The second component, the number of vehicles in certain weight classifications comes from detailed counts of vehicle types in the traffic mix at a variety of times and places within each roadway class.

Finally, a means of converting the rough traffic numbers, broken down by vehicle class, to the 18-kip equivalent single axle load is needed. The axle load equivalency factors used in the design method vary with the load on the axle, the type of vehicle, and the pavement thickness. See the AASHTO guidelines for a complete set of tables. It should be noted that these tables do not reflect the higher tire pressures that are often used in the Municipality. However, the tabulated values still form a good starting place for equivalency factors. For a simplified approach, the values in Table 600.03 form an acceptable interim approach:

Table 600.03
Generic Equivalency Factors

Vehicle Type	*Equivalency Factor*
Heavy Truck	6.5
Medium Truck	1
Light Truck	.25
Automobile	.0008

Using these values and counts or estimations of traffic loading within the classifications, the overall 18-kip equivalent single axle loading can be estimated. The advantages of the AASHTO equivalency factor approach outlined above are that (a) the method can be used with very little data about the traffic composition, or with very detailed traffic counts; (b) most other methods require very detailed information about tire pressures, wheel configurations, and load layouts, information which would be even harder to come by than the traffic counts, and (c) the equivalency factors can be easily and directly incorporated within the method. Ideally, detailed weight and composition data can be obtained to allow the development of system-specific equivalency factors, but the AASHTO factors can be used in the meantime.

Step 2: Develop soil resilient modulus, M_R

The resilient modulus of the soil subgrade is required for design and must be measured or estimated. The AASHTO correlation below gives reasonable agreement between the California Bearing Ratio (CBR) and the soil resilient modulus. Unless site specific investigations determine different resilient modulus-CBR correlation factors, the AASHTO correlation should be used.

$M_r = 1500(CBR)$

where:

M_r = Resilient Modulus (psi)

CBR = California Bearing Ratio

Step 3: Determine the overall standard deviation, So

The overall standard deviation is a dimensionless parameter that accounts for random variation in the traffic projections and normal variation in the pavement parameters. Simply put, it provides a means of accounting for areas of weaker than average pavement receiving higher than expected traffic. A value of 0.45 for So is commonly used for flexible pavement materials.

Step 4: Select the level of reliability, R

The level of reliability describes the degree of certainty that the pavement will last as long as the design service period. Statistically, the thicker the pavement section the higher the likelihood that the pavement will last throughout its intended service life, other factors being equal. The level of reliability is represented in the AASHTO equation by the standard normal deviate, Z_R, and in the design nomograph by R. Table 600.04 contains recommended values for the roadway classifications. The table contains very conservative values to reflect the need for high performing pavements in a high-growth, low maintenance management mode.