



172nd / 190th Corridor Plan

TECHNICAL MEMORANDUM #3.2

Purpose and Need, Project Goals, Objectives, and Evaluation Measures

Date: October 27, 2010

Project #: 10213

Prepared by: Jim Owens – Cogan Owens Cogan
Marc Butorac, P.E., P.T.O.E. – Kittelson & Associates, Inc.
Wade Scarbrough, P.E. – Kittelson & Associates, Inc.
Dan Seeman – Kittelson & Associates, Inc.

A. MEMORANDUM PURPOSE

This memorandum presents three preliminary products intended to help guide the development of the 172nd/190th Corridor Plan:

1. Draft Purpose and Need,
2. Goals and objectives, and
3. Evaluation criteria to be used to evaluate and screen alternatives that will be developed during upcoming tasks.

Collectively, these products will be used to establish the Plan's policy direction and to identify a preferred alternative(s), which will comprise the recommended actions for the Plan's key elements.

B. PROJECT PURPOSE AND NEED

The Purpose and Need Statement sets the stage for consideration of alternatives. The "Purpose" defines the transportation problem to be solved and outlines goals and objectives that should be included as part of a successful solution to the problem. The "Need" provides the basis or reason to support the problem statement (Purpose). The Purpose and Need Statement is intended to clarify the expected outcome of public expenditure and to justify that expenditure – what are you trying to accomplish and why you think it is necessary. As such, it should be the first step in the project development process. It will be used to guide the development of a reasonable range of alternatives to be studied. Also, it will be used as a fundamental element when developing criteria for selection between alternatives.

Background

The area around the 172nd/190th Corridor was recently added to the Portland Metropolitan Urban Growth Boundary (part in 1998 and the remainder in 2002) and is planned for urban development at an average density of at least 10 units per net buildable acre for the residential areas. There are also planned commercial and employment areas within the cities of Damascus, Happy Valley, and Gresham. Some of this development has already begun to occur. As the transportation system exists today, SE 172nd Avenue and SE 190th Drive lack the needed continuity and capacity to serve future traffic demand created by this anticipated urban growth. There are limited locations where this type of connection/facility can occur due to topographic constraints and existing urban buildout. Planning efforts thus far reveal that there are no other physically viable, cost-effective north-south routes in this portion of the county.

Purpose

The purpose of this project is to effectively address the 172nd-190th corridor congestion and safety problems, serve future north-south traffic, serve expected population growth in Damascus, Happy Valley, the Pleasant Valley Plan Area and Gresham, and to serve the growing demand for regional travel.

Need

The project purpose is demonstrated with the following Statement of Need:

- Regional and local plans for urbanization of Damascus¹, Happy Valley², the Pleasant Valley Plan area³, and the western Clackamas County⁴ sub-region project population growth of over 15,000 households and 9,800 jobs⁵ by 2035, which cannot be achieved without improvement to transportation facilities in the corridor and connection of SE 172nd Avenue with SE 190th Drive.
- The lack of a local street network, enhanced transit facilities and services, and a fully interconnected network of pedestrian and bicycle facilities within the 172nd /190th corridor prohibits the density, form, and character of development anticipated in regional and local plans.
- Without a continuous north-south sub-regional corridor to connect OR 212/224 with I-84, this type of existing and future north-south travel demand will continue to depend on the I-205 and US 26-SE 242nd Avenue corridors, which will further impact these already-congested corridors. The Metro travel demand model indicates that a continuous SE 172nd Avenue/SE 190th Drive corridor attract approximately 17,000 daily trips in 2035.

¹ City of Damascus Draft Comprehensive Plan maps

² City of Happy Valley Comprehensive Plan (June 2009)

³ Pleasant Valley Plan

⁴ Clackamas County Comprehensive Plan (January 2009)

⁵ 172nd/190th Technical Memorandum 4.3 – Future 2035 No-Build Transportation Conditions Analysis

- The existing SE 172nd Avenue/SE Foster Road, SE Tillstrom Road/SE Foster Road, and SE 190th Drive/SE Tillstrom Road intersections have inadequate capacity to accommodate projected 2035 peak period travel demands.
- Development along and between the SE 172nd Avenue and SE 190th Drive corridors is imminent. Identification of the future footprint of these two roadways and their potential connection is necessary to preserve and obtain right-of-way and avoid the preclusion of this connection in the future.
- There is a need to develop a transportation system that meets the land use needs that arise from planned growth in Damascus, Happy Valley, the Pleasant Valley Plan Area and Gresham, and growth of other sub-regional north-south travel demands between I-205 and US 26 to the year 2035.

C. GOALS AND OBJECTIVES

The goals and objectives identified below are derived from input received from the Project Management Team, Project Advisory Committee and participants in Open House #1, as well as from transportation-related goals in applicable comprehensive and transportation system plans for the project area,

A *qualitative* process will be used to evaluate the design alternatives with respect to the proposed criteria. These alternatives will consist of a combination of pedestrian, bicycle, transit and roadway improvements and may include alternative land use measures as well. The evaluation criteria will be used to ensure that each concept is evaluated for consistency with the overall intent of the community and the project.

Goals, objectives and evaluation criteria are organized around key Plan elements.



Corridor Alignment

Goals and Objectives

1. Improve mobility by accommodating through traffic and freight movement, as well as serve local community/commercial/multifamily nodes.
 - a. Protect the function and operation of the corridor as a transportation facility of regional significance.
 - b. Provide for freight mobility without creating a primary north-south freight route.
 - c. Protect the function and operation of the existing local street network within the study area and maintain or improve local circulation.
 - d. Connect 2040 Growth Concept Centers
 - e. Connect existing and planned parks, open space and trails.

2. Ensure that the planning and design of transportation system improvements minimize environmental, cultural and social impacts to the greatest extent possible.
 - a. Avoid geographic constraints and sensitive environmental resources, especially wetlands/riparian areas and stream crossings, to the greatest extent possible.
 - b. Preserve, improve, or create connectivity of existing habitat and tree canopy (upland and waterway) within and beyond the project area for wildlife/fish passage.
 - c. Identify ways to reduce carbon impacts through facility design, changes to land use patterns, and traffic flow patterns.
 - d. Minimize impacts to community facilities and institutions and minimize property takings and displacement of existing businesses and residences.
3. Provide flexibility to respond to changing socio-economic conditions, concurrency of development and the opportunities and constraints represented by the various plans of the jurisdictions within and adjacent to the corridor.
 - a. Coordinate with future land use and transportation plans for the area.
 - b. Consider phased development as well as projected ultimate build-out.
 - c. Avoid pre-empting future choices by limiting the corridor alignment.



Streetscape Features

Goals and Objectives

4. Provide a unique and aesthetically pleasing design that is integrated with the place-making of each community and with sustainability goals.
 - a. Provide for streetscape features to integrate a relevant sense of place to various locations within the corridor while maintaining an overall appearance of consistency throughout the corridor
 - b. Promote compatible land uses and help reach the jurisdictions' visions of the community.
 - c. Provide reasonable access to a variety of land uses.
 - d. Balance streetscape features with maintenance considerations.
5. Integrate environmental/Green Streets design with the natural features.

- a. Enhance semi-urban streetscape place-making while preserving the historic rural character
 - b. Minimize future maintenance with native or other low-maintenance vegetation.
 - c. Provide for an improved rainwater management that minimizes impervious surfaces.
 - d. Design project to avoid/minimize short and long-term erosion potential; design with the existing topography to the greatest extent possible.
6. Improve traffic safety for all users.
- a. Provide for appropriate access for emergency vehicles.
 - b. Provide appropriate speed management measures among other improvements to enhance safety.
 - c. Provide for an access management plan that minimizes the number and frequency of driveway accesses.
7. Support healthy and walkable communities.
- a. Plan for public transportation with appropriate access points and frequency and linkages to pedestrian, bicycle and motor vehicle travel modes.
 - b. Ensure that all intersections provide pedestrian/cyclist compatibility.
 - c. Provide boulevard-style treatments to new roadways, including medians and sidewalks buffered by planting strips with trees.
 - d. In commercial districts, provide urban street features to encourage lower speeds in these districts.



Land Use/Transportation Integration

Goals and Objectives

8. Protect the long-term function of the corridor.
- a. Ensure integration and coordination with plans and standards of Clackamas County, Damascus, Happy Valley, Gresham, Metro and special districts.
 - b. Provide clearly defined separation of land uses from transportation corridors (i.e. separation of residential land use frontage from arterial Right-of-way).
 - c. Minimize displacement of community facilities and institutions as well as existing businesses and residences.

9. Ensure that the corridor plan supports local economic development.
 - a. Locate roadways with consideration of how existing development is impacted, supported or leveraged for future development.
 - b. Encourage quality development.
 - c. Focus on employment that supports family wage jobs.



Project Implementation

Goals and Objectives

10. Ensure effective project implementation over time.
 - a. Employ “least cost planning” and “backcasting” techniques to help evaluate costs and benefits and to ensure that proposed improvements are correctly sized to maximize benefits.
 - b. Develop state, regional and local partnerships to fund and implement the Corridor Plan.
 - c. Identify phased potential funding options.
 - d. Consider staged and/or development-related construction if full funding is not available.
 - e. Develop an ongoing monitoring program to assess Plan implementation and to identify needed adjustments.

D. EVALUATION CRITERIA

Evaluation criteria will be used to compare the various 172nd-190th corridor concepts for the purpose of screening design concepts that do not achieve the community goals and identifying the most viable concepts for further development. These criteria reflect the project goals and objectives as well as practical considerations such as cost and constructability. Because the solution concepts may consider different combinations of alignments and streetscape options, the evaluation criteria have been separated into two categories:

- Alignment Criteria, and
- Streetscape Criteria.

The following identifies the evaluation criteria.

Alignment Evaluation Criteria

Mobility - This criterion assesses the quality of flow for traffic, pedestrians, bicycles, and other users along the 172nd-190th corridor. Specific measures to be evaluated may include:

- Vehicular operations, including capacity and overall travel speed through the study area.
- Pedestrian and bicycle facilities, including connectivity of the network to other trails and facilities.

Local Access - This criterion evaluates whether the concept maintains and/or enhances vehicular access to the neighborhoods, businesses, and public facilities along the corridor.

Safety - This criterion considers the degree to which the concept enhances safety for all users within the study area. Specific measures to be considered may include:

- Traffic safety,
- Pedestrian safety,
- Bicycle safety, and
- Emergency vehicle access.

Impacts to Natural Environment - This criterion addresses the environmental impacts of the concept, including the impact to streams, wetlands, riparian areas, wildlife habitats, open spaces (such as parks and lawns), and other natural resources.

Impacts to Built Environment - This criterion considers the impact of the concept on existing and future development in the study area, including property acquisition requirements, socio-economic impacts, noise/air impacts, cultural resources, and hazardous waste sites.

Land Use Compatibility - This criterion assesses the concept's consistency with the plans and standards of Clackamas County, Damascus, Happy Valley, Gresham, Metro and special districts. It also considers how the concept supports or impacts future economic development opportunities.

Flexibility of Implementation - This criterion considers the feasibility of constructing the concept in phases in order to preserve the function of the existing infrastructure and optimize capital improvement budgets. It also considers the feasibility of expanding the corridor concept to accommodate changes in future development and traffic patterns.

Cost Effectiveness - This criterion qualitatively evaluates the relative overall magnitude of design and construction costs, including roadway construction, structures, right-of-way,

environmental mitigations, and maintenance of traffic. It also qualitatively assesses the economic benefits to gauge the overall relative value of the concept.

Streetscape Evaluation Criteria

Aesthetic Enhancement - This criterion assesses the streetscape concept's enhancement potential to the visual character of the corridor, including elements such as landscaping and preservation of the rural character.

Environmental Features - This criterion considers the environmental impact of the concept's footprint as well as the degree to which the concept provides green street features.

Multi-Modal Safety - This criterion evaluates the relative safety and comfort provided for all users, especially non-auto travelers.

Maintenance - This criterion considers the issues and requirements related to ongoing maintenance and upkeep, including drainage system maintenance, pavement maintenance, and landscape maintenance.

Functionality - This criterion considers the effectiveness and efficiency for the facility to serve as a major arterial and to serve all travel modes including passenger cars, trucks, buses, bicycles and pedestrians.

E. APPLICATION OF EVALUATION CRITERIA

The concepts will undergo three levels of screening. The first level is a high-level screening to determine if any of the concepts do not meet the basic purpose and need of the project. At this initial level, the project team will evaluate the initial concepts that were developed at the public workshop on Wednesday, October 6, 2010 (as well as any other concepts that may be developed by the Project Management Team and/or Project Design Team). Approximately 10-20 concepts will be evaluated. The initial evaluation will apply largely qualitative evaluation criteria relating to each of the subject areas identified for corridor alignment and streetscape. This initial screening will eliminate the fundamentally-flawed concepts, leaving 5-10 concepts to be further screened at a more detailed level. This second level screening will be applied to the remaining 5-10 concepts, which will involve a qualitative assessment of each concept based on more specific evaluation criteria. The result of the second-stage evaluation will be to narrow the number of concepts to three. At this point, the three remaining concepts will be developed to a more detailed level (about 30% design level), and then a final evaluation will be conducted using a more detailed quantitative analysis. This final screening will facilitate the selection of a preferred alternative.

Preliminary Purpose and Need Statement Screening

Once the initial set of corridor alignment and streetscape concepts are developed, the project team will perform an initial screening to narrow the number of corridor alignment/streetscape concepts to 10-20. This initial screening will help to eliminate any of the concepts that are not

meeting the basic intent of the project purpose and need statement. Basic requirements of the Purpose and Need have been identified, and applied in this initial screening, as shown in the table below:

Corridor Alignment Evaluation Criteria				
Category	Evaluation Criteria	Scoring Key	Score	Comments
Mobility	Vehicle operations	+ Addresses an existing or forecast deficiency in north-south mobility		
		- Fails to address an existing or forecast deficiency in north-south mobility		
	Improves non-vehicular travel	+ Enhances travel distance and comfort of pedestrians and bicyclists and connects to trails and other facilities		
		- Negatively impacts travel distance and comfort of pedestrians and bicyclists and connects to trails and other facilities		
Local Access	Vehicular connectivity	+ Maintains and/or enhances vehicular access to the neighborhoods, businesses, and public facilities along the corridor		
		- Degrades vehicular access to the neighborhoods, businesses, and public facilities along the corridor		
Safety	Multi-modal safety	+ Improves safety for bicyclists and pedestrians		
		- Degrades safety for bicyclists and pedestrians		
	Emergency access	+ Improves emergency response time		
		- Degrades emergency response time		

Corridor Alignment Evaluation Criteria				
Category	Evaluation Criteria	Scoring Key	Score	Comments
Impacts to Natural environment		+ Minimizes impacts to streams, wetlands, riparian areas, wildlife habitats, open spaces (such as parks and lawns), and other natural resources		
		- Degrades streams, wetlands, riparian areas, wildlife habitats, open spaces (such as parks and lawns), and other natural resources		
Impacts to Built environment		+ Minimizes right-of-way impacts on existing and future development in the study area, including property acquisition requirements, socio-economic impacts, noise/air impacts, cultural resources, and hazardous waste sites		
		- Has significant right-of-way impact on existing and future development		
Land Use compatibility		+ Is consist with the plans and standards of Clackamas County, Damascus, Happy Valley, Gresham, Metro and special districts		
		- Conflicts with the plans and standards of Clackamas County, Damascus, Happy Valley, Gresham, Metro and special districts		
Flexibility of Implementation		+ Can be constructed in phases and expanded concurrent with development needs, to maximize		

Corridor Alignment Evaluation Criteria				
Category	Evaluation Criteria	Scoring Key	Score	Comments
		capital budgets		
		- Is difficult to be constructed in phases or expanded concurrent with development needs, to maximize capital budgets		
Cost Effectiveness		+ Has positive economic benefits when compared to costs, and thereby has high overall value		
		- Has poor economic benefit when compared to costs, and thereby has low overall value		
Aesthetic Character		+ Enhances potential visual character of the corridor, including elements such as landscaping and preservation of the rural character		
		- Does not enhance potential visual character of the corridor		
Environmental Enhancement		+ Positive environmental impact of street footprint and includes green street features		
		- Negative environmental impact of street footprint and includes green street features		
Multi-Modal Safety		+ Provides safety and comfort for all users, especially non-auto travelers		
		- Does not provide safety and comfort for all users		
Maintenance		- Minimizes ongoing maintenance and upkeep,		

Corridor Alignment Evaluation Criteria				
Category	Evaluation Criteria	Scoring Key	Score	Comments
		including drainage system maintenance, pavement maintenance, and landscape maintenance		
		- Requires greater ongoing maintenance and upkeep, including drainage system maintenance, pavement maintenance, and landscape maintenance		
Functionality		+ Effectively serves role as major arterial, and provides efficient movements for all travel modes including passenger cars, trucks, buses, bicycles and pedestrians		
		- Does not effectively serve role as major arterial, or provide efficient movements for all travel modes		

Based on this initial screening, it will be determined which concepts meet the basic requirements as described in the Purpose and Need Statement. These concepts will then be carried forward to the second-level screening.

After the initial Purpose and Need Statement screening, the next step is to begin a basic qualitative screening of the remaining corridor alignment and streetscape concepts. To assist in the evaluation process, the project team will apply more detailed evaluation criteria and develop a process by which each of the corridor alignments and streetscape concepts can be evaluated from a high-level qualitative perspective.

A more detailed evaluation matrix will be developed and applied at the second screening stage. This matrix will include more specific evaluation metrics for each criterion (i.e. mobility criterion will likely include: level of service, corridor travel speed, vehicle-miles-traveled in study area). These criteria will be developed and vetted with the Project Advisory Committee prior to their application.