CHAPTER 1 – PURPOSE AND NEED

Purpose

This project is designed to provide a safe, efficient, long-term solution to the transportation problems experienced in the South Medford Interchange area, located at Barnett Road's crossing of Interstate 5 (I-5) in the City of Medford, Jackson County, Oregon.

The purpose of the South Medford Interchange Project is to improve the safe and efficient movement of goods, people and services at and through the Interstate 5/Barnett Road interchange area. Consistent with the City of Medford's 1999 Vision process, the project is being designed to reduce existing and future traffic congestion and operational problems at the South Medford Interchange, while seeking to minimize adverse impacts of the improvements on neighborhoods, businesses and the environment. The project's Solution Team intends to improve safety and the accessibility of alternative modes of transportation in the project area, meet the needs of diverse travelers, and reduce per-capita vehicle miles traveled.

Need

South Medford's current transportation system cannot support future traffic that would be generated by projected growth patterns presented in Medford's *Comprehensive Plan*. Both local and regional drivers use the interchange, not only to gain access to I-5, but also for east-west movements across the freeway on Barnett Road. Existing local trips substantially contribute to the congestion. Future local trips generated by current and planned land uses will further increase congestion and need to be accommodated in a safe and efficient fashion that serves the community. The area's bike paths and pedestrian walkways have gaps that reduce their usefulness and safety. These facilities would be improved with increased connectivity.

Barnett Road experiences unacceptable traffic levels during peak periods. These unacceptable traffic levels are illustrated by the volume to capacity ratios (v/c) and levels of service (LOS) for existing conditions and projections for the year 2030 at key intersections of Barnett Road. These intersections are as follows (*Note:* existing v/c and LOS are followed by 2030 projections in italics): Stewart Avenue/I-5 southbound off-ramp (v/c 0.85, *v/c 1.38)*, Alba Drive/I-5 northbound off-ramp (v/c 0.85, *v/c 1.31)*, Barnett Road/Highway 99 (LOS D, *LOS F*) and Highway 99/Stewart Avenue (v/c 0.90, *v/c 1.52*). Other nearby intersections would also experience unacceptable congestion at various times in the future, depending on their location within the street system. For the design period (2030), project traffic goals are peak hour v/c ratios of 0.85 or better at the ramp terminal intersections, and 0.90 or better at the Highway 99/Barnett Road and the Highway 99/Stewart Avenue intersections.

Unsafe queuing and particularly long queues and short sight distances at the interchange, its off- ramps and surrounding intersections must be addressed. These factors combine to create a hazardous situation, which leads to a high percentage of rear-end accidents at these locations. Also causing a high percentage of accidents are left turning vehicles either turning into the wrong lane or turning too tightly and hitting a stopped vehicle. In addition, off-ramp queues backing up onto the freeway degrade its capacity and must be addressed.

Future operations of the interchange and I-5 need to be protected from traffic congestion and related safety problems in order to maintain their primary function for safe and efficient inter-regional and regional travel.