

Attachment 2

Lane Transit District STP-U Application for FY 2011-2013

Detail on Estimate of Annual Greenhouse Gas Emissions Reduced with \$500,000 Fixed Route Service (10,800 Service Hours)

Measure	System Wide	Project	Explanation
Annual Project Service hours provided for \$500,000		10,800	Hours of Service provided by \$500,000
Annual boardings	11,718,289		Annual total system boardings
Service hours	<u>305,720</u>		Annual total system service hours
Boardings per service hour		<u>38.33</u>	Annual Average Boardings/Service Hour (B8/B9)
Project Boardings for 10,800 service hours		413,965	Project Service Hours multiplied by boardings per service hour (C7*C10)
Transfer rate		<u>1.30</u>	30 percent of boardings are transfers from one bus to another bus. The transfer must be removed from project boardings to avoid double counting.
Linked trips for 10,800 service hours		318,435	Project Boardings minus 30 percent transfers
% of trips that will revert to Auto Trips		<u>0.60</u>	Based on 2007 LTD Origin-Destination Survey indicating that 60% of riders have an auto at home
Trips that will revert to Auto Trips		191,061	Potential New Person Trips using Auto without Project
Systemwide Passenger miles	42,347,694		
Systemwide Boardings	<u>11,718,289</u>		
Average Miles per boarding	<u>3.61</u>		System Average Transit Trip Distance (B16/B17)
Added Annual Vehicle Miles Traveled (VMT)		690,458	Distance Traveled by Potential New Auto Person Trips (miles) (C15*B18)
Conversion factor to person km traveled		<u>1.61</u>	
Added Annual Person Kilometers Traveled		1,111,638	Distance Traveled by Potential New Auto Trips (kilometers)
CO2 emissions factor (grams/person km travelled) - incremental bus to sedan		<u>135</u>	Emissions factor based on recent research (see Source below). The increased emissions (in grams per person-kilometer travelled) are the difference between what the emissions would be with the project (bus) and what they would be without the project (auto). Attachment 3 provides a graphic illustrating this difference.
Increase in CO2 emitted without project (grams)		150,071,151	Potential New Annual CO2 emissions without project (grams)
CO2 conversion grams to tons		<u>0.0000011</u>	
CO2 tons		165	Potential New Annual CO2 emissions without Project (tons)

*Source: M V Chester and A Horvath - Environmental Resource Letter. 4 (2009) 024008