

7.2 Aggregate Societal Risk

The aggregate societal risk represents the total societal risk profile posed by transport along the entire route. For relatively long routes, the computational time and model development can be prohibitive; thus, an efficient and computationally manageable approach is desired. In this section, we describe the approach and results for determining the aggregate risk along the route by:

- (1) Sub-dividing the route into smaller sections using representative population densities,
- (2) Calculating the societal risk for each section, and
- (3) Summing the risk for the sections.

As described earlier, the ETS example route is subdivided into 227 1-mile sections. These sections along each route were then grouped into population ranges to conservatively represent the number of 1-mile sections for a given population density along a given route, as shown in Table 27.

Table 27. Population range groupings for 1-mile sections along the route.

Population Density Range (people/mile ²)	Population Density used in Calculation (people/mile ²)	Number of 1-mile Segments along the Route
17,500 < x ≤ 20,000	20,000	1
15,000 < x ≤ 17,500	17,500	2
13,000 < x ≤ 15,000	15,000	2
11,000 < x ≤ 13,000	13,000	0
9,000 < x ≤ 11,000	11,000	2
7,000 < x ≤ 9,000	9,000	4
5,000 < x ≤ 7,000	7,000	11
4,000 < x ≤ 5,000	5,000	10
3,000 < x ≤ 4,000	4,000	7
2,000 < x ≤ 3,000	3,000	12
1,000 < x ≤ 2,000	2,000	35
500 < x ≤ 1,000	1,000	38
x ≤ 500	500	103