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A Description of the Trip Generation Model

The capacity of engineered roads is designed for the heaviest periods of traffic. Generally the heaviest traffic occurs during the evening commute and to a lesser extent during the morning commute. Growth adds to the demand for additional capacity but must provide adequate funding mechanisms to increase that capacity as well as provide for adequate maintenance.

The current model used in Columbia charges all new construction a development fee of $.50/sq. ft. under roof for the purpose of construction of off-site collector and arterial streets and sidewalks and maintenance in combination with a permanent 0.5% Transportation Sales Tax. New growth road infrastructure also requires municipal bonding on a ten year schedule subject to voter approval. The peak 4-6 pm hour trip generation measurments show that different types of use groups generate different amounts of traffic. Columbia's model does not account for differences between different categories of users, however. Columbia's model also does not generate sufficient funds to significantly reduce the woefully inadequate forty-seven year road maintenance schedule.

An alternative model charges a fee based on typical number of trips generated by different categories of locations during the evening commute, usually defined as the peak flow hour during 4-6 pm. Each one-way trip has a beginning and an end. In this model the location where a trip ends is credited with the trip. That location has something that draws traffic to it thereby contributing to the traffic congestion during the peak hour. The attraction might be a movie, an office visit, shopping, work, going home, etc.

A comparison of three examples will illustrate. Let's say that the community has established a policy of recovering 50% of the actual infrastructure cost of new roads per unit per trip end or $4,785. In 2010 that prorated total cost is estimated to be about $9,570 per new residential lot.

A 2,000 sq. ft. single family dwelling - The Trip End value is 1.01 for this 2,000 sq. ft. Dwelling Unit. The total fee would be 1.01 x 1 Unit x $4,785 = **$4,833**. The current Columbia Development Fee for the same property yields $.50 per square ft. x 2000 sq. ft = **$1,000**.

A 3,500 sq. ft. Fast Food Restaurant with Drive Thru - The Trip End value is 17.74 for each 1,000 sq. ft. Commercial Unit. The total fee would be 17.74 x 3.5 Units x $4,785 = **$297,101**. The current Columbia Development Fee for the same property yields $.50 per square ft. x 3,500 sq. ft = **$1,750**.

A 180,000 sq. ft. Freestanding Discount Superstore - The Trip End value is 3.87 for each 1,000 sq. ft. Commercial Unit. The total fee would be 3.87 x 180 Units x $4,785 = **$3,333,231**. The current Columbia Development Fee for the same property yields $.50 per square ft. x 180,000 sq. ft = **$90,000**.

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