Framework based on the six statewide policy goals and engaged Smart Growth America (SGA) to support development of the Economic Vitality piece of the framework. The performance framework will help WSDOT provide a consistent approach to performance-based decision-making, align its decisions with its partners, demonstrate transparency, think more systemically, and understand tradeoffs across transportation policy goals.

WSDOT has already developed draft performance frameworks for one of its six policy goals — "mobility." This involved further defining the goal and identifying performance measures to evaluate different aspects of mobility at various points in WSDOT's decision-making.

However, transportation's role in supporting economic vitality is more challenging to define within the context of a large, diverse state, and even more challenging to measure. In order to develop a performance framework that is responsive to economic goals and needs throughout the state, WSDOT and SGA collected information and feedback from stakeholders through a one-year engagement process. This included identifying best practices in measuring transportation's impact on economic vitality, working with WSDOT's partners to explore how economic vitality performance should drive WSDOT's decisions, and ultimately identifying recommended transportation performance measures for the Economic Vitality Performance Framework.

This effort indicated that there is significant overlap between the transportation strategies that advance economic vitality in Washington and the state's other policy goals such as "mobility," "environment," "preservation," and "safety." WSDOT will be conducting an effort to reconcile and streamline the performance measures developed for all six policy areas into a single Performance Framework and will address overlap during that process to avoid double-counting benefits.

Process and Findings

Best practices in measuring transportation's impact on economic vitality

Transportation investments affect the economy in many ways: attracting development, increasing property values, creating jobs, connecting people to needs, reducing travel costs, improving freight access and reliability, reducing energy use, and more. However, state of the practice in measuring the impacts of transportation projects on the economy is still fairly limited.

Transportation agencies frequently measure reduction in congestion as a proxy for improving economic vitality. While congestion mitigation is an important issue and a priority for many areas, using it as a substitution for economic vitality has serious flaws. Many economically vibrant places have significant congestion, and many of the least congested places have stagnant economies. Communities must have a significant level of congestion before reducing

it can create any economic benefit. However, most congestion measures count any speed increase as a benefit. Further, if congestion relief comes from a recession, this approach still counts it as an economic benefit. Measures of congestion therefore do not provide a comprehensive look at how the transportation network is contributing to state and local economic vitality.

Some transportation agencies have explored other approaches for measuring how their investments impact economic vitality. SGA compiled and categorized the most prevalent approaches that have been used around the country (see Table 1).

A number of these approaches carry challenges, including being difficult to measure or difficult to apply meaningfully to decision-making. For example, transportation investments play a role in job creation, but it can be difficult to separate transportation's contribution to long-term job creation from other public and private investments and broader market trends. Further, some performance measures for economic vitality are confusing or difficult to explain to a broad range of partners and stakeholders, do not align well with policy goals, or are useful only at one level of decision-making. For example, while measuring change in household travel costs is useful for policy decisions and planning, it is challenging to determine the impacts of an individual investment.

Table 1. Some concepts for measuring transportation's impact on economic vitality

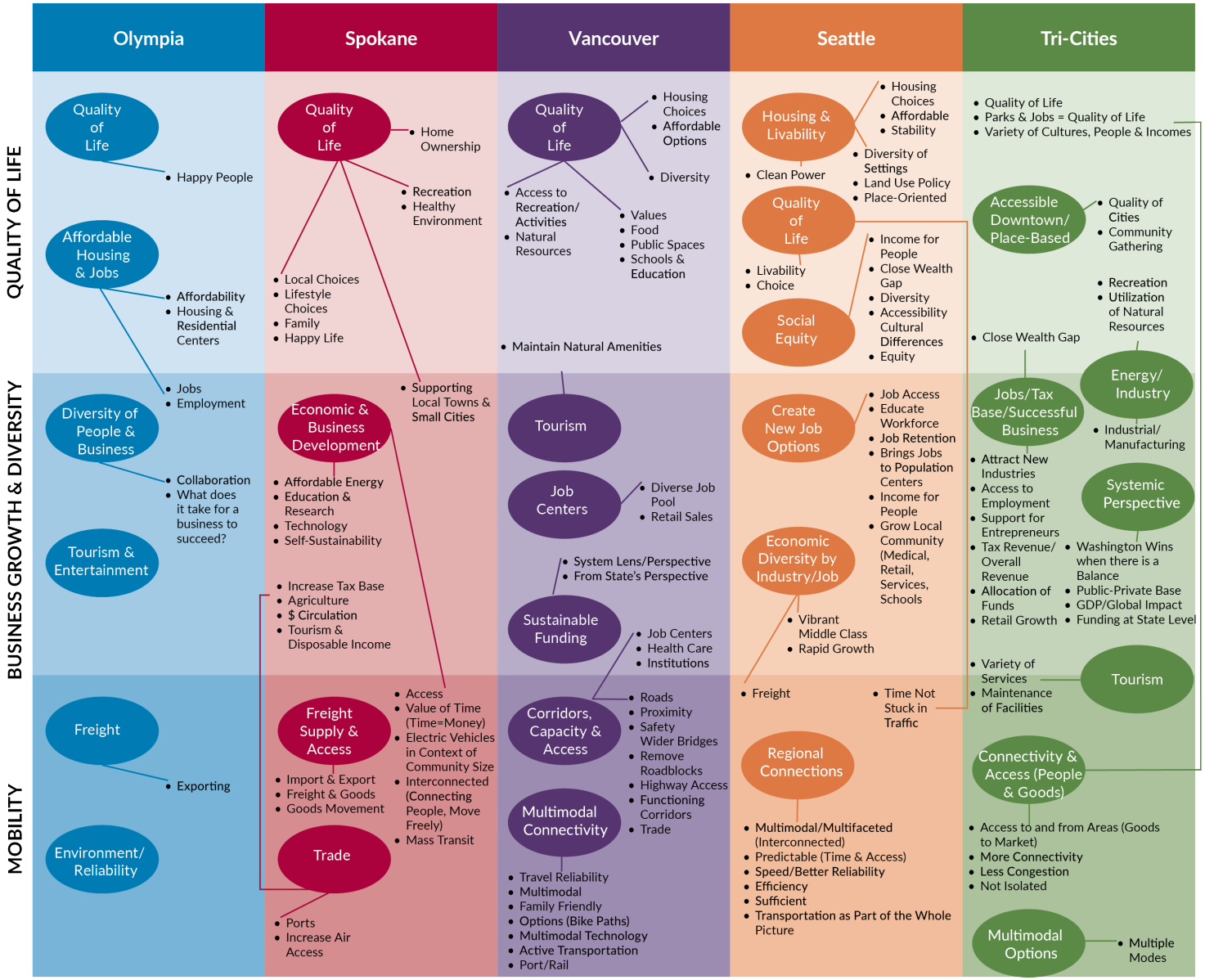
Maximizing return on investment
• Direct jobs created • Comparing benefits and costs • Economic impact analysis
Keeping the economy running
• Infrastructure maintenance • Access to jobs and necessities • Freight measures
Adding economic value
• Travel cost savings • Reliability benefits for industry • Delivery logistics and supply chain benefits • Agglomeration effects

SGA's survey of best practices indicated that measures of accessibility to jobs and necessities are the best economic performance measures available today. Accessibility, which assesses transportation's economic ability to link people to destinations, can be measured at relatively low cost thanks to emerging technologies and methods, and WSDOT already has several licenses for one of the best tools currently on the market, Citilabs' Sugar Access tool. Measures of accessibility can also be applied across a variety of decision points.

Feedback from WSDOT's partners and stakeholders

Using the findings above as a starting point, WSDOT facilitated five stakeholder workshops around the state in November 2017 to solicit feedback on what economic vitality means in Washington State and which transportation strategies contribute most to achieving it. The workshops took place in Vancouver, Olympia, Seattle, Spokane and Richland. Over 165 people from cities and counties, Metropolitan Planning Organizations and Regional Transportation Planning Organizations, transit agencies, other state agencies, economic development organizations, health advocates, tribes, elected officials, ports, airports, private and professional organizations, and WSDOT attended the workshops. WSDOT's performance framework team then analyzed and categorized the ideas provided during the workshops (see Figure 1).

Figure 1. Feedback collected from stakeholders in November 2017



Building on the feedback provided in November, SGA facilitated two Stakeholder Economic Vitality Measures Workshops in March to take a closer look at specific potential performance measures, one in Spokane and one in Olympia with satellite locations in Wenatchee, Union Gap, and Seattle which connected by phone. SGA suggested a number of measures that addressed the major themes identified in the November workshops: quality of life, business growth and diversity, and mobility. Stakeholders in both workshops provided feedback, including the following:

- Economic vitality encompasses more than direct economic benefits like increases in real estate value, tax base, and job growth.
- Coordination with land use decisions is a key issue.
- Measures should support all geographies across the state, and the overall framework should provide sufficient flexibility to address diverse local priorities.
- Measures should focus on person mobility, not vehicular mobility.
- Capturing business diversity and freight needs is a challenge – there are few examples of agencies doing this well.
- Economic measures should integrate priorities around quality of life like public health, affordability, and multimodal access.

WSDOT and SGA used the feedback provided to develop a proposed Economic Vitality Performance Framework for the state's transportation network. The following sections of this report summarize the recommended framework.

Overview of the Recommended Economic Vitality Performance Framework

This section summarizes a recommended Economic Vitality Performance Framework for WSDOT based on national best practices and the feedback collected from WSDOT's stakeholders. It outlines criteria and principles used to develop the Economic Vitality Performance Framework and performance categories.

What makes a good economic performance framework?

In developing a Practical Solutions Performance Framework, WSDOT should consider not just which performance measures are best, but how to develop an overall framework that adequately captures state and local priorities without being overly complex or onerous. The Framework should be able to meaningfully guide decisions (not just track progress), and WSDOT must be able to communicate it clearly to its partners.

SGA considered the following principles in developing the recommended Economic Vitality Performance Framework based on the experiences of other states:

Identify a streamlined set of measures: WSDOT should develop a succinct list of economic vitality performance measures to use in each stage of decision-making that encompass most of the priorities raised, rather than try to be comprehensive in capturing every significant stakeholder priority. This will make the framework more implementable and transparent. Economic vitality is one of six goal areas and each goal area is likely to have at least 2-3 measures, meaning there will be 12-18 measures overall. With so many areas measured at once, too many discrete priorities can be hard to discern and even harder to produce the intended emphasis in decision-making. Further, a long list of measures will make the framework more challenging for stakeholders and the public to understand.

Choose measures that can be applied across decision points: Not all performance measures that can be readily applied system-wide make sense in project-level decisions. WSDOT should prioritize measures that can be applied across scales of decision-making, such as accessibility measures.

Choose measures that build meaningfully on planning documents: Performance measures can help WSDOT ensure that the decisions made during planning are more than intellectual exercises and actually carry weight in funding and project development decisions. WSDOT should build on existing plans, research, and identified priorities as much as possible in developing its Economic Vitality Performance Framework. For example, WSDOT has a relatively recent statewide freight plan that should serve as the basis for freight performance measures. Using this plan and others that identify specific, needed investments as the foundation for WSDOT's performance framework will create a feedback loop over time to give the planning process greater weight.

To start, choose measures with data that are available or could readily be made available: Measures should not be based exclusively on what data and information is currently available, as there is likely a mismatch between what WSDOT already measures and its top policy goals.

However, all of the measures will need enough data to support consistent use across the state. This will likely mean that WSDOT will need to do some data collection upfront.

Choose measures that help make decisions between strategies and projects: WSDOT will need to include measures that help differentiate between the relative merits of proposed strategies. Not all transportation performance measures do this. In some cases, impacts may be hard to isolate at a localized scale or not nuanced enough to show differences between projects.

Choose measures that are relatively easy to understand: WSDOT will need to be able to explain the measures in a straightforward way to a variety of stakeholders with different levels knowledge. Even if the methodologies behind some measures are complex, the concepts should be easy to convey. For example, "access to jobs" is a more straightforward concept than "level of service" for stakeholders not directly involved in transportation.

Choose measures that are responsive to local priorities: WSDOT's partners stressed that the state's performance framework should not apply a one-size-fits-all approach and should elevate locally identified goals and priorities. WSDOT's challenge will be to create a framework that is both responsive to local context and applicable consistently statewide.

Choose measures that support both thriving and distressed areas: In developing an Economic Vitality Performance Framework, WSDOT will also need to think about the state's role and policy goals. Should WSDOT invest to further fuel existing economic centers or focus on supporting economically distressed areas? An economist might recommend targeting existing economic generators to get the greatest return out of investments, but policymakers must consider both. SGA recommends that WSDOT strive to explicitly capture both types of places within its Economic Vitality Performance Framework.

Economic Vitality Performance Framework Categories

Three major goals emerged under the umbrella of "Economic Vitality" during WSDOT's and SGA's engagement with stakeholders:

- Mobility,
- Business growth and diversity, and
- Quality of life.

Initial definitions for each goal are summarized below in Table 2.

Table 2. Economic Vitality Performance Framework categories and definitions

Goal category	Definition
Mobility	Increase access to work and non-work destinations by multiple modes
Business Growth and Diversity	Increase the number and diversity of jobs and businesses
Quality of Life	Increase equity, health and access to affordable housing and community places and services

These goals reflect a common finding from other states: in determining what strategies contribute to economic vitality, the discussion quickly began to overlap with other policy goals. Stakeholders saw that a wide range of factors contribute to state and local economic vitality and wanted WSDOT's performance framework to reflect that. "Mobility" is a separate goal within WSDOT's policy framework, yet WSDOT's partners still felt it was important to include as a priority under the umbrella of Economic Vitality. The inherent overlap between policy goals is not a problem, and can give the state greater flexibility in deciding how to structure its performance framework. However, it means that WSDOT decision-makers need to be careful not to count specific measures twice under different policy areas as they merge these categories into the final Practical Solutions Performance Framework.[1]

As noted in the following sections, SGA strongly recommends that accessibility measures form the basis for WSDOT's Economic Vitality Performance Framework. Measures of accessibility to employment and non-work destinations can address the vast majority of the economic priorities raised by WSDOT's partners and all three of the categories identified above. When the transportation system effectively connects people to jobs and essential needs, they have great physical and economic mobility, businesses of all kinds can access talent and customers, and residents have a higher quality of life. The other measures recommended throughout this report provide additional information around specific priorities identified by stakeholders but have significantly narrower applicability in decision-making and should play a supplemental role in the performance framework.

In particular, measuring transportation's impact within the category of "Business Growth and Diversity" is especially challenging because the impacts are difficult to isolate in a systematic way across regions and project types. While the definition of this goal, "to increase the number of jobs and businesses" aligns with priorities raised by stakeholders, the measures recommended under that category reflect the broader ways that transportation investments directly shape economic vitality, including bolstering existing economic centers, supporting disadvantaged communities, and meeting freight needs.

Detailed recommendations

The three sections following recommend a more detailed approach for each of the three goal categories under Economic Vitality. Each section includes:

- Performance measures
- Recommended metrics
- Methodology, tools, and data considerations, and
- Ways to apply the measure at different decision-making points.

[1] Note: to address this overlap, WSDOT leadership has decided to house the measures recommended within the "Mobility" category of this report within the Mobility Performance Framework rather than the Economic Vitality Performance Framework. Recommendations for "Mobility" measures are still included within this final report to reflect initial stakeholder discussions and feedback.

Goal: Mobility

While WSDOT has a separate "mobility" goal within its six policy priorities, mobility still came up as a key area of focus during WSDOT's stakeholder engagement sessions for the Economic Vitality Performance Framework. This reflects the fact that connecting people to jobs and daily needs is fundamental to state and local economic vitality.

SGA recommends that WSDOT focus its mobility measures on accessibility to jobs and other essential destinations. As noted above, accessibility measures should ideally form the foundation of WSDOT's entire Economic Vitality Performance Framework, as they can address the vast majority of the economic priorities raised by WSDOT's partners. While they are included in the mobility category within this report, they could readily be structured to address specific "business growth and diversity" and "quality of life" priorities as well. The other measures recommended throughout this report should play a supplemental role to accessibility measures.

Priority: Accessibility to jobs and necessities

Providing access to opportunities and necessities came up as a key priority among WSDOT's stakeholders and is arguably the primary purpose of transportation. As noted above, WSDOT has already invested in several licenses for Citilabs' data and GIS tool, Sugar Access, for measuring accessibility. WSDOT's next step should be to use the tool to design performance measures that capture the state's economic priorities and deploy those measures more broadly in decision-making.

There is a growing interest among transportation agencies around the country in measuring accessibility to destinations. While the concept of accessibility is not new, limitations on data, computing power, and methods for calculating accessibility meant that it was mostly relegated to academia and one-off studies until recently. Measuring accessibility to destinations can be valuable for a number of reasons including the following, outlined in the guide *Accessibility in Practice* released recently by the State Smart Transportation Initiative and the Commonwealth of Virginia:[2]

- It measures what travelers care about—how readily they can meet their needs.
- It provides a common platform for considering land use and transportation questions.
- It provides a common measure for looking across transportation modes.
- It is nearly infinitely scalable, from individual points up to regions and states.
- It can be calibrated to represent a variety of transportation network or land use conditions (for example, observed travel speeds at different times of day, level of walking stress, etc.)
- It requires relatively little training beyond the use of ArcGIS, a common platform.
- It is a concept that non-technical stakeholders can understand.
- It is relatively quick to calculate using tools like Sugar Access.
- It can be used to estimate other outcomes such as vehicle-miles traveled, mode share, personal transportation costs, and emissions.
- It can provide a bridge between policies and project-level decision.

[2] https://www.ssti.us/2017/07/accessiblity-in-practice/

So far, WSDOT has only used accessibility measures in a limited set of pilot efforts to test their applicability to various programs. SGA recommends that WSDOT's focus on developing accessibility measures that can be deployed more broadly and integrating them into decision-making as soon as possible. Other transportation agencies can provide a model for its application, particularly the Virginia Department of Transportation (VDOT), which pioneered the use of accessibility measures to score and rank projects in its Smart Scale project prioritization program.[3] VDOT's approach and experiences are summarized as a case study at the end of this section.

Initially, WSDOT should adopt two types of accessibility performance measures: accessibility to employment and accessibility to non-work destinations. When making decisions, these measures can be weighted and combined to predict outcomes such as Vehicle Miles Traveled (VMT) and mode choice.

Measure: Accessibility to employment

Measures of accessibility to employment evaluate the ease (typically measured in travel time) with which people can access jobs from home locations. This captures an important aspect of economic vitality, how well residents can reach economic opportunities.

Recommended metric

Number of jobs accessible to households within a project area or planning area, based on travel time by auto and transit.[4]

Methodology, tools, and data considerations

WSDOT should use its existing licenses for Sugar Access to evaluate accessibility to jobs. Sugar integrates the three key elements needed to assess accessibility: 1) GIS shapefiles of modal networks, which depict where and at what speeds travelers can use the transportation system; 2) locations of land uses, including households and jobs; and 3) a system to calculate travel times between homes and jobs. It would be possible to obtain these data and calculate travel times with ArcGIS' Network Analyst, but using Sugar Access provides both the land use and network data and a simplified, rapid way to do the analysis.

Sugar Access makes it relatively easy to calculate accessibility to employment from an individual point or geography such as a Census block group. In either case, Sugar Access can calculate the number of jobs accessible by each mode of travel from the origin, weighted to award more points to jobs with a shorter travel time than those further away. The base data within Sugar provide income levels for residents and categories for jobs. WSDOT could use this feature to help address equity or business diversity.

While this evaluation can be done relatively easily, the outputs from Sugar Access – a numeric score based on jobs available in the area — must, like any other metric, be converted to a target or decision rule. WSDOT will need to consider how to structure meaningful accessibility measures to address its specific objectives, inform decisions, and communicate with the public.

For example, WSDOT could scan for major barriers restricting accessibility to jobs in a region in order to identify needed investments. In that case, a geographic representation such as a

[3] http://vasmartscale.org

[4] More information about how jobs and other points of interest can be weighted using decay curves based on travel time is provided in the guide, *Accessibility in Practice*: https://www.ssti.us/2017/07/accessiblity-in-practice/

heat map showing different levels of accessibility would be more meaningful than a number. Another approach would be to measure improvement over a baseline level of accessibility over time in a neighborhood, region, or the full state. In that case, WSDOT's metric would be the percentage change in jobs accessible over a certain time period. Most likely, WSDOT would apply an accessibility measure to a project or corridor plan to determine the accessibility benefit involved. This is the approach VDOT takes, as noted above.

Ways to apply

Measures of accessibility to jobs can be used for many purposes. Several WSDOT divisions have already identified ways they hope to apply accessibility measures using Sugar Access:

- *Rail Office:* To evaluate multimodal accessibility to Amtrak Cascades Stations.
- *Public Transportation Office:* To identify statewide accessibility gaps for the Human Services Transportation Plan update.
- *Design:* To prioritize ADA projects in the ADA Transition Plan Update. (Note that the pedestrian network in Sugar Access does not include ADA accommodation such as curb cuts, so those would need to be added.)
- *Active Transportation:* To identify statewide gaps in bicycle and pedestrian access.
- *Olympic Region:* To understand how different replacement alternatives for the Heron Street Bridge affect disadvantaged populations' access to jobs in Aberdeen.

In addition, SGA recommends that WSDOT consider the following broad applications of accessibility measures for its Economic Vitality Performance Framework:

- Evaluating current accessibility conditions at various geographic scales and tracking changes over time;
- Scanning for and diagnosing barriers to accessing jobs within specific regions and corridors, particularly for disadvantaged populations;
- Evaluating various potential solutions during corridor planning and project development to determine which will improve accessibility to key destinations, and;
- Choosing between different potential projects based partially on which will make the greatest improvements in accessibility.

Measure: Accessibility to non-work destinations

WSDOT should also develop measures of accessibility to other non-work destinations. Non-work trips make up 72% of VMT on average nationwide. Walking-scale accessibility to non-work destinations is also correlated with lower VMT and higher property values.[5]

Recommended metric

A numeric score (from 0-100) based on the number of non-work destinations accessible by walking from households in a project or planning area.

Methodology, tools, and data considerations

Like accessibility to jobs, WSDOT can use Sugar Access to evaluate accessibility to non-work destinations. Other transportation agencies have operationalized non-work accessibility as a performance measure using an approach that resembles Walkscore, most notably VDOT in their latest round of project scoring under their Smart Scale program. Neighborhoods receive a score between 0 and 100 based on the number of non-work destinations accessible by

[5] https://www.ssti.us/2017/07/accessiblity-in-practice/

walking across a variety of destination types. This approach emphasizes local access, unlike accessibility to jobs, which is more regional by nature.

Sugar Access has default non-work destinations built into the tool, but also allows users to add additional points of interest. WSDOT will need to give thought to which non-work destinations are important for the state or specific localities. For example, some agencies measuring accessibility have chosen to focus on access to "necessities" – such as destinations like grocery stores, schools, and healthcare – while others have also included destinations like restaurants and cultural amenities. WSDOT could also separate any of these destinations out individually if it was beneficial to do so. For example, some of the priorities raised by WSDOT's stakeholders within the category of "Quality of Life" included access to education, recreation, and community spaces. WSDOT could choose to create accessibility measures for any of these specific types of destinations using an approach similar to employment access described above, or could give them greater weight in a general non-work accessibility metric.

By way of example, VDOT's non-work accessibility measure within its overall project scoring process integrates accessibility to recreation as one type of non-work destination. Virginia includes golf courses, ice skating rinks, campgrounds, and parks in their definition of recreational destinations. VDOT determined how to weight each of their non-work destinations by examining current accessibility in neighborhoods across the state. Currently, each accessible recreational destination (up to three) contributes 3.7 points out of 100 possible points toward a project's non-work accessibility score.

Ways to apply

Measures of accessibility to non-work destinations can be applied in many of the same ways as measures of accessibility to employment. If targeted to walking, as in Virginia, this measure could help WSDOT develop and prioritize active transportation projects, which are usually invisible in demand models. In addition, in areas of congestion, WSDOT could weight and combine this and the employment access measure to determine the VMT and mode choice effects of a project.

One notable difference is the geographies in which work versus non-work accessibility measures can be applied. If structured using the Walkscore-like approach described above, non-work accessibility measures will make sense to apply in urban contexts, and especially in suburban and developing contexts where the most profound changes are likely to take place, but will likely not make sense to apply in rural areas.

Below are additional examples of how WSDOT could consider using non-work accessibility measures in its decision-making.

- *To diagnose problems and evaluate potential solutions during corridor planning:* As part of the existing corridor planning process, WSDOT could routinely conduct an evaluation of accessibility to jobs and other destinations in the corridor area to identify gaps. This could include conducting an engagement effort as part of each corridor planning process to define which types of non-work destinations are most important for that community and documenting the findings. WSDOT could then generate potential solutions to address those gaps, some of which may be scoped further into projects.
- *To improve access to opportunities and necessities for disadvantaged populations:* WSDOT could also use measures of accessibility to identify areas within specific regions or across the state where disadvantaged residents face difficulties accessing jobs and necessities. This could inform a host of policy decisions in both land use and transportation, such as around where to target transit investments or how to select

sites for a new school or hospital to improve walking access. It could also guide WSDOT's decisions during project development. For example, adding safer pedestrian crossings on a state highway to connect housing on one side with destinations on the other.

Case study: Virginia uses accessibility measures in project prioritization

The Virginia Department of Transportation (VDOT) has pioneered the use of accessibility measures at a statewide level in project selection decisions through its Smart Scale Program. While VDOT's funding structure for transportation is different than WSDOT's, VDOT's experiences using accessibility measures to inform project prioritization could help WSDOT evaluate the economic benefits of potential investments.

In 2014, the Virginia legislature unanimously passed legislation requiring VDOT and the Commonwealth Transportation Board (CTB) to develop a quantifiable and transparent prioritization process for making funding decisions for capacity enhancing projects within the state's six-year improvement program. VDOT and the CTB established the new project scoring framework, Smart Scale, to ensure that the state picks the right transportation projects for funding and makes the best use of limited tax dollars.

The legislation explicitly established six factors to be used in the scoring process, but tasked VDOT and the CTB with developing the methodologies for measuring each. The factors include: congestion mitigation, economic development, accessibility, safety, environmental quality, and (in areas over 200,000) coordination with land use.

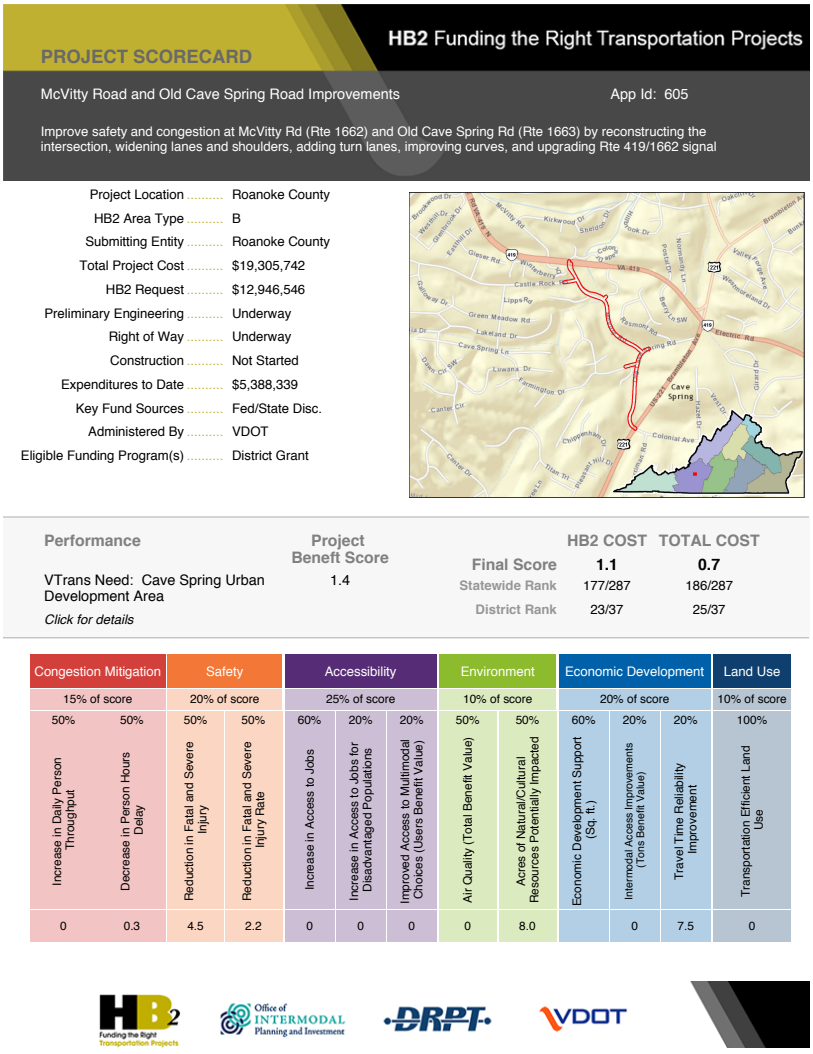
The new scoring approach applies to all new capacity projects that receive state funding across modes, which represent about half of VDOT's overall program (it does not apply to state of repair projects). Projects are scored to determine their cumulative benefits in the six factor areas based on a combination of state and locally submitted data. VDOT assigns up to 100 points to each project under each of the six scoring factors. Figure 2 below provides a sample project scorecard.

VDOT operationalized the accessibility score as access to jobs, with 60 percent of the total accessibility score based on the change in accessible jobs. Another 20 percent of the score is an equity breakout, considering the change in jobs access specifically for disadvantaged populations. The final 20 percent is based on an assessment of the project support for connections between modes, and promotion of multiple transportation choices.

As of the third round of scoring, VDOT has also added a non-work accessibility measure as part of the Land Use scoring factor, replacing the measure previously used. Like jobs accessibility, VDOT measures non-work accessibility using Sugar Access.

Developing the non-work accessibility measure required additional consideration about what types of destinations are important to people. The team working on the measure examined the type and number of destinations accessible by walking from Census blocks throughout Virginia in order to determine how to weight each of their non-work destinations for the measure. They then created a scale of zero to 100 based on the number and types of destinations accessible by walking, which are applied to projects.

Figure 2. An example project scorecard from Virginia



Based on feedback from stakeholders around the state, VDOT weights the six scoring categories differently based on the type of community where each project is located. For example, employment accessibility accounts for 15 percent of the overall score in large urban areas where congestion mitigation is the top priority, 15 percent in rural areas where economic development is the top priority, but 25 percent of the score and the top priority in medium size areas like Richmond and smaller cities like Charlottesville. The land use score is required in metro areas larger than 200,000, but smaller areas may use it voluntarily.

Goal: Business Growth and Diversity

Measuring transportation's impact on "Business Growth and Diversity" is the most difficult of the categories identified by WSDOT's stakeholders.

Stakeholders initially raised a number of priorities within this category, such as building a sustainable tax base, supporting job growth, attracting new industries, and supporting tourism. While transportation investments do support these specific goals, the impacts are challenging to isolate and measure accurately across a range of geographic locations and investment types. This is particularly true regarding impacts on economic diversification. As WSDOT's stakeholders noted, different industries will inherently have different needs from the transportation system. Some of those needs likely directly conflict.

The measures included in this section aim to encompass many of the broader ways that transportation investments directly shape economic vitality. Stakeholders indicated that WSDOT's priorities should include:

- Bolstering existing economic centers;
- Supporting distressed communities; and
- Meeting freight needs.

Based on this feedback, SGA has recommended performance measures that are qualitative and geographically oriented, and that guide investments to address specific needs in locations that the state or localities have designated as targets for economic growth and investment.

One goal of this approach is to provide a framework that can be applied statewide while still elevating and responding to local priorities and needs. WSDOT's stakeholders in both the Spokane and Olympia workshops indicated that measures to capture business growth and diversity should respond to local context rather than be applied "one-size-fits-all" across the state. They noted that economic priorities and key industries vary significantly from region to region and the state's performance framework should reflect that variation.

The measures in this section will be most useful in prioritizing projects for funding; they are generally less applicable at other scales of decision-making, including system-wide evaluation of gaps, as well as more nuanced project development decisions. Accessibility measures are currently the best option available to assess how well the transportation network supports business growth and diversity at a system level. Providing better access to opportunity is a great way to support people in distressed communities and will improve the efficiency and productivity of economic centers. WSDOT should conduct additional research moving forward as new potential system-level measures and best practices emerge.

Priority: Bolstering growth of existing economic centers

Measure: Investment serves infill development in priority growth areas

WSDOT's partners expressed a desire for measures that capture how well transportation investments will support long-term economic growth. One way to do that is by targeting investments to foster sustainable growth over time in the state's existing economic hubs. Washington's Growth Management Law provides a foundation for this, and the state and localities already have designated areas where population growth and development should be concentrated in the coming decades. WSDOT should ensure that the state's transportation investments in these locations support long-term economic vitality.

Recommended metric

Is the investment within an Urban Growth Boundary and is it identified as a need or priority in the relevant local comprehensive plan or regional transportation plan (qualitative yes/no).

Methodology, tools, and data considerations

This measure is intended to help WSDOT direct a portion of its investments to existing communities in ways that align with articulated local goals and needs. It should prioritize state investments within Urban Growth Boundaries that localities have identified as important, and deprioritize potential state investments in geographic areas that localities have not prioritized or do not support.

Implementing this measure will require assessing how well potential state investments align with local plans for infill growth. WSDOT will need to determine and provide guidance to staff on how to evaluate whether a project aligns with existing local and regional plans, including how to conduct stakeholder engagement as part of the evaluation. There is broad variation in the quality of local plans, with some already articulating specific transportation projects and priorities while others are significantly less specific. This measure could provide a means for encouraging more consistent and robust local planning across the state over time.

Ways to apply

- Conducting a system-level scan to compare where the state's investments are going versus where existing economic centers are located;
- In project selection, prioritizing investments in economic hubs that align with local and regional plans for infill growth.

Priority: Supporting growth of economically distressed areas

Measure: Support for growth in an identified Opportunity Zone

WSDOT's stakeholders raised the need to support economically distressed communities through the Economic Vitality Performance Framework. SGA recommends using the Opportunity Zones that Governor Inslee has designated throughout the state to target transportation investments to distressed areas.

Under the national Tax Cuts and Jobs Act passed in December 2017,[6] every state has nominated Opportunity Zones to catalyze economic development and job creation in lower-income communities. Opportunity Zones are geographic areas where new investments will be eligible for preferential tax treatment under certain conditions. Many states are building on these designations by establishing their own programs to help incentivize private investment in the areas and drive public investments in infrastructure and services to those communities. Washington State has designated 139 tracts as Opportunity Zones, including 43 rural tracts.

Recommended metric

Are proposed transportation investments or strategies located in an existing distressed community within a designated Opportunity Zone? This is a qualitative metric. If the answer is yes, do the proposed investments align with local placemaking and/or investment plans created for that community?

[6] https://www.congress.gov/bill/115th-congress/house-bill/1

Methodology, tools, and data considerations

WSDOT will need to structure this measure carefully. Not all transportation investments within a distressed area will improve economic conditions for residents of that community, and some investments could directly harm them. Investments should help connect existing communities with greater economic activity, and should align with a place-based vision the locality has developed for the Opportunity Zone. If no strong vision is in place, WSDOT will need to work with the locality to ensure they create one. As with the previous measure, WSDOT will need to develop guidance on how to assess alignment with local plans.

Ways to apply

- Track the amount or percentage of transportation investments going to distressed communities statewide; and
- In project selection, prioritize investments in Opportunity Zones that support the economic vitality of existing distressed communities.

Priority: Supporting statewide freight needs

Near-Term Measure: Alignment with statewide freight plan measures

WSDOT's stakeholders also raised freight needs as a priority. In the short term, WSDOT should use existing freight planning decisions and evaluation criteria that the state has already established as the basis for the freight performance measures within the Economic Vitality Performance Framework.

WSDOT has already done significant freight planning, including designating several overlapping statewide networks of freight priority corridors to help prioritize projects, and developing a Freight System Plan[7] that includes both fiscally constrained and unconstrained project lists. Rather than developing new freight measures that could subvert or conflict with the existing processes, SGA recommends using the planning and prioritization in the existing freight plan.

Recommended metric

Investment meets the evaluation criteria outlined in WSDOT's 2017 Freight System Plan and coinciding Freight Investment Plan (qualitative yes/no).

Methodology, tools, and data considerations

WSDOT's 2017 Freight Investment Plan outlines criteria used to develop a fiscally constrained project list and prioritize among projects on the unconstrained list for future fiscal years.[8] It includes an eligibility screen based on project schedule, whether the project is on a designated freight network, and whether it has regional support. It also includes the following criteria for ranking all eligible projects for funding, which should be integrated into the Economic Vitality Performance Framework:

> *"To prioritize between projects ready for FFY 2018 funding and meeting all above requirements, WSDOT developed a methodology for ranking projects based on freight system benefits. Projects were reviewed and scored based on how well they meet National Highway Freight Program goals and how they benefit the freight system at a statewide,*

[7] http://www.wsdot.wa.gov/publications/fulltext/freight/Freight-Plan-2017SystemPlan.pdf
[8] https://www.wsdot.wa.gov/NR/rdonlyres/394F83FB-3447-45CA-BB7B-9CEC9F96D807/0/FreightPlanAppendixAInvestmentPlan.pdf

regional, and local level. The benefit evaluation was a qualitative analysis, using the following approach:

- *A five-point scale was used for each benefit category (i.e., statewide, regional, local). Total benefit score is the sum of points assigned to each benefit category.*
- *Points were assigned for projects based on their benefits to the freight system, including:*
  - *Projects on major truck routes (e.g., T-1 or T-2 Truck Freight Economic Corridors) were assigned higher scores;*
  - *Projects that serve major freight generators (e.g., ports, distribution and manufacturing clusters, freight land uses) were assigned higher scores;*
  - *Projects where infrastructure failure would result in a significant safety or mobility issue (e.g., bridge closure) were assigned higher scores;*
  - *Projects in areas without alternative route availability (e.g., mountain passes) were assigned higher scores;*
  - *Projects demonstrating freight benefits with supporting data and facts (e.g., number of jobs created, hours of truck delay reduced) were assigned higher scores.*

WSDOT ranked the validated freight projects ready for FFY 2018 funding, based on their total benefit score, from high to low. Geographical distribution was also considered by limiting one project per owner."[9]

WSDOT could also integrate the criteria used to designate freight priority corridors into the Economic Vitality Performance Framework to support planning decisions. This could include criteria WSDOT used to establish the "Critical Urban Freight Corridors" and "Critical Rural Freight Corridors," federally required designations established under the FAST Act in 2015.[10] It could also include the criteria WSDOT used to designate "Truck Freight Economic Corridors,"[11] an older designation specific to Washington State. WSDOT's Truck Freight Economic Corridors network includes several tiers of priority based on volumes of freight tonnage per day, as well as criteria for identifying alternative freight corridors in the case of closures, and for first and last mile connections in both urban and rural areas.

Ways to apply

WSDOT should continue to apply freight measures to identify corridors of significance, develop projects based on needs, and prioritize specific freight projects for funding.

Freight considerations for the longer term

Moving forward, WSDOT should evaluate whether the performance criteria used in its freight planning efforts are the best ones and update those measures over time to better meet freight needs.

For example, WSDOT should consider whether the criteria used to prioritize investments should eventually be updated in response to existing and projected freight volumes or actively

[9] WSDOT's criteria for prioritizing freight projects can be found on page 18 in Appendix A of the Freight System Plan: https://www.wsdot.wa.gov/NR/rdonlyres/394F83FB-3447-45CA-BB7B-9CEC9F96D807/0/FreightPlanAppendixAInvestmentPlan.pdf

[10] The process and criteria used to designate "Critical Urban Freight Corridors" and "Critical Rural Freight Corridors" can be found starting on page 2: https://www.wsdot.wa.gov/NR/rdonlyres/394F83FB-3447-45CA-BB7B-9CEC9F96D807/0/FreightPlanAppendixAInvestmentPlan.pdf

[11] https://www.wsdot.wa.gov/Freight/EconCorridors.htm

support the growth of new economic activity and industries. WSDOT may also want to consider whether industries beyond those currently prioritized in freight planning — manufacturing, agriculture, construction, and forestry in Washington's case — have freight needs that the state's Performance Framework can support. Doing so would support the business diversity priority identified by stakeholders. Like many other state DOTs, WSDOT's freight planning is largely reactionary, responding to and supporting existing industry needs, but there may be a role the state can play in cultivating new industries and even participating in decisions around warehouse and facility siting.

WSDOT should also consider developing measures that provide a more nuanced and sophisticated understanding of specific industry supply chain needs. One option is emerging freight "fluidity" measures, which provide a more comprehensive look at multimodal supply chains from end to end for various commodities than traditional approaches like measuring congestion and bottlenecks.[12]

Other potential measures

SGA developed two tools to assist WSDOT and other transportation agencies in evaluating the impacts of their investments on economic vitality. Both tools have relatively narrow applications but could be useful to WSDOT in making specific decisions and communicating about those decisions to stakeholders. Both tools are currently in the final phases of development and will be available in fall 2018.

Measure: Land value added

SGA partnered with the University of Arizona to explore potential performance measures that can act as proxies for economic productivity, valuable places, and community vibrancy. One approach that emerged from this research was a tool for assessing the land value added from major transportation infrastructure investments.

The focus of this study was a practical one — operationalize the findings of vast literature exploring the theories and findings that describe positive and negative economic impacts of transportation investments, in this case focused on impacts on real estate value. The product, a GIS tool, allows analysts to estimate and compare changes in real estate value, and therefore changes in economic vitality, due to different transportation investment decisions.

Ways to apply

SGA and the University of Arizona developed the GIS tool with two main use cases in mind: project- and scenario-level impact evaluation. In project-level evaluation, WSDOT could consider the impacts of two or more transportation infrastructure projects. In scenario-level evaluation, WSDOT would estimate the impact of two or more alternatives for the same transportation project.

The economic impacts estimated — the change in property value of single-family residential, multifamily residential and commercial real estate — can be used in combination with other performance measures (e.g., travel time savings, quantification of equity or displacement, time savings, environmental impacts, safety improvements) to help decision makers evaluate the

[12] More information about freight fluidity measures is available at: http://onlinepubs.trb.org/onlinepubs/circulars/ec187.pdf

broad direct and indirect economic impacts transportation infrastructure may have on surrounding populations.

Because this tool is spatial, analysts will be able to more readily identify which neighborhoods — and corresponding populations — may see the largest impacts on the cost of housing due to specific transportation projects. This, in combination with housing expertise and tools developed to understand the displacement of vulnerable populations, can help WSDOT and its partners anticipate where there would be increased pressure in terms of costs of housing due to specific transportation projects. WSDOT could then work with its partners to ensure policies are put in place to help prevent displacement, such as affordable housing incentives or tax credits for businesses. Figures 3 and 4 below illustrate example outputs of the tool.

Figure 3. Summary output from a hypothetical proposed light-rail transit project in Tacoma, WA

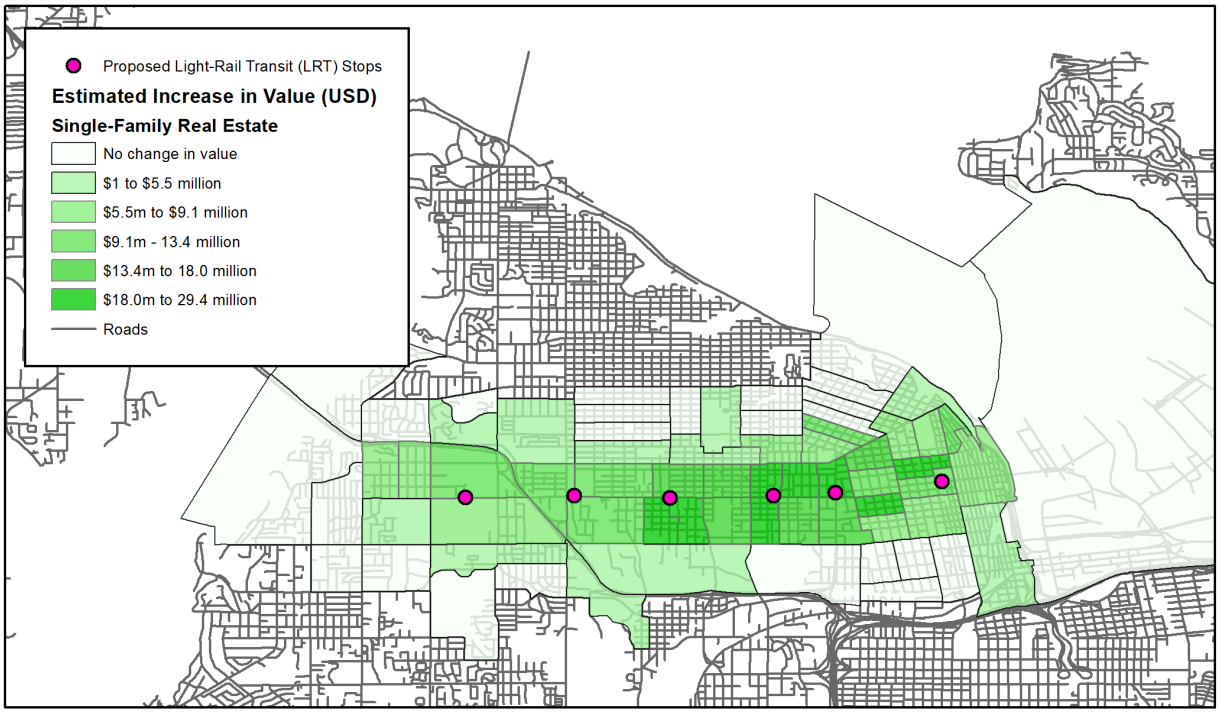
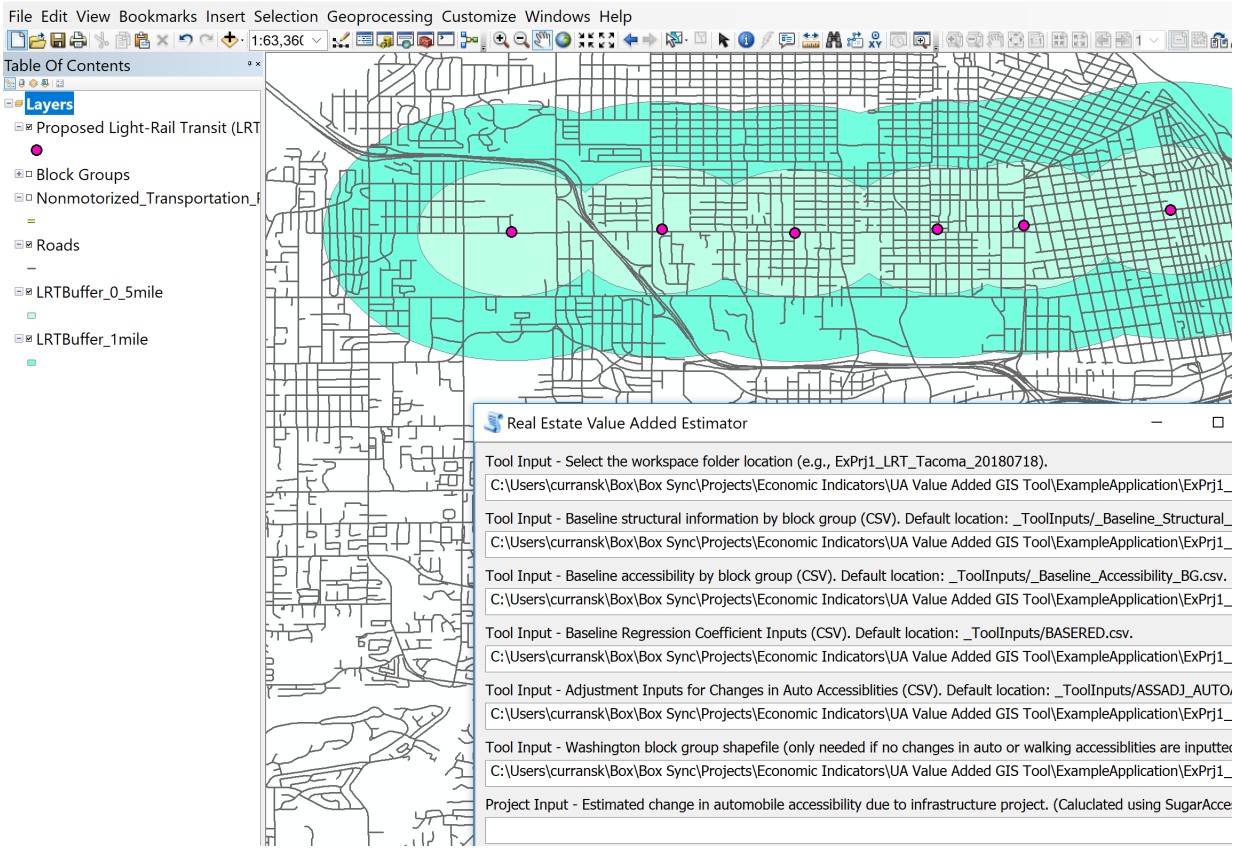


Figure 4. The GIS Tool in action



Measure: Transportation cost effectiveness

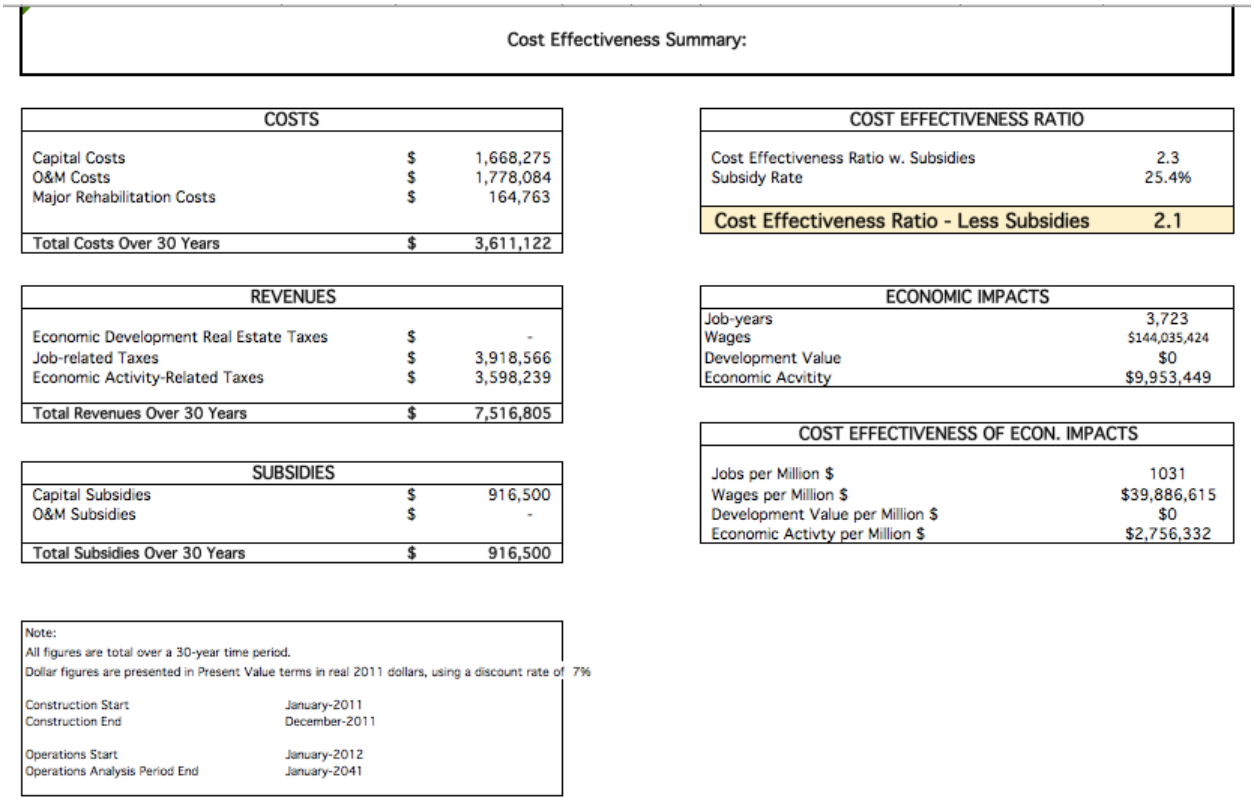
Smart Growth America also developed a transportation cost effectiveness tool to help transportation agencies assess the fiscal impacts of transportation investments against upfront and long-term project costs. The tool compares the fiscal revenues in the form of land values, additional jobs, and local tax revenues against capital and ongoing maintenance costs, as well as any outside subsidies. Figure 4 below shows an example project within the tool's dashboard.

Ways to apply

The purpose of the tool is specific: evaluating the cost effectiveness of investing in new or expanded facilities. It is particularly valuable for evaluating projects that have been promoted by decision-makers based on the economic benefits they will bring to the region, such as new development, employers, and jobs.

Cost-effectiveness should not be used as a primary measure within the Economic Vitality Performance Framework, but it can assist WSDOT in conversations with stakeholders about the true costs of a project and the benefits of investing to support existing communities before building in less developed areas. SGA recommends that WSDOT use it primarily in discussions with stakeholders before a project is initiated or funded. It can inform discussions about whether a project should move forward, and at what level of investment if so.

Figure 5. A sample dashboard of SGA's Cost Effectiveness Tool



Cost Effectiveness Summary:

COSTS		
Capital Costs	$	1,668,275
O&M Costs	$	1,778,084
Major Rehabilitation Costs	$	164,763
Total Costs Over 30 Years	$	3,611,122

REVENUES		
Economic Development Real Estate Taxes	$	-
Job-related Taxes	$	3,918,566
Economic Activity-Related Taxes	$	3,598,239
Total Revenues Over 30 Years	$	7,516,805

SUBSIDIES		
Capital Subsidies	$	916,500
O&M Subsidies	$	-
Total Subsidies Over 30 Years	$	916,500

Note:
All figures are total over a 30-year time period.
Dollar figures are presented in Present Value terms in real 2011 dollars, using a discount rate of 7%

Construction Start	January-2011
Construction End	December-2011
Operations Start	January-2012
Operations Analysis Period End	January-2041

COST EFFECTIVENESS RATIO	
Cost Effectiveness Ratio w. Subsidies	2.3
Subsidy Rate	25.4%
Cost Effectiveness Ratio - Less Subsidies	2.1

ECONOMIC IMPACTS	
Job-years	3,723
Wages	$144,035,424
Development Value	$0
Economic Acvitity	$9,953,449

COST EFFECTIVENESS OF ECON. IMPACTS	
Jobs per Million $	1031
Wages per Million $	$39,886,615
Development Value per Million $	$0
Economic Activty per Million $	$2,756,332

Goal: Quality of Life

WSDOT's partners raised a number of priorities falling within the broad category of "quality of life." Those rising to the top included housing affordability, healthy environments, equity, cultural diversity, and access to destinations like education, recreation, and community spaces.

The relationship between transportation and some of these factors are significantly easier to identify and measure than others. However, measures of accessibility to work and non-work destinations can be structured to help capture a number of them, including priorities around equity, cultural diversity, and inclusion. As measures of accessibility are addressed within the "mobility" category above, this section focuses on supplemental performance measures that provide additional nuance around public health disparities and affordability.

Priority: Public Health

Measure: Support for areas with health disparities

Transportation investments can impact public health in a number of ways: by providing access to healthcare facilities, impacting air quality and safety, and contributing to a built environment that either contributes to or helps prevent chronic disease, among others. Investments also frequently have disproportionate impacts on health outcomes for certain populations and geographies. WSDOT's internal and external stakeholders indicated that health disparities are important to capture and address within the Economic Vitality Performance Framework.

Recommended metric

Investment is in a location with identified health disparities and will help address those disparities.

Methodology, tools, and data considerations

As recommended in WSDOT's working paper, *Incorporating Public Health and WSDOT Design and Project Development*, WSDOT should designate geographic areas with significant health needs based on a statewide assessment of health disparities, and prioritize transportation investments that directly help address those needs. Investments may include increasing access to healthcare, improving safety, addressing poor air quality, or providing safer biking and walking facilities.

WSDOT can leverage existing state Department of Health (DOH) disparity indicator data to identify priority geographic areas with significant health needs that transportation investments could help address. The DOH has a database and online mapping tool to view health disparities across the state in certain categories.[13] The data can be broken out by:

- Social determinants, such as percentage of population with limited English proficiency, limited access to a private vehicle, population aged 65+ living alone, etc.;
- Economic determinants, such as percentage of population in unaffordable housing, unemployed, in single parent households, etc.; and
- Poor health outcomes, such as rate of cancer deaths, lower average life expectancy at birth, etc.

[13] https://fortress.wa.gov/doh/wtn/wtnibl/

WSDOT could also partner with MPOs around the state to conduct health disparity assessments by region for other health outcomes linked to transportation such as obesity and asthma.

WSDOT will also need to develop a methodology for determining which transportation strategies and investments will improve health outcomes in the identified geographic areas. The simplest approach would be a qualitative assessment, but there are also several examples of regional transportation agencies that have modeled likely impacts.

Nashville's approach in the example below provides one option. Nashville used the Integrated Transport and Health Impact Modeling Tool (ITHIM),[14] which can predict changes in a population's burden of twelve chronic diseases and classes of respiratory conditions, fatalities or serious injuries from crashes, and greenhouse gas emissions resulting from changes in transportation behaviors. Nashville used the tool to predict reductions in those chronic diseases and respiratory afflictions based on likely increases in minutes spent walking or bicycling for transportation and decreases in vehicle miles traveled resulting from proposed transportation investments.

This approach would require that WSDOT partner with MPOs. ITHIM does not model changes to the current built environment, so regions like Nashville that have used it have paired it with an activity-based model or land use/scenario planning tool.

Ways to apply

- At the system level to identify geographic areas with health disparities that should be targeted for investment;
- In corridor planning to assess which strategies for a corridor will address identified health needs; and
- In project selection to direct funding toward investments that are in health priority areas and address the identified need.

Example: Nashville targets investments to address identified health disparities

Backed by data from two comprehensive studies on health and transportation, the Nashville Area MPO designed a scoring and selection process to prioritize the projects that will maximize public health outcomes.

Nashville started by assessing latent demand for walking and biking using a model that looked at land use, household data, employment data, and proximate destinations. The MPO then analyzed data on public health outcomes and behaviors related to transportation, physical activity, and nutrition to establish "Health Priority Area" census block groups. This data helped the MPO determine four demographic characteristics most highly correlated with "poor" health:

- Being impoverished, measured by an annual household income of $24,300 or less for a family of four;
- Being unemployed;
- Being over the age of 65; and
- Not owning a car.

The MPO used this information in its project scoring process to award more points to projects that included a walking or bicycling feature and directly served a census block group with a

[14] http://www.cedar.iph.cam.ac.uk/research/modelling/ithim/

higher than average rate of at least three out of four of the above characteristics.[15] This substantially increased the amount of funding in the MPO's long-term transportation budget dedicated to making it safer and more attractive to walk or ride a bicycle, making strides toward improving the health of the region's residents.

Measure: Monetized health benefits of improved access to active transportation

Transportation facilities play a key role in facilitating physical exercise. Access to Complete Streets facilities such as bicycle lanes, good sidewalks, and safe and well-lit streets can promote more active living, including biking and walking. This physical activity can improve health, which delivers benefits to society, including reduced healthcare costs.

WSDOT should consider estimating the monetized benefits of new or expanded biking and walking infrastructure as a component of the Economic Vitality Performance Framework. SGA recommends that WSDOT explore how it could be implemented to tell a compelling story.

The monetized benefits of new or improved biking and walking infrastructure can be difficult to measure with precision given the range of variables involved, but Minnesota DOT's experiences using this as a criterion (discussed in the case study below) and other emerging tools and practices can help provide a model for how to do so.

Example: Minnesota DOT competitive funding program

The Minnesota DOT (MnDOT) evaluated the health benefits from increased biking and walking as one of several scoring criteria in its 2013 competitive Corridor Investment Management Strategies program, which provided funding for local projects to encourage innovative corridor investments.[16] MnDOT conducted a benefit-cost analysis to score each submitted project using a tool developed by Parsons Brinckerhoff called PRISM. The health calculation produced an estimated monetary impact to society for each project with active transportation components in the form of reduced or increased medical costs. MnDOT used this as one of many criteria in its broader benefit-cost analysis to rank and select projects for funding.

Recommended metric

Estimated dollars of benefit from increased person-miles traveled by biking and walking across a defined geographic area.

Methodology, tools, and data considerations

WSDOT can estimate the benefits of improved access to active transportation by multiplying a value of dollars per person-miles traveled by the change in person miles traveled by bicycle or by walking. Depending on how WSDOT is applying the metric, this will either involve observing actual change in person-miles traveled or estimating the likely change after a proposed investment occurs.

Both approaches include two components:

- *Assigning biking and walking a dollar value of health benefits per person miles traveled:* This component of the measure is relatively straightforward. It requires identifying coefficients for the monetary value per person-mile traveled on foot or by bicycle that

[15] For more information see Nashville's technical memo, as well as a more detailed case study on the effort developed by T4America:
http://www.nashvillempo.org/docs/bikeped/Non-MotorizedDemand_TechMemoDraft012715.pdf
http://t4america.org/maps-tools/healthy-mpos-guidebook/

[16] http://www.dot.state.mn.us/cims/solicitation.html

society accrues in the form of reduced medical costs when a population's health improves. Generally accepted values can be found within existing literature — for example, the tool MnDOT used to do this assessment incorporated coefficients estimated by the Victoria Transportation Policy Institute.[17] WSDOT could also use the Health Economic Assessment Tool developed by the World Health Organization to simplify this part of the evaluation, but would still need to input the estimated change in biking and walking (see below).[18]

- *Determining or estimating the change in person miles traveled by bicycling or walking as a result of the transportation investments:* This component of the measure is less well established in practice, particularly at a scale that could be applied relatively consistently statewide. In MnDOT's case, this information was self-reported by localities and vetted by MnDOT staff, an imperfect approach that led to confusion among project applicants and a lack of consistency and accuracy across projects.

  WSDOT could opt instead to use the Integrated Transport and Health Impact Modeling Tool (ITHIM),[19] discussed under the previous measure. Several MPOs around the country have used ITHIM to predict the monetary health impacts of proposed investments (see Nashville's approach above and the Metropolitan Planning Council's approach below). A primary drawback of using ITHIM is the data calibration required to produce accurate results for a given geographic area. As noted under the previous measure, this approach would also require close partnerships with MPOs in Washington since ITHIM does not model changes to the current built environment. It would need to be paired with the use of regional activity-based models and/or land use and scenario planning tool.

  Other options include developing a standardized methodology based on studies such as the NCHRP report, *Guidelines for Analysis of Investment in Bicycle Facilities*,[20] or less precise methods such as conducting surveys to estimate how much more residents would walk or bike with a new facility in place. SGA's report *Safer Streets, Stronger Economies*, also offers a methodology for determining the monetized safety benefits from Complete Streets projects that could supplement this type of evaluation — specifically the averted costs resulting from fewer collisions and injuries.[21]

Ways to apply

- At a regional level in planning to estimate the total benefits across a package of proposed investments;
- To evaluate the relative benefits of different projects and prioritize certain investments for funding; and
- To evaluate different alternatives during project development.

Example: Metropolitan Planning Commission models

The Metropolitan Planning Commission (MTC) in the San Francisco Bay Area conducted a benefit-cost analysis using Travel Model One (the MPO's activity-based regional travel demand model) as one component of project evaluation for the region's *Plan Bay Area 2040*. This

[17] "Evaluating Active Transport Benefits and Costs," Todd Littman, Victoria Transport Policy Institute, August 24, 2018: http://www.vtpi.org/nmt-tdm.pdf
[18] http://www.heatwalkingcycling.org/#homepage
[19] http://www.cedar.iph.cam.ac.uk/research/modelling/ithim/
[20] https://www.nap.edu/read/13929/chapter/1
[21] https://smartgrowthamerica.org/resources/evaluating-complete-streets-projects-a-guide-for-practitioners/

model forecasted impacts on a variety of metrics, including travel time and cost, emissions, and noise. It also monetized health care cost savings that could result from averted traffic crashes or increased physical activity from walking and bicycling. MTC also used ITHIM to more accurately and comprehensively incorporate health benefits by modeling morbidity and mortality changes related to improvements in air quality, physical activity rates, and safety. MTC then divided these benefits by annualized capital construction costs, as well as net operating and maintenance expenses, to calculate each project's benefit-cost ratio.[22,23]

Priority: Affordability

Measure: Access to affordable housing

Affordability and access to affordable housing came up as a key priority for stakeholders in both the November 2017 policy workshops and the March 2018 workshops. Transportation plays a major role, both as a significant portion of most household expenditures as well as a means for connecting areas with affordable housing to jobs and other services and necessities.

SGA recommends implementing a measure that captures how much of household income residents are spending on their combined housing and transportation costs, a good general indicator of quality of life. This approach is also especially valuable for addressing equity since low-income families typically spend a higher portion of household incomes on housing and transportation costs.

Recommended Metric

Average housing and transportation costs in a specified geographic area as a percentage of household income.

Methodology, tools, and data considerations

WSDOT could use the U.S. Department of Housing and Urban Development's (HUD) Location Affordability Index to evaluate affordability.[24] The index lets decision-makers estimate the percentage of an average household's income that will likely be dedicated to housing and transportation in a particular location within the U.S based on data from the 2010-2014 American Community Survey. HUD's website provides access to the data used and documentation on how to use it.

Accessibility measures can also be used to capture affordability and access to affordable housing. WSDOT could develop a measure using Sugar Access that looks at jobs access for cars and transit focused specifically on lower-income households or areas with a large portion of affordable housing. WSDOT could also look at accessibility between affordable housing and other necessities like grocery stores, schools, and healthcare.

Ways to apply

Measures of housing and transportation affordability are valuable for tracking changes in affordability over time at a regional or system-wide level. They can also be used to identify

[22] Information about MTC's methodology for its Cost Benefit Analysis, including around health and physical activity, are available at: https://mtcdrive.app.box.com/s/hmwwhfk7d2ibo8fdddybar9zlh8dxm4i
[23] A detailed case study about MTC's use of health performance measures and other measures to develop Plan Bay Area 2040 is available at:
http://www.nashvillempo.org/docs/bikeped/Non-MotorizedDemand_TechMemoDraft012715.pdf
http://t4america.org/maps-tools/healthy-mpos-guidebook/
[24] https://www.hudexchange.info/programs/location-affordability-index/

specific geographic areas facing affordability challenges, which can guide public policy decisions.

As noted elsewhere in this report, housing and transportation affordability measures are not especially useful in making decisions at the project level — including choosing between potential projects or evaluating strategies during project development. This is because while regional transportation networks and overall land use patterns have a significant impact on affordability, the impacts of individual investments are generally small and difficult to isolate. However, an accessibility measure can be a proxy for affordability since having greater access to necessities will generally decrease household transportation costs.

Coordination with land use

The need for consistent coordination between transportation and land use decision-making came up as a significant theme in both workshops, particularly in Spokane. Several of the measures recommended in other sections of this report can help foster greater land use and transportation coordination through their application, particularly accessibility measures. Beyond these measures, however, discussions during the workshop also pointed to a need for better ways for WSDOT to productively engage in land use decisions along state highways to protect WSDOT's own investments while respecting local context and priorities.

Why WSDOT has a role in land use

Participants in the workshops emphasized that decision-making around land use is best led at the regional and local levels and that WSDOT should be responsive to specific regional needs and not apply a generic approach within its performance measurement framework. Discussions further emphasized the need to create an approach that respects the decisions made and priorities identified in local and regional plans.

While WSDOT does not and should not play the leading role in land use decisions, local land use decisions can have significant ramifications for the costs to deliver and maintain the state's transportation system. If local land development is not managed carefully along a corridor, it can lead to increased congestion due to more driveways and access points for local businesses, auto-oriented land uses that require driving even for short trips, and a poorly-connected network of parallel local streets to reduce demand on the state-owned arterial. This results in a "need" for WSDOT to expand state highways to accommodate additional traffic that could have been prevented. These types of transportation solutions for land use mistakes are both expensive and ineffective. Local comprehensive plans should theoretically help address this, but it can be difficult for local governments to enforce their plans if they face pressures to make exceptions for developers.

The state needs ways to engage consistently and ensure that local land use decisions do not undermine the state's ability to invest limited transportation dollars effectively. WSDOT also needs a mechanism for engaging in explicit discussions about tradeoffs between a corridor's role in serving both local and regional needs, such as between local economic development and regional throughput.

A framework for how WSDOT can engage

WSDOT should put a framework in place that brings the relationship between land use and transportation into the open during decision-making. Local land use decisions that are likely to increase auto demand or slow traffic should be made in direct collaboration with WSDOT so that WSODT can either ameliorate the impacts or make a decision with the locality to accept a lower level of service. Theoretically, this already happens, so WSDOT should also create an expectation that if localities allow development that increases traffic without this dialogue upfront, funding will not be available for roadway expansions, and roadway expansions cannot fully overcome certain development decisions.

This level of coordination is a challenge that no state DOT has successfully addressed yet, but WSDOT is in a good position to do so and would be a national leader and model for others.

Using measures of accessibility can also support greater coordination. Measures of access to necessities can capture both transportation and land use impacts to compare them. For example, using tools such as Sugar Access, WSDOT and its partner localities can compare the relative impact and cost of a roadway expansion versus locating services (e.g., banks, groceries, clinics, schools, etc.) closer to residential neighborhoods.

Approach: Define development contexts in which the state will change its design approach and standards

WSDOT policy should explicitly define land use contexts in which the state will change its design standards to support land use coordination. For example, in more urban contexts, WSDOT could establish a lower acceptable level of service, a lower design speed range, and a narrower lane width range.

WSDOT already has a good foundation for creating this framework with the Context and Modal Accommodation Report,[25] a tool to help determine the land use context for projects as well as which modes should be prioritized during project development. WSDOT also recently integrated the same framework into the Practical Design section of the statewide design manual, which includes a matrix of priority roadway users and target speeds based on land use context (rural, suburban, urban, and urban core) and roadway type (freeways, principal arterials, minor arterials, collector, and local).[26]

WSDOT's next step will be to refine the framework, tie additional design standards directly to it, and put a process in place that requires its use consistently in project decision-making with localities. To implement this successfully, WSDOT may also want to define thresholds that trigger changes in design standards and policies, particularly for urbanizing corridors. For example, WSDOT could determine that if a suburban corridor surpasses a certain number of access points per mile, WSDOT will design to a lower level of service for the road. WSDOT will then need to clearly communicate these thresholds to localities. The goal should be to openly address the role that land use decisions play in the performance of the transportation network, foster an environment where state, regional, and local agency partners are discussing the tradeoffs between different objectives, and create accountability between land use and transportation decisions.

Example: The Florida Department of Transportation (FDOT) develops context classifications and integrates them into statewide design standards

As part of its Complete Streets Implementation, FDOT recently adopted eight context classifications to guide road design decisions. Under this new system, planners and engineers consider existing and future characteristics such as land uses, building configuration, and street connectivity to ensure that roads are designed for the right vehicle speeds, road users, and trip types. The classifications include more nuanced categories, including "rural town," "suburban commercial," and "suburban residential."

These classifications determine allowable design speeds, lane widths, and other design controls and geometrics within the updated FDOT Design Manual. FDOT's guidance also offers performance measures and indicators to use in determining the context classification for a road, like building height and placement, fronting use, location of off-street parking, intersection density, block length, and block perimeter.[27]

[25] https://www.wsdot.wa.gov/planning/default.htm
[26] https://www.wsdot.wa.gov/publications/manuals/fulltext/M22-01/1103.pdf
[27] http://www.flcompletestreets.com/files/FDOT-context-classification.pdf.

Approach: Provide technical assistance to localities

Some of the measures recommended in this report will provide an advantage to local communities that already have clear priorities identified and up-to-date plans. As WSDOT sets expectations for the kinds of projects it will fund through its performance framework, it should also consider the limitations that smaller communities will face when trying to meet these requirements. Communities with small municipal staff and fewer resources could benefit from tools and support from WSDOT. For example, WSDOT could provide education or technical assistance to localities on updating comprehensive plans or zoning codes, understanding the state's transportation design standards and thresholds, and addressing relationship between development and transportation decisions

Next steps

WSDOT has already taken important steps to move toward a performance-based approach to decision-making, and the Practical Solutions Performance Framework will build on this momentum. WSDOT will need to take the following key steps moving forward.

Avoid double-counting across policy areas

WSDOT's next step in developing its Economic Vitality Performance Framework is to engage a technical committee that will develop an implementation strategy and specific performance measures and share them with WSDOT's regional administrators and directors for approval. Ultimately, the Economic Vitality framework will be integrated with frameworks developed for the state's other five policy goals into a single Practical Solutions Performance Framework. There is no right place to put certain benefits; for example freight measures could go under mobility as easily as economic vitality. However, WSDOT will need to select one place within the framework to house each measure to avoid double-counting benefits.

Announce follow-up action

As WSDOT takes these next steps, it will be important to develop a plan for publicly rolling out the results of the engagement conducted over the previous year and making it clear how the measures will be used moving forward. Other state DOTs have found that stakeholders who are more active around these issues can face engagement fatigue from participating in a number of meetings if they do not appear to produce immediate outcomes or change how decisions are made. WSDOT's own stakeholders expressed concerns about attending multiple workshops that do not appear to produce clear results. Therefore, WSDOT will need to clearly articulate how input from partners has fed into the performance framework and promote how the framework will be used moving forward.

Update the framework over time

WSDOT will also need to update its Economic Vitality Performance Framework over time as new priorities emerge and new approaches become available.

The agency's challenge will be to shift organizational decision-making culture across a large and diverse state and support its local partners in their role in implementing the framework. Making this kind of change takes time, will need to be driven and empowered by WSDOT's leadership, and will need ongoing coordination between WSDOT and its partners.

By working together, WSDOT and its partners can ensure that state transportation investments support long-term economic vitality.

Appendix A: Summary of recommended performance measures

Measure	Metric	Decision points when the measure can be applied					Context				Data Needs and Analysis	
		Identify performance gaps across the state	Identify the best strategies to address performance gaps in a corridor	Determine which strategies should be developed into solutions	Determine which solutions across the state should be funded	Determine which project design provides the best performance	Urban core	Town / urban	Sub-urban	Rural	Effort (L, M or H)	Data needs
Goal: Mobility												
Accessibility to employment	Number of jobs accessible to households within a project area or planning area, based on travel time by auto and transit	X	X	X	X	X	X	X	X	X	L/M	WSDOT has Sugar Access licenses already but will need to make decisions about specific ways to apply measures and train staff on how to use Sugar Access.
Accessibility to non-work destinations	A numeric score (from 0-100) based on the number of non-work destinations accessible by walking from households in a project or planning area	X	X	X	X	X	X	X	X		L/M	
Goal: Business Growth and Diversity												
Investment serves infill development in priority growth areas	Investment is within an Urban Growth Boundary and is identified as a need or priority in the relevant local comprehensive plan or regional Metropolitan Transportation Plan (qualitative – yes/no)	N/A - Already identified			X		X	X	X		L/M	Urban Growth Boundary locations; qualitative assessment of alignment with local Comprehensive Plans and Metropolitan Transportation Plans

Support for growth in an identified Opportunity Zone	Proposed transportation investment or strategy is located in a designated Opportunity Zone, and aligns with the local placemaking and investment plan created for that Opportunity Zone (yes/no - qualitative)	N/A - Already identified			X		X	X	X	X	M/H	Opportunity Zone locations; qualitative assessment of alignment with local economic and place-based plans (which may not exist consistently)
Alignment with statewide freight plan	Investment meets the evaluation criteria outlined in WSDOT's 2017 Freight System Plan and coinciding Freight Investment Plan	N/A - Already identified		X	X		X	X	X	X	L	Data should be drawn from WSDOT's existing 2017 Statewide Freight System Plan and Investment Plan
Land value added	Estimated change in US dollar value of single-family residential, multifamily residential, and commercial real estate		X		X		X	X	X		M	The ArcGIS-based Land Value Added tool's required input is shapefiles for transportation project(s) evaluated
Transportation cost effectiveness	Direct economic activity (tax revenue) generated compared to project lifecycle cost			X				X	X	X	M	Project capital and long-term maintenance costs; anticipated economic activity the project will generate
Goal: Quality of Life												
Support for areas of health disparities	Project is in a designated location with identified health disparities and will help address those disparities	X	X		X		X	X	X	X	M	Geographic data on health disparities from the Washington DOH; ITHIM tool is an option for assessing how investments will address disparities

Monetized health benefits of improved access to active transportation	Estimated dollars of benefit from increased person miles traveled by biking and walking across a defined geographic area		X		X		X	X	X	X	H	Coefficients for dollar value per person miles traveled by biking/walking from reduced medical costs; Estimation of change in person miles traveled bicycling or walking (ex. using regional activity-based model and/or scenario planning tools)
Access to affordable housing	Average housing and transportation costs in a specified geographic area as a percentage of household income	X					X	X	X	X	M	Location Affordability Index data