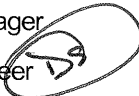


Memo

To: Kathy Sexton – City Manager
From: Dan Squires – City Engineer 
CC: Charlie Brown – Director of Community Development.
Date: 7/30/08
Re: Pavement Impact of Trash Trucks

Kathy:

Per your request, I have evaluated the comparative impact of a trash truck on residential streets to that of a passenger vehicle. I have made computations based on Equivalent Single Axle Load (ESAL) calculations and also based on an exponential equation suggested as a rule of thumb by the City of Wichita Special Projects Engineer. Due to the exponential nature of the effect of axle weight on flexible pavement design, the assumptions made have a significant impact on the calculation. For the purpose of this comparison axle weights of 2,000 and 18,000 pounds were used for passenger vehicles and trash trucks respectively.

The exponential equation yielded a result indicating that one trash truck is roughly equivalent to 6,500 passenger cars. The ESAL calculation resulted in an equivalency ratio of 7,500 passenger cars per trash truck. Changes in the assumptions used may result in ratios from 500 to 50,000. I believe for comparative purposes on residential streets that the effect on the pavement of one trash truck is equivalent to somewhere between 5,000 and 10,000 passenger vehicles. These computations only relate to the effect of axle loading on the pavement life, and do not take into account the significant impact of the constant acceleration and deceleration of the trash trucks.