

7.0 Prioritizing and Ranking Activities to Reduce Diesel PM_{2.5}

As described above, a variety of diesel sources exist throughout the state. Because funding for emission reduction technology or programs is limited, a systematic approach is necessary to prioritize which technologies, programs, sources and areas will be addressed first.

7.1 Basic Approach

The basic approach to ranking and prioritizing actions to reduce diesel emissions is to target source categories that emit the most diesel PM_{2.5} and pose the greatest risk to the health of sensitive populations (children, the elderly, and people with existing health problems such as

¹⁹ “Assessment of Potential Strategies to Reduce Emissions from Diesel Engines in Washington State”, Kim Lyons, Ecology Publication 05-02-005, December 31, 2003

asthmatics), environmental justice communities (low income and minority populated) and the population in general. As a first cut to ranking, focus should be given to the major source categories in areas with the greatest exposure rates to sensitive populations such as schools, hospitals, medical clinics, nursing homes and environmental justice communities. Information on sensitive populations and environmental justice communities should first be evaluated for the region of concern. For example, figure 7.1 shows the location of environmental justice communities in the Spokane area²⁰ and Figure 7.2 shows schools, daycare centers, hospitals and nursing home locations relative to major transportation corridors in the Spokane area²¹. Maps like these have been developed for major urban areas of the Washington and are available from the Air Quality Program upon request. Information on sensitive populations should be researched on a case by case basis as a project or program is being developed and evaluated.

Consideration should also be given to areas that have higher background concentrations and/or expose the most densely populated areas; whether or not sensitive populations are present. Figure 7.3 shows the population density of Washington State. Population density information for Washington counties can be accessed at the Ecology’s GIS internet webpage: (<http://www.ecy.wa.gov/services/gis/maps/county/popden/popden-co.htm>). Figure 7.4 shows the diesel PM_{2.5} emission density on a 12 kilometer grid. Figure 7.5 shows the combined diesel health risk in Washington Counties based on estimated ambient diesel PM_{2.5} concentrations. Combined health risk includes such health issues as premature death, heart attacks, asthma attacks, respiratory ailments, lost work days and restricted activity days. Figure 7.6 shows just the cancer cases per million attributable to diesel exhaust.

Using this basic approach we will target the major sources of diesel emissions in areas with the highest diesel emission density and having sensitive populations and areas of the highest general population density. For instance, in the Puget Sound and Spokane regions we would target heavy duty on-road vehicles and construction equipment. The major sources of emissions should also be targeted in other areas of high diesel emission and population density such as Olympia, Clark County (Vancouver), Longview-Kelso, Yakima, the Tri-Cities (Kennewick, Pasco and Richland), Bremerton, Mt. Vernon, Wenatchee, Asotin County (Clarkston) and Bellingham. Other areas that are smaller, but still contain densely populated neighborhoods include: Aberdeen, Centralia, Ellensburg, Moses Lake, Oak Harbor, Port Angeles, Pullman, Shelton and Walla Walla. Appendix B lists metropolitan and micropolitan statistical areas, dense urban areas and dense urban clusters. These lists may be used to identify cities and towns that are likely to have pockets of dense population.