

Exhibit A – On-call Task Order #7

Client Name:	City of Edgewood	
Project Name:	SR 161 (Meridian Avenue) Preliminary Design Study	
Exhibit Dated:	July 11, 2022	TG: 1.21147.00 Task 07
		TSI: PROJECT NUMBER, Task 01

Purpose

The purpose of this study effort is to conduct an assessment of multimodal, access, safety, and environmental needs for SR 161 (Meridian Avenue) from 24th Street E to the southern City limits, and confirm future cross-sectional elements and intersection treatments. Key intersections will be analyzed and strategies and concepts will be developed to improve operations, safety performance, and accessibility for all corridor users. To support the eventual outcomes, input will be sought through a stakeholder outreach effort, and preliminary designs and cost estimates will be prepared for the study recommendation to assist in seeking funds to implement the improvements.

Background

The City of Edgewood's 2023-2028 Transportation Improvement Program (TIP) contains Project #2 that will conduct a preliminary design study of the Meridian Avenue E corridor south of 24th Street. The project will assist the City in defining the extent of the corridor "complete street" improvements such as number of travel lanes, sidewalks, bicycle facilities, and stormwater treatment and detention. The design effort will also consider intersection and access management improvements to address level of service and safety issues along this segment of the corridor.

The Meridian Avenue Preliminary Design Study has been informed by a feasibility assessment that was conducted in 2020 of installing a traffic signal or constructing a roundabout at the Meridian Avenue / 32nd Street E intersection. The traffic signal was found to not meet signal warrants, and constructing a roundabout was shown to cost more than \$2 million dollars. The roundabout would primarily benefit the approximately 30 vehicles per hour that are attempting to turn left from the west approach. Vehicles attempting to turn left from the east approach have alternative routes they could utilize during periods of heavy congestion.

Due to the costs and impacts of constructing a roundabout at the Meridian Avenue / 32nd Street E intersection, and the fact it would benefit a few vehicle trips, a more comprehensive evaluation of alternatives is needed to address the LOS and safety issues along Meridian Avenue between 24th Street E and 36th Street. Alternatives could include access management treatments with complimentary designated u-turns at 24th Street E and 36th Street E intersections. A roundabout at 36th Street E, as identified in the recently adopted Chrisella Road Alternatives Assessment, will provide more benefits at a similar cost to a roundabout at 32nd Street E. Similarly, the section of Meridian Ave between 36th Street E and the southern City limits will be evaluated to determine how to transition the preferred cross-section at 36th Street E to an appropriate multi-modal section between 36th Street E and the southern City limits, while also evaluating appropriate access to the growing areas on the southern end of the City.

The Meridian Avenue Preliminary Design Study will help the City work with WSDOT to confirm the long-term strategy for addressing operations and safety needs along this stretch of Meridian Avenue, obtain WSDOT buy-in and approval for the future design, and support the Town Center Plan and the other planned land use growth along the corridor.

Scope of Services

The preliminary design study will gather data, complete a detailed analysis of the corridor and intersections, prepare preliminary design plans, and develop a list of short-term and long-term corridor improvements to support the City's Town Center Subarea Plan and Comprehensive Plan.

Assumptions

- The study area encompasses the segment of the Meridian Avenue corridor from 24th Street to Todd Road NW.
- No detailed “ground survey” will be conducted.
- Cross-sections and conceptual drawings will include information such as lane type, lane width, pavement markings, curbs, buffers, planter strips, active transportation infrastructure, critical areas, streams and buffers, traffic signal infrastructure, structural walls or fill slopes, and approximate ROW.
- All deliverables will be provided electronically via PDF and in their original file format.
- All relevant base mapping data will be provided by the City.
- Graphics provided in PDF or PNG format for use in presentations and public outreach materials
- Project and working group coordination meetings will be virtual using Microsoft Teams
- The project duration is estimated to be up to 12 months.

TASK 1 *Project Management / Meetings (Transpo manage project, TSI to participate in meetings)*

Transpo will manage the project, utilizing consultant staff and collecting and analyzing necessary data. To help direct the efforts of the corridor study, a “project team” will be assembled. It is assumed Transpo and City staff will comprise the “project team”

Progress Reports / Invoicing

Detailed progress reports and invoices will be prepared on a monthly basis and provided to the City. The invoices and progress report will identify the work that has been completed.

Project Team Meetings

Monthly project management virtual meetings will be held to review key deliverables, milestones, schedule, and to coordinate on upcoming project team meetings. It is anticipated that the City and Transpo staff will be involved in these meetings. Other staff or consultants may be invited as necessary and depending upon the topic.

Consultant Deliverables

- *Monthly progress reports and invoices (12)*
- *Monthly project team meetings (assume a total of 12)*
- *Project team meeting notes*

City Responsibilities

- *Attend project team meetings*

TASK 2 *Community Outreach (Transpo to lead, TSI to support)*

This task will confirm project objectives and engage a Working Group to help guide and inform the study. The Working Group efforts will be a critical element to the study to confirm outcomes and build support for the final recommendations. The task will also include two meetings with the City Council to share updates on the project progress.

Working Group Meetings (Transpo to lead, TSI to support)

We will work closely with the City to identify and involve a Working Group comprised of staff from various city departments, as well as representatives from WSDOT and Pierce Transit. The Working Group will help guide the study and provide input on key findings and recommendations. The project team will prepare and present materials, and seek feedback from this group throughout the study. The meetings are expected to be held every other month (4 total), or more frequent as deemed appropriate. Below is a list of potential meeting agendas.

- **Meeting 1**
 - Confirm Project Objectives & Evaluation Criteria
 - Review Scope/Schedule
 - Data Inventory Overview
 - Discuss Methodology
- **Meeting 2**
 - Review Existing and Future Needs
 - Develop List of Preliminary Alternatives
- **Meeting 3**
 - Review Evaluation Findings
 - Review Conceptual Designs / Costs
- **Meeting 4**
 - Review Recommendations and Phasing
 - Discuss the Draft Report

Establish Project Objectives & Evaluation Criteria *(Transpo)*

Clearly defined project objectives will be developed. The objectives will ensure alignment among the City and WSDOT and help confirm desired study outcomes. Criteria that will be utilized in the evaluation of potential improvements will be defined. The evaluation criteria will focus on safety and mobility criteria, such as reduction in delay, queuing, and collision rates, and be dependent on the data collection and analysis that will be conducted. Criteria will also include constructability measures such as right-of-way impacts, costs, and environmental impacts. The criteria will be confirmed with input from the Working Group.

Stakeholder Interviews *(Transpo)*

To gain a broader understanding of diverse interests in identifying solutions along this segment of the highway, Transpo will conduct up to 5, one-on-one interviews with WSDOT, local businesses, Pierce Transit, and organizations that have an interest or influence regarding the corridor. Additional stakeholder interviews may be conducted by City staff. The interviews will inquire and investigate key challenges, and opportunities for improving the corridor. Transpo will prepare a discussion script and a draft and final summary of responses. The feedback will be used to confirm the issues and inform the types of solutions that should be considered.

Online Survey *(Transpo)*

An online survey will be conducted to inform and gather feedback on the corridor. The survey would be posted midway through the study, to gather general input on transportation alternatives being studied. Survey results would be analyzed and summarized.

Open House and Workshop *(Transpo to lead, TSI to support)*

A virtual Public Open House will inform the public of the corridor study and gather input, ideas, and feedback, helping to ensure the study is meeting public needs and expectations. The goal of the open house is to share more about the study effort, identify issues, and gather feedback. An in-person workshop will also be held during the study process, likely focusing on the draft alternatives and priorities.

City Council Meetings *(Transpo to lead, TSI to support)*

Transpo will present to the City Council to provide updates on the preliminary design study and review final recommendations. Two meetings will be held at key milestones to ensure their input can be utilized in decisions. It is assumed that attendance will be in-person.

Consultant Deliverables

- *Draft and final script and summary of up to 5 one-on-one interviews*
- *Prepare for, attend and facilitate up to 4 Working Group Meetings*
- *Notes from the Working Group meetings*



- *Summary document of the project objectives and evaluation criteria*
- *Online survey and summary*
- *Virtual open house*
- *In-person workshop*
- *Attendance at two City Council meetings*
- *Presentation materials for two City Council meetings*

City Responsibilities

- *Confirmation of stakeholders to interview*
- *Confirm Working Group members*
- *Host the in-person workshop*
- *Assist with the virtual open house*

TASK 3 Corridor Assessment (Transpo)

This task will provide the basis for confirming existing issues and constraints along the corridor segment, and identification of future needs. It will include gathering available corridor data, collision history, and developing a detailed basemap of the existing facilities along the corridor.

Data Inventory and Collection

Data will be collected and assembled to document the current conditions along the corridor.

Traffic Counts

Transpo has historical information previously collected in the City. New traffic counts will be collected for locations where recent data is not available. The new data will consist of AM and PM peak hour intersection turning movements for up to 6 locations, along with updated daily traffic and classification counts for this segment of SR 161.

Safety Analysis

Obtain and summarize collision history within the study area. Time frame will be the most recent 5 years. The analysis will analyze contributing factors, and integrate countermeasures into the development of the improvement alternatives.

LiDAR & Photogrammetry Data

LiDAR and photogrammetry data will be obtained via UAV (drone) for the corridor segment. The LiDAR will capture high-resolution horizontal & vertical profiles of all facilities in the existing area. Photogrammetry and images taken from the drone will be used as a separate deliverable to reference LiDAR and develop vector-based depictions of all structures and roadway channelization within 2-5 cm accuracy.

- Establish site control constrained to NAD83 (2011) Washington State Plane North (ft US, EPSG 6597), and vertical datum on NAVD 88 geoid18 (ft US, EPSG 6360)
- A colorized point cloud will be generated from the UAV LiDAR system, that can be utilized as a 'digital twin' of the project area
- 1-foot contours will be generated from the UAV-Based LiDAR (ground-classified points), as part of AutoCAD/GIS deliverables
- Planimetrics will be provided in LAZ/LAS, DWG, and SHP formats
- Ground-classified points from the colorized point cloud will be provided as part of the AutoCAD/GIS deliverables
- All deliverables available via cloud-based web application for downloading, viewing, editing, and measuring

The LiDAR data acquisition will extend approximately 1,000 feet beyond the extents of the existing corridor ROW from 24th Street to 36th Street. The data obtained will be incorporated into a topographic basemap depicting cross sections and elevations in AutoCAD 3D format.

Base Map Inventory

Utilize the LiDAR data along with other existing data to develop a detailed basemap of the corridor to assist in preparation of the preliminary design. The base maps will utilize available City GIS files, and be created in both ArcGIS and AutoCAD. The maps will contain items such as:

- Land use designations
- Right-of-way limits
- Sensitive areas
- Property boundaries
- Bus stop locations
- Sidewalk and crosswalk locations
- Bicycle facilities
- Major utilities (as available in GIS)
- Contours

Travel Forecasts and Operations

Transpo will utilize information from the City of Edgewood traffic model to develop traffic forecasts for use in the analysis. For the purposes of this study, the future horizon year of 2035 has been identified. Traffic forecasts for 2035 AM peak and PM peak hours will be developed for the extents of the corridor. The growth assumptions will be reviewed and verified for reasonableness.

The Synchro traffic operations model previously prepared for the City's concurrency program will be utilized for the study. The model will be updated for the existing 2022 base year and 2035 horizon year for the AM and PM peak hours. Sidra software will be utilized under the alternatives analysis for any proposed change in traffic control to a roundabout, but other traffic control will be evaluated using synchro. Intersection LOS, queuing, and delays will be evaluated for the existing and future horizon year. The model will also be utilized to evaluate different improvement alternatives.

Consultant Deliverables

- *Weekday AM and PM peak 2-hour intersection turning movements at 6 study intersections*
- *Weekday ADT at one location, including vehicle speeds and classifications*
- *Summary tables and graphics of the corridor evaluation results*
- *2035 traffic forecasts*
- *Collision History Review Summary*
- *Topographic basemap depicting 3D elevations of the study area*
- *High resolution aerial photo of the corridor segment*
- *Synchro model of 2035 for AM/PM peak hours*

City Responsibilities

- *Provide all relevant background material*
- *Provide all necessary GIS files*
- *Assist in obtaining necessary information from WSDOT, if needed*

TASK 4 Development and Evaluation of Alternatives (TSI to lead, Transpo to support)

This task will identify and evaluate potential improvements along the corridor based on the prior corridor assessment.

Develop Alternatives (TSI to lead, Transpo to support)

A list of potential project concepts will be assembled to assist in confirming the improvement alternatives that should be evaluated. The list of potential concepts will be reviewed and packaged into separate alternatives that address the objectives of the study. It is envisioned that up to three (3) improvement alternatives will be evaluated for the corridor, such as widening to 5 lanes with access management

treatments, widening to 5 lanes with minimal access management treatments, and a combination of the two with various intersection projects, such as the roundabout at 36th Street. Concept illustrations will be prepared of each of the corridor improvement alternatives using the base mapping files previously prepared. The conceptual geometry will include horizontal layout of the corridor segment improvements and be designed consistent with WSDOT design standards.

Evaluate Alternatives (TSI to lead, Transpo to support)

The future baseline analysis and models will be utilized to evaluate the three improvement alternatives for the corridor. The AM and PM peak hour 2035 design year operations will be evaluated using Synchro, and Sidra where a roundabout is proposed. The resulting operations analysis will be summarized including output of intersection LOS, delays, v/c ratios, and vehicle queuing by approach.

The three (3) identified alternatives will also be evaluated against the evaluation criteria to understand the advantages and disadvantages of each improvement. The evaluation will consider construction feasibility, ROW impacts, safety, access, costs, and environmental impacts.

Complete WSDOT Intersection Control Evaluation (TSI)

Based on the results of the alternatives analysis, TSI will prepare an Intersection Control Evaluation (ICE) for up to two intersections per WSDOT standards. The ICE process is scaled based on the size and complexity of the project. The scope for this project assumes all five (5) steps in the ICE process will be required to fully evaluate all alternatives at the major intersections along the corridor. Per Chapter 1300.05(1) of the WSDOT Design Manual, the following elements will be completed as part of the ICE.

Background and Project Needs (Step 1). The existing conditions will be described, including physical characteristics of the intersection, posted speed, average annual daily traffic (AADT) volumes, channelization and control features, intersection operations, multimodal facilities, context, and modal priority. The intersection operations will include evaluation of LOS and vehicle queues. A description of alternatives, project needs, and analysis of performance measures will be provided as well.

Feasibility (Step 2). Conceptual layouts of the intersection alternatives will be summarized to evaluate right of way, environmental, cost, context-sensitive/sustainable design, and geometrics/physical constraints. The effort will include:

- **Rights of Way.** Identify the right of way requirements and feasibility as well as discuss the feasibility of acquiring necessary right of way for each alternative. Concept drawings with sufficient detail to identify grading, hardscape, utilities, environmental impacts, retaining walls, stormwater, buildings, and other fixed objects will be developed.
- **Environmental Factors.** Any known environmental factors that could influence the selected alternative will be identified, including any environmental risks that may substantially increase the cost of the intersection improvement.
- **Context Sensitive/Sustainable Design.** Effects on the aesthetic, social, economic and environmental values, needs, constraints, and opportunities as part of a larger community setting will be identified and summarized in a qualitative manner.
- **Cost.** Prepare preliminary construction cost estimates for the identified alternatives.

Operational and Safety Performance Analysis (Step 3). The traffic forecasts and preliminary intersection operations analysis developed as part of the prior corridor assessment will be used to evaluate each alternative. The resulting analysis will summarize intersection LOS and queuing by approach for each alternative and scenario.

A safety performance evaluation of the alternatives will be completed based on the WSDOT Safety Analysis Guide. The expected effect of each alternative design on multimodal users will be described. Consideration will be given to items such as pedestrian delay, number of lanes to cross, protected versus permitted turning movements, and motorist approach speeds.

Benefit/Cost Analysis (Step 4). The benefit/cost for mobility (change in travel time) and traffic safety (change in expected crash frequency/severity) for both alternatives will be summarized. The analysis will take into consideration costs related to design, right of way acquisition and construction, annual

maintenance and operation costs, travel time savings, societal cost savings, and salvage value of right of way, grading and drainage, and structures.

Alternative Selection and Documentation (Step 5). The recommended traffic control alternative will be selected based on performance tradeoffs and documented project needs. A draft ICE report will be prepared documenting the background and project needs as well as the feasibility, performance measures and benefit/cost analysis for both traffic control alternatives. The report will be finalized following up to two rounds of review comments from the project team and WSDOT.

Consultant Deliverables

- *List of potential corridor improvements*
- *Map showing the location of the improvements*
- *Summary of AM and PM peak hour operations performance for the 2035 horizon year for three (3) Alternatives*
- *Future Synchro/Sidra files (2035 & AM/PM peak hours)*
- *Up to three (3) conceptual exhibit plan, profile and cross-sectional views*
- *Matrix summarizing the results of the alternatives evaluation*
- *Planning-level cost estimates for each alternative*
- *Draft and final ICE report document*

City Responsibilities

- *Assist in the identification of potential corridor improvements*
- *Review work products*

TASK 5 Summarize Recommendations (TSI to lead, Transpo to support)

This task will confirm the recommended improvements and develop preliminary design plans and project cost estimates for the recommended alternative. The deliverables in the prior tasks will be assembled into a report summarizing the major outcomes of the preliminary design study.

Prepare Preliminary Plans and Costs (TSI)

Develop preliminary design plans for the recommended corridor improvements. Prepare project cost estimates for the recommended improvements that account for costs associated with engineering, right-of-way negotiations and acquisition, construction oversight and construction costs, environmental, and potential contingencies based on the level of design and potential risks. The project cost estimates will utilize recent bid tabs from City and WSDOT projects.

Identify Potential Phasing / Funding Strategies (Transpo)

Evaluate the potential phasing of improvements and confirm they can work independent from one another, and/or the timing when the improvements would generally be needed. Identify and match improvement components to available competitive regional, state, or federal grant programs. The improvements will be reviewed against the identified goals and criteria of each existing grant funding program. The funding evaluation will provide the City with a roadmap and funding strategy for project implementation.

Document Findings (Transpo to lead, TSI to support)

A report will be developed that will summarize the work in the prior tasks, the alternatives considered, the results of the evaluation for the existing and forecast conditions, and the final improvement recommendations. The report will also include an appendix of other documents supporting the recommendations and work completed.

Consultant Deliverables

- *Preliminary project cost estimates*
- *Preliminary design drawings of the recommended improvements*
- *Draft and Final electronic versions of the report and technical appendices*

City Responsibilities

- *Review and provide comments on the deliverables*

Design Criteria

Reports and plans, to the extent feasible, shall be developed in accordance with the latest edition and amendments of the following:

1. Pierce County, "Manual on Design Guidelines and Specifications for Road and Bridge Construction", Amended May 1, 2022.
2. Washington State Department of Transportation, "Design Manual."
3. Highway Research Board's Manual entitled "Highway Capacity".
4. FHWA and Washington State Department of Transportation, "Manual on Uniform Traffic Control Devices for Streets and Highways".
5. AASHTO 2011, "A Policy of Geometric Design of Highways and Streets."
6. Edgewood Municipal Code