



# WSDOT – Active Transportation Plan Update – Packet A

Western Washington University

Center for Economic and Business Research

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Statement of Qualifications – Active Transportation Plan Update - Packet A

Dear Review Team,

Western Washington University's Center for Economic and Business Research, along with Cascadia CAC, LLC respectfully submits the following response to your RFQ for an **Active Transportation Plan Update**.

As you will find in the following responses, we bring extensive expertise in urban planning, environmental policy, sustainability, pedestrian planning, as well as strategy and consulting experience. In addition, many of our team members are active and avid bicyclists and hikers bringing their professional and personal passions into this project. Combining both an academic and business approach, our team will challenge each other and WSDOT to be both creative and effective in developing this plan update. Together we offer you a unique option combining academic and business acumen for this critical project.

The time period of this study is proposed to span 2019 through 2030. As can be observed from the 2008 plan, a lot can change over 10 years. It should be expected that further advances in technology would dramatically influence active transportation in Washington and across the country. As stated in the goals for this plan update we will conduct/take the following actions:

- Update the vision, goals, and objectives for walking and bicycling as essential forms of transportation for all
- Provide a clear, practical methodology for network planning, analysis and prioritization to guide where, how and when to develop the facilities needed now and in the future
- Identify clearly how the state Active Transportation Plan aligns with and links regional and local plans

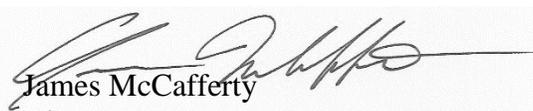
- Identify performance measures appropriate to statutory requirements, agency strategic goals, and any emerging national standards to evaluate progress, directly addressing transportation and health equity for all ages and abilities
- Emphasize thoughtful and creative communication and engagement practices that bring in voices of those traditionally underrepresented and disproportionately affected by transportation decisions and projects and communicate technical information in lay-friendly formats, language and graphics
- Follow a process that provides utilization and exchange of recommendations to and from the work of the Pedestrian and Bicyclist Safety Advisory Councils and other WSDOT modal plans, as appropriate
- Identify relevant trends that will affect the nature of and demand for bicycling and walking in the future and address them in the recommended actions

We believe our academic/business/government collaborative approach will be capable of achieving each of the stated goals above effectively, timely, and within budget.

The approaches we utilize are insightful, they are useful, and they are all a part of the debate surrounding the topics we explore, however, none are absolutely fail-safe. Data, by nature, is challenged by how it is collected and how it is leveraged with other data sources; following only one approach without deviation is ill advised. We provide a variety of insights within our work – not only on the topic at hand but the resources (data) that inform that topic.

We would greatly appreciate the opportunity to discuss this project, and other analysis efforts, in more detail with you.

Sincerely,



James McCafferty

Director

Center for Economic and Business Research

[James.McCafferty@wwu.edu](mailto:James.McCafferty@wwu.edu)

## 1. Project Understanding

### 1.1. Summary:

#### 1.1.1. Active Transportation

Planning for pedestrians and bicyclists is a relatively new field that differs from traditional transportation planning due to its complexity and the divergent approaches taken by professionals. An examination of current planning practices and their relative effectiveness at contributing to key goals has revealed that great progress has been made to advance planning efforts, and that much more remains to be done to improve them. The Washington State pedestrian plan presents an opportunity to advance the conceptual framework and integrate new, more effective measures into non-motorized transportation planning.

The Washington State non-motorized transportation plan has two major components that are interwoven with each other. First, the plan must address state-owned transportation routes by developing and applying a framework to identify and prioritize improvement projects to facilities along state-owned routes. Second, the plan must establish a framework for assessing and prioritizing local governments' proposed improvement projects for facilities within their jurisdictions. We propose to develop a model for evaluating priority areas for improvements throughout the entire state that can be used in planning for both state-owned and non-state owned routes. For state-owned routes this will be used in conjunction with a model for assessing deficits in existing infrastructure to create a prioritized project list. For non-state owned routes, local governments propose new projects in their Transportation Improvement Programs (TIPs). The state plan will provide guidance for the development of these programs to ensure that they provide information identified in the state framework for prioritizing these projects. Finally, as walkability and bikeability involve more than just infrastructure projects, we will incorporate bicycle and pedestrian-supportive policies and programs into the process, which should address the impacts of ever changing technologies.

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### 1.1.2. Project

We understand the purpose of this project is to prepare an update to the Washington State Bicycle Facilities and Pedestrian Walkways Plan, henceforth known as the Active Transportation Plan. The intent is to provide vision, policy direction, and actionable prioritized tactics for WSDOT and their partners. A specific focus will be placed on improved safety and mobility, while aligning to the overall goals of the project:

- Update the vision, goals, and objectives for walking and bicycling as essential forms of transportation for all.
- Provide a clear, practical methodology for network planning, analysis and prioritization to guide where, how and when to develop the facilities needed now and in the future.
- Identify clearly how the state Active Transportation Plan aligns with and links regional and local plans.
- Identify performance measures appropriate to statutory requirements, agency strategic goals, and any emerging national standards to evaluate progress, directly addressing transportation and health equity for all ages and abilities.
- Emphasize thoughtful and creative communication and engagement practices that bring in voices of those traditionally underrepresented and disproportionately affected by transportation decisions and projects and communicate technical information in lay-friendly formats, language and graphics.
- Follow a process that provides utilization and exchange of recommendations to and from the work of the Pedestrian and Bicyclist Safety Advisory Councils and other WSDOT modal plans, as appropriate.
- Identify relevant trends that will affect the nature of and demand for bicycling and walking in the future and address them in the recommended actions.

### 1.1.3. Project Scope

- 1.1.3.1. **Task 1:** (Key deliverable) Develop a public involvement plan and produce materials for stakeholder involvement in development of a vision, goals/objectives, and priorities for active transportation statewide, following the standards of WSDOT's Community Engagement Plan and designed to engage fresh voices in the process.

Response: In delivering on Task 1, we propose beginning by contacting those organizations and agencies that have participated in the past report while also seeking additional key voices to include. Based on both research and referrals the identified list of key stakeholders will be constructed and queried for key events and gatherings around the state where public opinion may be gathered. These may include informational tables, community meetings or forums.

In addition to seeking Washington resident voices at scheduled events we would also deploy a state-wide web-based survey that gathers opinions on the topics explored in the previous report (to support time-series data analysis) but also



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additional lines of questioning that explore potential new areas of interest when considering active transportation opinions.

Throughout this process we would explore potential interaction bias opportunities that would prevent the study from collecting an inclusive opinion sample. It is a core value of Western Washington University to be inclusive and to provide equal access whether it is language (the survey instrument could be available in multiple languages as appropriate in addition to bilingual staff being present at events) or physical access (accessibility, transportation options, time of day). To ensure inclusivity we would work with groups and organizations that are connected to any demographics identified as potentially underrepresented.

The Center will draw on the expertise at WSDOT and the University's own Equal Opportunity staff to provide guidance in ensuring items developed and activities undertaken represent best practices.

The Center works closely with a wide number of community level organizations throughout the state in its other work – including Ports, Economic Development Agencies, Cities and business associations. As a result of this work we have an understanding of the unique characteristics of the regions of the state and are able to adapt messaging so that it resonates. For example, rural communities may respond differently than metropolitan ones when considering what constitutes active transportation.

The creation of visual materials that are adaptable to all forms of communications, including the web, is paramount to the successful engagement sought in this process. The items noted in subtask 1.2 are a good start but would be adapted to both the medium utilized and the community to which it is targeted. Web-based interactive mapping and reporting tools will be developed in collaboration with WSDOT and the other stakeholders to both inform on the topics presented but also present opportunities for further discussion (what-if scenarios). Tools may be developed in platforms such as ESRI's ArcGIS or otherwise compatible with WSDOT's platforms. Tools developed here will be created with an eye to usability past the study period to support ongoing public engagement.

Western's Spatial Institute and University Communications will support the visual creation effort in addition to project staff. Any survey work will follow Western's human subjects research protocols.

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- 1.1.3.2. **Task 2:** (Key deliverable) Develop, test and refine a network analysis framework to evaluate and prioritize existing and planned pedestrian and bicycle infrastructure adjacent to and across the state system and routes of state interest or significance.

Response: There will be several steps to the development of the Washington State network analysis model for evaluating bicycle and pedestrian infrastructure and prioritizing improvements. Detailed models have been developed to analyze shortcomings in existing walking and bicycling infrastructure and identify areas with greatest potential demand for non-motorized travel in order to prioritize projects at the local and metropolitan level. Planning at the state level is more difficult, as it involves conducting a similar analysis for state-owned facilities and the development of a means of assessing and prioritizing projects identified through planning efforts in local jurisdictions for county, municipal and private networks. While it is impossible to account for every aspect of a walkable environment in a quantitative model, having such a framework provides a necessary counterpart for public discussion and political process for a statewide planning process. Further, as progress towards the goal of increased walking involves more than just infrastructural improvements, this framework will include a policy component.

Our approach will include the following components:

- 1) Development of a core model for assessing the need for projects across the entire state based on existing non-motorized transportation behaviors, latent demand for such travel (land use, demographics, transit connections, etc.), and consideration for priority project types (i.e. gaps in network, universal access, etc.)
- 2) Development of a model to assess non-motorized infrastructure and deficits on state-owned facilities (i.e. trails, sidewalks, bike lanes and paths, crosswalks, signals, etc.)
- 3) A process for assessing non-motorized transportation network infrastructure and deficits on municipal and county facilities,
- 4) Assessment of policies complimentary to infrastructure development

Part 1: The assessment of project importance and prioritization. We will obtain available data on existing pedestrian and bicycle traffic from local planning documents and census journey data. We will also examine the possibility of obtaining data tracking cell phone movement, which if separated by speed can identify pedestrians and bicyclists. This section will also include data on crashes involving pedestrians and bicycles. There will also be a latent demand analysis in this section. A survey of Washington residents' travel behavior will be used to identify factors associated with non-motorized transportation trip frequency, providing a basis for demographic inputs into our demand model (these will be weighted to reflect not only the greater use by groups with low auto ownership,

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but also the consideration for their lack of equitable mobility). We will draw from existing models for approaches to incorporating land use factors into the demand model. This will also include approaches to incorporating connections to mass transit (buses, trains, etc.) and paratransit (taxis, ride-sharing). Data on this latter aspect will also be drawn from our travel surveys. This section will also include input on priority project types, i.e. network gaps, universal access, etc. The results of public outreach efforts to inform the vision, goals and objectives will be examined for consideration in weighting the factors in this model.

Part 2: Assessment of the non-motorized transportation network on state-owned facilities. There is a considerable literature on pedestrian and bicycle infrastructure that can be used to develop the network analysis and identify deficiencies. Our approach will draw from existing models, refine measures, and add new considerations to the analysis. Some existing measures will be incorporated without changes, but others can be refined. For instance, most plans give only passing mention to street connectivity, though a survey of planners revealed that they felt this was a crucial issue. The most popular measure, intersection density, has been shown to be ineffective so we will select a more effective, yet user-friendly measure for the model. Further, not all areas have the same needs, as discussed in literature on context sensitive design. We will conduct a literature review and draw from the results of our survey to develop a typology of areas with different standards for network quality in each. Also, while existing non-motorized models take a static view of land use, our model will anticipate changes in population identified in county planning documents.

Part 3: Assessment of non-motorized transportation network on local and county facilities. While much of the data in Part 1 can be applied statewide to identify areas of greatest existing and latent demand for non-motorized transportation, it is not feasible to apply the analysis from Part 2 throughout the state. Local planning agencies often apply for state funding to realize their projects, and we will establish a clear framework for communicating essential information on these projects that corresponds with the goals of the state plan. A matrix of key variables will be developed for several project and location types, to guide local planners in presenting their proposed projects to the state. This will be accompanied by their own explanation of any additional important information or unique qualities of the situation. Part 3 will also establish a site for Washington residents to identify problem areas in pedestrian and bicycle networks and propose solutions. These can be qualitatively weighed against the results of the model to help prioritize projects.

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### Part 4: Assessment of policies complimentary to infrastructure development.

Walkability and bike-ability include more than just infrastructural concerns. There are a range of related policies and programs, such as safe routes to school (including sub-programs, i.e. walking school bus), education of drivers about laws relating to pedestrian and bicycle safety, promotional events for bicycling, etc. We will explore potential ways to incorporate these programs into the plan, including as a weighting factor for the prioritization of infrastructural improvements. At minimum, the plan should include an inventory of these programs, and provide a forum for the exchange of information.

- 1.1.3.2.1. **Task 3:** (Key deliverable) Conduct a network analysis based on the proposed framework to evaluate existing and planned pedestrian and bicycle infrastructure adjacent to and across the state system, routes of state interest or significance, and connections, resulting in a prioritized list of gaps and opportunities.

Response: The framework established under Task 2 will be incorporated into a planning process that also involves input from the public and stakeholders at several points. The steps are outlined below.

- 1) We will build on existing state inventories of pedestrian and bicycle infrastructure and project lists to develop a preliminary project list. This will include information collected in our public outreach effort, in which residents and stakeholders identified problem areas on the state-owned network and adjoining areas, and propose solutions if desired. The potential project list will then be evaluated through the model outlined in Task 2. We will run the model developed in Part 1 for all of Washington State. The highest scoring areas are those with highest existing use and potential use. We will run the model developed in Part 2 for all state facilities and adjoining areas to identify sections with the most significant deficiencies. Projects will be ranked from highest priority to lowest, with those located in areas with the greatest demand and the greatest deficiencies at the top. This list will be adjusted in view of information collected in Part 4 on non-infrastructural issues, particularly programs encouraging walking and bicycling. This list will be presented to the public for input. The results will be used to revise the project list.
- 2) Metropolitan Planning Organizations, counties and municipal governments will be presented with the matrix of key data to be included with applications for state funding for their non-motorized transportation projects. The projects will be prioritized in accordance to the level of existing and potential demand, and the degree of deficiency remedied. This list will be adjusted in view of information collected in Part 4 on non-infrastructural issues, particularly programs encouraging walking and bicycling. The results will be adjusted with consideration for input received from the public in our outreach effort.

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- 1.1.1.1. **Task 4:** (Key deliverable) Prepare a summary of funding sources/constraints/and potential future funding scenarios based on analysis by WSDOT staff of investment policies and practices and information about other state and federal funding. [1]  
[SEP]

Response: The team will conduct research identifying potential funding sources through interviews with WSDOT and other related agencies at state and federal levels. The team will also conduct a literature review to further search other funding mechanisms, including public; private or otherwise that may be available under specific circumstances.

Following our research, we will develop a financial model highlighting funding sources, constraints and alternatives using a combination of public/private sources. There has been a shortfall in funding many of the projects laid out in the 2008 and other active transportation plans. It will be important to pursue non-traditional funding methods to identify and secure these alternative funding sources.

- 1.1.1.2. **Task 5:** (Key deliverable) Draft a final plan including reports, Tech Memos and support documents, incorporating material prepared by WSDOT staff and relevant information from parallel planning processes.

Response: The team will provide draft reports for feedback by WSDOT prior to delivery of final reports.

- 1.1.1.3. **Task 6:** (Preferred but not required.) Identify and compile data sources to understand bike/walk usage and demand in Washington state to inform decision-making, review and summarize data sources and emerging data opportunities – may include recommendations for use of crowd-sourced data.

Response: Assuming this task is funded, WWU has access to hundreds of data sources. We will conduct a literature review and include some further information on sustainability.

- 1.1.1.4. **Task 7:** (Preferred but not required.) Create a framework to define and track pedestrian and bicycle infrastructure for purposes of asset management and lifecycle cost.

Response: Assuming this task is funded, WWU will create a framework working with WSDOT, but will require further clarification on the specifics.

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### 1.1.1.5. *Task 8:* (Preferred but not required.) Develop key performance metrics

Response: Based on reviewing the 2008 Washington State<sup>[LSEP]</sup> Bicycle Facilities and Pedestrian Walkways Plan, it was observed that many of the performance metrics were vague and difficult to track. It will be important for this study that a set of SMART (Specific, Measurable, Actionable, Replicable, and Time based (Trending for marketing efforts)) metrics be created to improve the potential for meaningful and success analysis. Metrics need to be quantitative as much as possible, but recognizing that qualitative metrics will influence the assessments as well.

### 1.1.1.6. *Task 9:* (Preferred but not required.) WSDOT policy review and recommendations

Response: WWU and Cascadia CAC will work with WSDOT to evaluate current national, state, county and city policies that apply to active transportation. The scope and process for this effort will be assessed if funding is approved.

## 1.2. Plan For Addressing Challenges:

1.2.1. Bicycling and especially walking are highly localized activities, involve a complex array of factors, and are often non-existent in areas with large numbers of brief trips (i.e. great latent demand). Thus, planning for them is fundamentally different from planning for automobile travel. A wide array of approaches and techniques have been developed, some adapted from traditional transportation planning and others custom made for this purpose. For instance, the idea of quantitatively assessing “latent demand” for pedestrian travel and comparing this with shortcomings in the pedestrian network represented a great advance. However, networks of sidewalks are commonly depicted along arterial roads similar to the networks for moving automobiles, while pedestrian movement is much more localized. Many plans and planners downplay demographics, which are crucial for identifying those most likely to walk. The models of planning consultants largely ignore fear of crime, but when they conduct surveys, they consistently find it to be influential. Most pedestrian planners feel that street connectivity is the most important factor though it rarely receives more than passing attention in plans, and in rare cases of quantitative assessment, the measures are ineffective. As a result, the degree of effectiveness of pedestrian plans at the local and metropolitan level is highly variable. For instance, Maricopa Association of Governments could not rely upon its consultant’s model to prioritize projects, but uses it as one source of information in a politicized decision-making process (Stangl 2008, Stangl and Guinn 2011, Stangl 2011, Stangl 2012, Stangl 2015, Stangl 2017).

We will refine some techniques to make them more effective and combine them in a comprehensive process. We also will incorporate an extensive public outreach effort into the process, in recognition of the fact that no model can entirely consider the myriad factors involved in active transportation planning, nor can they entirely remove subjectivity. Planning at the State level requires decision-making regarding project proposals from many different local jurisdictions, each of which may have its own format and process for active transportation planning. It also involves a state-owned



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network that is often interwoven with local networks. In collaboration with stakeholders, we will establish a framework for identifying high priority project areas across the state and for evaluating projects proposed by local governments. The latter will include guidance for local governments to include essential information to be used in the scoring process in their proposals. We will develop more extensive means for incorporating non-infrastructural components of active transportation into the plan as these are essential for increasing walking and bicycling and making it safer. Recognizing that low-income urban areas are most heavily dependent on non-motorized transportation, and typically less active in local government, we intend to target these areas with the formation of focus groups.

Bicycling and especially walking unique qualifications:

- 1.2.2. Western Washington University brings an extensive background in the areas of urban planning, transportation, and geography. Each of these specialties is blended into a sustainability framework. Many of the faculties at WWU are viewed as national experts within these domains allowing our students to perform graduate level research as undergraduates. Cascadia CAC leverages an extensive background in business, marketing & product strategy, managing large client engagements and projects, leveraging technology to develop new products and services and collaborating across large matrix organizations.



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### 2. Qualifications/Expertise of Firms on Team

#### 2.1. Firms/Expertise/Employees/Team Organization

##### 2.1.1. Firms:

2.1.1.1. Western Washington University

1.1.3.1. Cascadia CAC, LLC

##### 2.1.2. Expertise & Timeframe

##### 2.1.2.1. Western Washington University

Urban Planning – Our AICP-accredited undergraduate planning program includes several faculty who can contribute to this project through experience in public outreach, transportation planning, land use planning, planning law, resiliency, sustainability and urban design, a component of active transportation planning that is often ignored.

Active Transportation Studies – Paul Stangl has published nine articles on active transportation planning. For his paper, *The US Pedestrian Plan*, he surveyed planners in the 50 largest US metropolitan areas working for municipal and metropolitan governments and reviewed an array of plans. His research has delved into assessment techniques, particularly measurements of street connectivity to identifying critical flaws and develop solutions. He has also examined the motives of those who walk and bicycle, which revealed some surprising results. He is currently conducting a study of motives behind mode choice for travel to WWU's campus. He has worked as a transportation planner, teaches a course in transportation planning, and has taught a course on bicycle and pedestrian planning with considerable involvement from local professionals involved in the field. One of these professionals, a former student, has worked on the Bellingham pedestrian plan and is continuing a successful career trajectory as a pedestrian planner for New York City. Seth Vidana has planned for and overseen improvements to conditions for bicyclists on WWU's campus, including the construction of bicycle parking facilities across campus.

Sustainability Planning - "Sustainable Development" is a theme that permeates planning courses at Western Washington University. We offer five planning studios to students and often collaborate with local governments to work on projects in their jurisdictions. These plans have influenced local planning efforts, such as the Samish Way Urban Village plan in Bellingham and planning for the State Street Corridor. We offer a course on Planning Sustainable Communities and a Campus Planning Studio that addresses sustainability issues on WWU's campus under the guidance of Seth Vidana.

Environmental Policy - Huxley College's Department of Environmental Studies faculty offer a wide-range of expertise, including such diverse areas as environmental law, environmental policy, environmental justice, energy studies, community-based resource management, and cultural resource management, among others.

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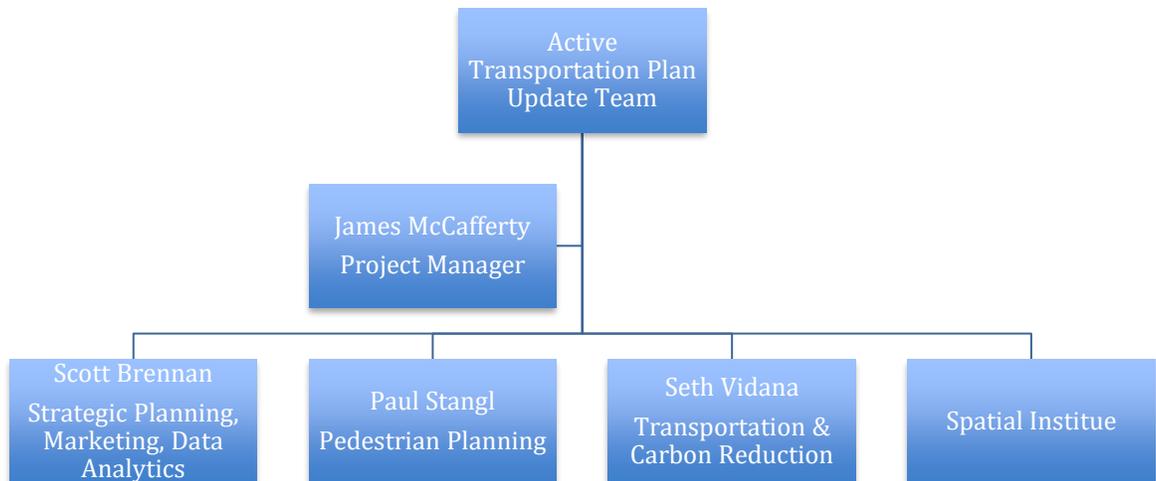
### 2.1.2.2. Cascadia CAC

- Strategic Planning (30 Years)
- Business & Financial Analysis (30 Years)
- Process Re-engineering (30 Years)
- Project Management & Outsourcing (25 Years)
- Client Engagement (25 Years)
- Marketing & Communications (20 Years)
- Data Analytics (25 Years)

### 2.1.3. Employees (WA/Nationwide)

- Western Washington University (1700/1700)
- Cascadia CAC (1/1)

### 2.1.4. Organization



## 2.2. Prior Prime/Sub Experience On Similar Projects

### 2.2.1. None

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### 2.3. Key Staff Availability

<b>Firm</b>	<b>Key Staff</b>	<b>Available Hours Per Month</b>
WWU	James McCafferty	80
WWU	Paul Stangl	80
WWU	Seth Vidana	40
WWU	Spatial Institute Staff and Students	20
WWU	Student Research Staff	240 (assume 3-6 student research team as needed)
WWU	University Communications	As needed
WWU	EO Staff	As needed
WWU		
Cascadia CAC	Scott Brennan	80

### 2.4. Prior Project Expertise

<b>Project Client</b>	<b>Work/Services provided</b>	<b>Cost of project</b>
<b>IIUSA</b>	National economic impact study of foreign direct investment (EB-5). Involved a massive data collection and processing effort of all projects in the US over a two-year study period.	\$62,000
<b>City of Bellingham</b>	Analysis of cost/benefit of a variety of development options proposed within the UGA. Highly political topic with strong interests on all sides.	\$10,000
<b>Community Transit</b>	Employee attraction and retention project examining how to attract new coach operators from around the state while increasing retention of current operators. Involved a statewide survey and focus groups.	\$19,000

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<b>Whatcom Business Alliance</b>	Impact analysis of the Whatcom County Agriculture sector. Required public meetings, working and manipulating large datasets and providing highly technical data in a reader friendly format.	\$10,000
<b>Washington Student Achievement Council</b>	Project examined the barriers to adult reengagement in higher education. Work included working with a wide-set of stakeholders, statewide surveys, focus groups and presentations to a variety of groups.	\$61,000
<b>One Nation of Gamers</b>	Project involved developing a financial business model, overall marketing strategy, investor pitch presentation, support of gaming tournaments, survey of gamers before, during and after events, email campaigns, and analysis of audience engagement for advertising sponsor	\$75,000
<b>Ticketshala</b>	Project involved developing the overall marketing strategy, financial model, ecommerce website, product mix, content marketing, digital marketing strategy, contract documents, and financial & CRM systems.	\$60,000

### 3. Key Team Members Qualifications

#### 3.1. Roles, Prior Projects, WSDOT Understanding

##### 3.1.1. Roles & Responsibilities

- 3.1.1.1. James McCafferty – Project Manager, Public Outreach, Strategy, Project Staffing and Resource Management (research team, graphics support, EO support, etc.).
- 3.1.1.2. Scott Brennan – Project Management, Strategy, Analysis, Financial Analysis, Marketing & Communications, Performance Metrics
- 3.1.1.3. Paul Stangl – Active Transportation Analysis, Pedestrian & Bicycle Planning
- 3.1.1.4. Seth Vidana – Sustainability Issue Topic Expert
- 3.1.1.5. WWU Spatial Institute – Conduct spatial analyses as needed and create visual cartography displays as needed to engage public audiences and support research presentation.

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### 3.1.2. Prior Relevant Projects

#### 3.1.2.1. James McCafferty:

Project 1: Washington Student Achievement Council. Conducted statewide outreach and research related to barriers for adults returning to campuses to complete degrees. Conducted online surveys, focus groups and lead discussions related to the topic.

Project 2: IIUSA. Secured and processed a large amount of data from various locations nationally. Directed a bi-coastal staff in creating a central database for collected data, designing an analysis methodology and conducting impact analysis. Managed report writing designed for a non-technical audience.

Project 3: Puget Sound Economic Forecaster. Published a subscription-based quarterly economic forecast and monthly online updates. Hired and managed research staff, edited and wrote articles and managed all business operations of the enterprise – marketing, presentations, etc.

#### 3.1.2.2. Scott Brennan: Scott has worked with many of the largest companies (i.e. United Airlines, Accenture, IBM, Verizon) in senior management roles. As a result he has managed many large-scale projects, organizations and outsourced services contracts. Through this experience he has developed an understanding and expertise to manage across large matrix organizations, customers, and partners. He successfully launched several new businesses, products and services.

Project 1: Global Director Vertical Marketing managing ten industry verticals and a \$3B portfolio of products and services. Delivered several in-depth industry ecosystem assessments for multiple industry verticals that included segmentation, drivers, trends, challenges, competitive landscape, performance metrics, and customer behaviors enabling a deeper understanding of the market needs and served as the basis for developing sales and marketing strategies.

Project 2: Produced a Traveler Experience Ecosystem suite of mobile strategies enabling a more efficient, mobile, personalized, and secure journey for travelers, including capabilities such as highly contextualized promotions & advertising leveraging big data; real-time customer feedback; mobile food ordering; location based services and remote check-in

Project 3: Associate Partner and Global Lead for Maintenance, Repair and Overhaul. Led several large scale consulting engagements for clients like Delta Airlines, Lufthansa, and others. Led the formulation of a new maintenance, repair and overhaul strategy and design for an integrated enterprise software solution comprised of custom-off-the-shelf applications to enable real time diagnostics and analysis, capacity and material optimization, and dynamic rescheduling

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### 3.1.2.3. Paul Stangl:

Project 1: As a professional transportation planner for the City of North Charleston South Carolina, sited and designed bus passenger shelters and proposed updates to surrounding walkways to meet ADA requirements

Project 2: Conducted research examining pedestrian planning efforts in the 50 largest US metropolitan areas and published results in two peer-reviewed papers

Project 3: Taught course on active transportation planning at Western Washington University, including work with a professional planner to guide groups of students in Safe Routes to School projects for areas surrounding local elementary schools

### 3.1.2.4. Seth Vidana:

Project 1: State Street Transportation: Student researchers through the Campus Sustainability Planning Studio class that I teach put together a sustainable transportation plan for a large student-centered development planned for State Street in Bellingham.

Project 2: EV charging: My office led development of Western's first electric vehicle charging stations through our Sustainable Action Fund program.

Project 3: Transportation Plan: My office led the production of Western's campus-wide Sustainability Action Plan, which included a chapter on transportation planning.

### 3.1.2.5. WWU Spatial Institute:

Project 1: Toxic Release Inventory (TRI) Toxic Trends Mapper. This application combines data from the EPA's Toxics Release Inventory and the Risk Screening Environmental Indicators program to display air pollution levels for individual facilities on a map of the United States along with their risk-related score, by pollution source. It is designed to provide ordinary citizens with access to toxic pollution data regarding environmental releases from medium to large pollution sources like local refineries and aluminum smelters.

Project 2: Skewed Riskscape Dynamics and Social Vulnerability in the American Urban System. This ongoing research program offers an expansive investigation of urban riskscapes that includes both natural and social hazards to test the hypothesis that the social and natural hazard burdens are unequal and unevenly dispersed across the U.S. urban system.

Project 3: Crude by Rail Map. Jacob Lesser and Tyson Waldo of the Huxley Spatial Institute recently completed the Crude-by-Rail Interactive Map, centered on the current rapid expansion of crude oil being shipped by rail in North America.

Further Projects: The Spatial Institute maintains a website with current projects: <https://huxley.wvu.edu/si/spatial-institute-projects>

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### 3.1.3. WSDOT & Active Transportation Plans

- 3.1.3.1. James McCafferty: The safe movement of people within Washington State is complex. We face significant geographical and infrastructure constraints for all types of transport that varies wildly by area of the state. Demand is increasing for non-automotive options that are safe and accessible. Under this proposed research up to date information and a framework for leveraging that data will be created to guide WSDOTs planning and support.
- 3.1.3.2. Scott Brennan: First time working with WSDOT, but Scott has spent a good portion of his career working in the Travel & Transportation sector. As an avid bicyclist, Scott has traveled on many of Washington's (and California, Colorado, Illinois, and Michigan) designated bike trails and city streets.
- 3.1.3.3. Paul Stangl: Has analyzed a number of active transportation plans from around the US for his research, and has interviewed professional planners working on these plans.
- 3.1.3.4. Seth Vidana: Oversees Western's Sustainable Transportation program which is responsible for executing Western's CTR program. See more at: <http://www.wvu.edu/transportation/> Sustainable Transportation works to encourage low-impact and healthy transportation choices for students, staff & faculty. This program is responsible for executing Western's Commute Trip Reduction program and works through several different channels, including administration of a student sustainable transportation fee, student bus pass distribution, subsidized staff/faculty bus passes, a late night student shuttle, local and regional trip planning, a electric bike program, and participation in Bike to School Month.
- 3.1.3.5. WWU Spatial Institute: The Spatial Institute's mission is to provide leadership in dissemination of spatial information; to promote the use of this information for education and research; and to provide a venue for collaborative research and exchange of spatial information and analysis.

### 3.2. Project Manager Experience

- 3.2.1. Project Schedule: In James's work with the IIUSA (EB-5) research, Community Transit research and Food Bank research a project schedule was essential to meeting the needs of each client. With IIUSA the target end-user was the US Congress, which had a specific program renewal deadline for which the report was to be applied, as did the other two projects with their own respected needs. At the outset of each project a timeline is established with check-ins. In the event a project does fall behind, additional resources are applied to return to schedule or the overall process schedule is modified while still meeting the ultimate deadline commitment.
- 3.2.2. Scope: James McCafferty scopes every project completed by the Center. Creating a clear scope with each client is essential and guides the project schedule and budget.
- 3.2.3. Budget: James McCafferty manages The Center's budget. Each project has an established set of hours and resource line items per scope item. James monitors these weekly against progress.

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3.2.4. Changes: Changes to scope are more typical than not. With the WSAC project we modified the scope related to locations and methodologies of data collection. Our work with the City of Bellingham was impacted due to our analysis being conducted on emerging events. The analysis for Whatcom Business Alliance was heavily influenced due to a discovery of a significant data variance between self-reported employment versus what had been reported to the State. Often time's changes in scope are offset by other changes – we treat these as opportunities to consider the project from an iteration framework where we look for an overall net gain to the output of the project.

### 3.3. Professional Licenses/Accreditations

3.3.1. James McCafferty: Certified Global Business Professional

3.3.2. Scott Brennan: MBA (Kellogg Graduate School of Management), BSAE (University of Michigan)

3.3.3. Paul Stangl: Masters in City and Regional Planning (Rutgers University), PhD (University of Texas at Austin)

3.3.4. Seth Vidana: B.A. and M.Ed.

3.3.5. WWU Spatial Institute: Six tenured faculty and six affiliated staff members lead The Institute. The team is augmented with undergraduate and graduate students. Faculty regularly publishes to academic journals and present at national conferences.

## 4. Project Management System (Prime Only)

### 4.1. QA/QC Processes

4.1.1. The Center uses a peer and quasi-peer review system for its work. Under this system work produced is reviewed by qualified professors and/or staff that have a deep understanding on a particular topic – a single body of research may be reviewed by multiple peers given sub-domain expertise.

Our professors and staff are often national experts within a topic with exposure to leading research, both published and non-published, and connections to other researchers in the field. These individuals retain the most current topical knowledge and with it they influence the final work to reflect best practices and emerging values.

We combine both quality assurance and quality control procedures to ensure that the products and services being delivered meet the customer expectation of scope, content, price and timeliness. Through the peer review system, we ensure not only create a quality plan, but also generate quality output.

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### 4.2. Tracking and Scheduling Systems

4.2.1. The Center uses a visual management system where a project is laid out visually with key delivery points and assigned staff. Weekly (or more often) checkpoints are established as appropriate for each stage. Staff enters their time in a positive time reporting system maintained by the University with acknowledgement for accuracy.

Scheduling is managed within the visual management system. Software is not used to manage this aspect.

The Center uses a flat rate billing system to negate the need for time and effort reporting to a specific task. If required to do so the Center uses a paper form process where staff indicate hours, in quarter hour increments, on each assigned task. This data is verified against the University maintained time management system.

### 4.3. Internal Team Interaction

4.3.1. Communications and interactions will be handled through regular checkpoint calls, meetings and document sharing using a cloud-based system such as OneDrive. Center staff interacts daily and have consistent contact with the project manager.

### 4.4. Client/Stakeholder Interaction

4.4.1. The Center believes in collaborative and iterative work. We deliver the best work product when our clients work closely and collaboratively with us. This most often takes the form of a combination of in-person meetings, video & voice conference calls, email communications and chat/messaging (i.e. Slack) to review information, solicit feedback or share resources. In some projects we have found a regularly scheduled conference call is effective in maintaining this relationship and project schedule.

This may be part of our academic roots, but we believe that through these communications we are able to build on what our clients already have/know while also validating the underlying framework of that knowledge.