

facility. This estimate assumes that one tractor, one manure truck, and two pieces of miscellaneous equipment are used at the dairy on a daily basis. Quantification of the potential exhaust emissions that could result from all dairies subject to the Element can be approximated by assuming that the remaining available capacity (257,312 milk cows) for full dairy development under the Element could be accommodated by the operation of approximately 52 additional 5,000-milk cow dairies. Under this assumption, operational equipment exhaust from 52 additional 5,000-cow dairies would contribute a total of approximately 14 tons per year of additional PM₁₀.

PM₁₀ Emissions from Additional Vehicular Exhaust

Operation of new or expanded dairies under the Element would create a slight increase in vehicular traffic. Increased vehicular traffic would result in an increase in regional air pollutant emissions, including PM₁₀.

The increase in vehicular traffic associated with dairy operations would be from employee vehicles, manure haul trucks, feed trucks, milk trucks, and other miscellaneous vehicle use. The Element proposes that approximately 257,312 additional milk cows can be accommodated on land within designated Dairy Development Overlay Zones (DDOZs) and Nutrient Spreading Overlay Zones (NSOZs) in Kings County. Assuming an average dairy size of approximately 5,000 milk cows, the number of new dairies that could be accommodated is about 52. Since the theoretical dairy herd is the factor limiting dairy development, development of larger dairies would result in fewer dairies being constructed.

Average daily truck traffic due to each new 5,000-cow dairy is assumed to be approximately 84 one-way vehicle trips per day. This estimate is based on information provided by recent dairy applicants (Kings County, 1999) for milk delivery trucks, feed delivery trucks, dry manure trucks, and workers/visitors for large dairy facilities. It is also assumed that each new dairy would include at least one new residence. Truck trips would account for approximately 38 percent of the total estimated additional vehicular trips generated by the new dairies.

The projected regional air pollutant emissions (NO_x, ROG, and PM₁₀) from additional traffic generated by the 52 new 5,000-cow dairy facilities were calculated using the URBEMIS7 computer model developed by CARB. The emissions were calculated for the year 2020, a trip generation rate of 84 vehicle trips per day for each of the new dairies, and a vehicle distribution of 40 percent heavy duty trucks, 30 percent light duty trucks, and 30 percent light duty automobiles. The estimated emission of PM₁₀ would be 0.02 ton per year per dairy and a total PM₁₀ emission from additional dairy related vehicle trips of 0.79 ton per year.