

# Issue Paper # 5

**Date:** September 20, 2007

**To:** City of Hillsboro Ad-Hoc Transportation Finance Committee

**cc:** Tom Arnold, P.E., Mary Gruss, Don Odermott

**From:** DJ Heffernan

**Re:** Hillsboro Transportation Utility Rate Structure

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## Overview

The methodology for allocating general utility costs to customer groups was addressed in Issue Paper #4. This issue paper establishes “customer groups” and cost recovery rates for those groups. It also reviews options for fee discounts, incentives and for recovering extraordinary maintenance costs from customers that generate significant truck traffic.

It would be very expensive and complicated to calculate individual utility bills for every street utility customer using metering data for each customer. The city would need to invest in metering devices attached to all cars and trucks registered in the city, and monitor those devices every month.

To our knowledge, the technology for doing this is not readily available like it is for a water use meter. Moreover, many residents would oppose the collection of information about their personal driving habits as overly intrusive. Instead, the Committee elected to use land use information and group customers into “bins” that have similar traffic generating characteristics. The following discussion explains how we calculated monthly service rates for each customer group.

## Customer Groups

Hillsboro’s Transportation Utility should recover street maintenance costs from three customer groups. The customer groups are as follows.

- Residential – land uses that primarily function as a residence for an individual or family. The group is subdivided into “single family” (includes detached houses, duplexes, triplexes, and manufactured homes on individual lots) and “multi-family” (includes apartments, town homes, manufactured homes in mobile home parks, and condominiums).
- Non-residential – land uses that are predominantly associated with employment uses including wholesale or retail trade, professional offices, manufacturing, warehousing, mining and/or the distribution of mined materials, and other non-residential activities whose traffic generating characteristics are measured in the most current version of the International Traffic Engineers (ITE) Trip Manual.

- Other – A special non-residential category for land uses whose traffic characteristics are not well represented in the ITE Trip Manual or that include a blend of uses and therefore need to calculate their utility fee using special traffic studies or direct observable evidence.

An alternative approach would be to model the city's rate structure after the adopted Washington County TIF trip generation rates. This approach would link the city's utility to an already established trip rate mechanism. There would be minor shifts in the trip generation categories. For example, duplexes and triplexes would fall into the multi-family (R-2) bin rather than the Single Family (R-1) bin. At the margin, the rate implications would be small, but this would bring the monthly rates for the R-1 and R-2 bins (see Table 1 below) closer together.

### **Residential Cost Recovery Formula**

The basis for recovering the cost to maintain city streets from residential customers uses a cost per trip rate that is calculated by dividing the revenue requirement allocated to residential customers divided by the average number of daily trips on the system for residential customers. We estimated the average daily trips (ADT) for residential land uses using daily trip generation factors from the International Transportation Engineers (ITE) Traffic Manual, 7<sup>th</sup> Edition. Table 1 shows the estimated number of daily vehicular trips for Residential customers. The trip estimates were developed using land use information compiled for all properties within Hillsboro. For residential customers, we estimated total trips using dwelling unit counts maintained by the City of Hillsboro Planning Department. We applied the ITE trip code for each type of dwelling, (e.g. single family, duplex, apartment, mobile home, etc.), and summed the result.

Table 1 also shows the trip recovery rate calculation for residential customers. We grouped residential customers into two bins based on average trip rates for different types of dwellings. The R-1 Bin includes most housing that occupies a single residential tax lot, but also includes duplexes. These dwellings tend to produce more daily trips than attached dwellings in larger structures. Bin R-2 includes apartments, town homes, condominiums, and detached housing with accessory dwellings. It also includes manufactured homes within mobile home parks, whose trip characteristics are more like apartments than like single family homes.

Using the trip counts for these two bins, we apportioned the Residential cost share between them (see Issue Paper 4). We divided the annual cost share by the average daily trips for the bin and divided that number by 12 to establish a daily trip rate for each bin. We then multiplied that rate times the average daily trip rate for the bin to establish the monthly service charge for each bin.

An alternative approach would be to establish a single residential rate using the same method outlined above but applying it to all residential trips and costs. Taking the Residential revenue-requirement, which is \$1,171,300, and dividing it by all daily residential trips (299,260) and divided that result by 12, which yields a daily trip rate of \$0.33. We then multiply that rate times the average number of residential trips for all dwellings in Hillsboro, which is 8.6. This results in a general residential service rate of around \$2.85 per month.

### **Table 1 – Residential Average Daily Trip Estimate**

<b>R-1 Bin</b>	<b><u>Dwellings</u></b>	<b><u>ADT *</u></b>	<b><u>Trips/day</u></b>	<b><u>Percent</u></b>	<b><u>Annual Cost Share</u></b>	<b><u>Bin Trip Rate</u></b>	<b><u>Fee/ Month</u></b>
Detached Housing	18,571	10	185,710				
Duplex/Triplex**	1,385	9	12,465				
Manufactured	<u>454</u>	8	<u>3,632</u>				
Subtotal	20,410	9.89	201,807	67%	\$789,900	\$ 0.33	\$3.26

  

<b>R-2 Bin</b>	<b><u>Dwellings</u></b>	<b><u>ADT *</u></b>	<b><u>Trips/day</u></b>	<b><u>Percent</u></b>	<b><u>Cost Share</u></b>	<b><u>Bin Trip Rate</u></b>	<b><u>Fee/ Month</u></b>
Multifamily	10,568	7	73,976				
Town Homes	1,839	6	11,034				
Accessory Units	44	6	264				
Condos	<u>2,030</u>	6	<u>12,180</u>				
Subtotal	14,481	6.73	97,454	33%	\$381,400	\$ 0.32	\$2.15

\* - ITE Manual, 7<sup>th</sup> Edition, rounded to nearest trip

\*\* - if the City elects to use the TIF rate structure, these housing types will move to multi-family

**Non-Residential Cost per Trip Formula**

For non-residential uses, we applied ITE Manual land use trip factors to Hillsboro businesses by cross referencing business license information maintained by the Hillsboro Planning Department. The sum of those land use trip counts is shown in Table 2. For institutional uses, including schools, government uses, churches, and group-quarter living facilities, we assumed that these uses comprise 5% of total trips. The total trip estimate for the city, therefore, may be calculated by dividing the sum of residential and employment related trips by 0.95. Verification of this assumption will be conducted before the final non-residential trip rate factor is established.

Table 2 also shows the monthly average cost/trip for the non-residential group. We estimated this rate by dividing the fair share cost allocation (see Issue Paper #4) by 12, and then divided that amount by the estimated daily trips for the group. The result of this analysis is shown below.

**Table 2 – Non-Residential Average Daily Trip Estimates**

<b>Customer Group</b>	<b>Non-Residential</b>			<b>Sub-Total</b>
	<b>Commercial</b>	<b>Industrial</b>	<b>Other</b>	
Estimated Daily Trips				
Cost Allocation				
Average Daily Trip Rate				

Source: City of Hillsboro; ITE Manual, 7<sup>th</sup> Edition

The purpose of this average non-residential rate is to provide a basis for testing the general fairness of customer fees and for calculating fees for customers that do not readily fall into a well defined ITE Trip Category. Examples might include highly automated industrial facilities, university complexes, or residential mixed use complexes.

**Non-Residential Service Fee Formula**

Travel behavior for commercial customers is much more variable than for residential customers. Trip generation not only varies by the type of use but also by the size of the enterprise. For example, a 5000 square foot convenience grocery store may generate more trips per square foot than a large grocery store, but because of their size difference the convenience store generates fewer overall trips.

To account for this variety, we grouped non-residential uses into six bins with each bin covering a trip generating range per 1000 square feet of developed area. Developed area in this case only includes areas within a building, not surface parking or other ancillary site improvements. Under this system, all customers with similar traffic generating characteristics pay the same trip rate per 1000 sq. ft. of building area, but their monthly service fee varies based on the size of the business. The ITE Manual provides a basis for making this calculation (ITE Manual, 7th Edition).

For example, consider two professional businesses that have similar trip characteristics, but Company A is twice the size of Company B. Under the proposed rate structure, the monthly charge for Company A would be twice that of Company B (assuming the buildings they occupy are proportional to their size difference). The ordinance would be written in a way that gives the City Engineer or Utility Manager the authority to establish which trip rate is most appropriate for each commercial or industrial customer. Information on the size of business establishment is available from the city's business license database; validation of the outcome of this analysis needs to be performed for businesses with missing square footage information and for businesses that challenge the information in the database. That analysis is not yet complete but will be before the rate structure is imposed.

We tested this rate structure using trip rates established for the City of Tualatin. That analysis determined that the utility would generate between \$1.1 million and \$1.5 million in Hillsboro. This amount is higher than the fair share target assigned to Hillsboro's commercial and industrial customers (\$981,000). If after more thorough testing the revenue projection remains high, we will adjust the bin rates to ensure commercial and industrial customers are not overcharged.

Table 3 shows the preliminary rates for commercial and industrial customers and example fees that customers would be charged.

**Table 3 - Commercial/ Industrial Groups**

Group	Trip Range	Rate/1000 Sq. Ft.	Customer Example	Category	Size (ft <sup>2</sup> )	Est. Fee (\$)
1	< 7	0.75	Printing Plant	Light Manufacturing	10,000	8
			Warehouse	Warehouse	200,000	150
			Silicon Wafer Plant *	Manufacturing	1,000,000	750
2	7 - 21	1.66	Insurance Office	General Office	5,000	8
			Industrial Research Lab	R&D	50,000	83
3	21 - 53	4.39	Book Store/Kitchen Store	Specialty Retail	1,500	7
4	53 - 151	11.08	24hr Diner (no drive thru)	High Turn-over Rest.	5,000	55
			Safeway, Albertson, etc.	Super Market	50,000	554
5	151 - 400	29.51	Gas Station w/ market	Fueling Positions	3,000	148
6	> 400	72.73	Wendy, McDonalds, Burger King, Dairy King	Fast Food Rest. w/drive thru	2,000	218
7	TBD	TBD	Special Customer	TBD	TBD	TBD

\* - likely would fall into Class 7

Note that the rate structure caps the trip rate for businesses that generate more than 400 trips per day. This is well below the rate generated by some businesses. For example, a drive thru fast food restaurant with no indoor seating has a trip generation rate of 1400 daily trips per 1000 sq. ft. The proposed rate structure, however, would cap the cost for that use at around one-third of the actual trip rate.

### Other Uses

Class 7 is reserved for special customers whose land use is not easily characterized. A hospital, for example, houses functions that fall into many land use categories. Some Intel plants may house a variety of functions and rely on processes that are housed in large buildings but are almost entirely automated so they generate very little traffic. Other manufacturing facilities may have location and work force characteristics that place very little impact on the city street network. A provision is made to work with these customers to establish a fee outside the formula rate structure, but this option is intended to be used on rare occasions and it will be up to the customer to demonstrate that a non-formula based rate is appropriate.

### Heavy Vehicles

Three options are possible for dealing with trucks and other heavy vehicles. Option one is to not treat these vehicles differently and recover all costs using the same rate structure for all

customers. Under this approach, the rate structure outlined above would be used as presented because the cost basis fully capitalizes the annual revenue requirement for the utility.

A second option would be to identify users that generate significant truck or heavy vehicle traffic that have a direct maintenance impact on a city road segment that serves that user. For example, a mining operation or school bus yard where the maintenance requirement on one or more streets in the immediate vicinity of that customer is extraordinary and can be linked to that user. In these cases, which would be infrequent, the user would be required to pay a surcharge for the extraordinary maintenance associated with those streets.

The surcharge for this extraordinary wear and tear would be collected through a special Category 7 invoicing process separate from the customer's regular fee. Depending on the amount of surcharges revenue collected, an adjustment may need to be made to the general rate structure as an offset against surcharge revenue. A significance threshold of between 3% and 5% would be established to determine when surcharge revenue requires a rate adjustment.

The third option would be to embed a heavy vehicle surcharge into the rate structure as the City of Wilsonville has done. Wilsonville's non-residential rate structure is similar to the one described for Hillsboro in that it has an intensity provision (trip generation) and a magnitude provision (building size) but it also includes another component for truck traffic serving the customer. Customers are granted "amnesty" for a fixed number of daily truck visits (e.g. 5) but after that, they must pay a surcharge for trucks. It appears the truck visit rate uses a percentage of estimated city-wide trip ends made by trucks divided by a portion of the maintenance program cost that is expected to be recovered from truck visits. So, for example, if 100 truck trip-ends are expected to recover \$1200 of maintenance cost, each daily truck visit above the "amnesty" level would cost the customer \$1/month.

While elegant in its simplicity, we are not aware of a secondary source that provides truck visit information. The City of Wilsonville staff assigned truck visits to individual customers based on "field observations". They said they would send us the data they collected to back up their truck surcharges. To date, no Wilsonville customer has appealed his truck traffic assignment, which suggests the truck traffic estimates and related cost is relatively low. In addition to data about numbers and sizes of trucks, there also is an "equity" issue in Hillsboro regarding the City's limited maintenance responsibility for the arterial network, which is where most truck traffic occurs.

### **User Incentives and Discounts**

Table 4 below outlines a set of incentives and discounts that may be worked into the rate structure. Care needs to be taken in granting discounts and incentives that they do not undermine the utility's ability to raise sufficient revenue to meet its maintenance obligation.

**Table 4 – Incentives and Discounts**

<b>Incentive</b>	<b>Benefit</b>	<b>Measurement</b>	<b>Revenue Impact</b>
Residential: Low Income /Elderly	Reduces fee for people with low income or on fixed incomes	Means based	Minor to moderate: some administrative impact

Residential: Bike-Ped- Transit	Reduces the fee for those who do not own a car	ODOT Records	Minor – assess partial fee: some administrative impact
Non-Residential: Bike-Ped- Transit	Reduces fee for companies that promote/realize alternative mode use	Performance monitoring	Moderate Potential: w/high administrative impact
All: capital offset (e.g. building a sidewalk)	Private financing for desired capital improvements	Performance	Minor: most capital projects too expensive but may help with sidewalks

### Discussion Summary:

The committee was comfortable using either the ITE Manual trip rates or, as some Staff members suggested, using the adopted County TIF rate structure, which has been in place for 17 years and is programmed into the City's accounting system. Some members expressed a concern that residential bins for different types of housing seem somewhat arbitrary. Some people that live in single family homes drive very little while some people in condominiums drive a lot. These members favored keeping the rate structure as simple as possible. They argued that a single residential rate would be much easier to explain to people and the difference in the rate for the two bins - around \$1/month - hardly seems worth all the trouble. The team agreed to modify the Issue Paper to include a single residential rate alternative for consideration.

There was a lengthy discussion about the implications of the Tualatin rate structure for various customers in Hillsboro. Note was taken of the high monthly charge that would be imposed on gas stations because it is based on the number of pumps in each station. The amount they would be charged, however, is less than gas stations would need to collect if the city passed a gas tax. Some wanted to know how much a typical grocery store currently pays in other cities that have a traffic utility fee. For the present, the committee agreed with the approach with the understanding that staff would test the outcome for consistency with the non-residential revenue requirement and adjust the rates accordingly.

There was discussion about the "Other" category – Non-residential Bin 7. Speculating about businesses that could fall into this category were Intel Corporation, whose mix of R&D with highly automated chip processing facilities would make it difficult to fit under one ITE category. The hospital also was mentioned as an example. The committee agreed that there needs to be a non-conventional method for handling unusual customers provided that the customer was truly an exceptional case.

In the discussion on a heavy or truck vehicles surcharge it was generally agreed that a truck traffic factor would not be appropriate because Hillsboro does not experience that much truck traffic on city streets. In addition, Hillsboro does not have the same amount of warehouse and distribution centers like they have in Wilsonville, so the burden seems different. Members liked the suggestion to include authority in the enabling ordinance that would let

the City impose a surcharge for street damage in a specific location if, for example, one business was causing an unusual amount of damage to a particular city road.

The committee discussed discounts and incentives. Most members looked unfavorably on residential discounts using means-based or DMV registration data because of the administrative burden and relatively low cost of the utility fee. Members were uneasy about offering incentives for businesses that promote the use of alternative modes, especially if the outcome could result in the city not meeting the revenue goal for the program. Members were more inclined to let customers take utility credits in exchange for building capital improvements, but the viability of this approach was questioned. Who would build a sidewalk improvement amortized by the avoided cost of their utility fee if it would take a very long time to recover the cost? But members saw no harm in offering it as an option.

**Decision Summary:**