Some C-Tran FACTS

Submitted by
Jim Karlock
5/5/2015

Based on the Federal Transit Database,
Table 46 of the Consumer Expenditure Survey, 2013,
and C-Tran 2013 CAFR

Daily average number of people who ride C-Tran	8960[1]
Spending per daily rider	$5269[2]
Cost of owning a car for income levels of $30,000 to $39,999	$4102.5 [3]
Fare Revenues	19% [4]
Average bus load	9.47 people [5]
Average speed:	13.87 mph [5]
C-Tran operating Expense per Passenger Mile	$0.90
Automobile Expense per Passenger Mile	$0.303[6]
Bus fuel consumption per passenger-mile	37.67 PM/gal
Equivalent gasolene consumption per passenger-mile	33.14 PM/gal
Current CAFÉ standard (at 1.2 people per car)	36 PM/gal

Conclusion:
1. C-Tran is 3 times the cost of driving a car, uses more energy and is slower.
2. It is cheaper to buy each daily rider a car with all expenses paid, than to operate C-Tran.

C-VAN Demand Response vs. UBER

C-Tran Data & Cost

Operating Expenses (Excludes data for purchased transportation)		$9,001,544
Operating Expense per Passenger Mile		$5.38
Operating Expense per Unlinked Passenger Trip		$38.96 <----------
Annual Passenger Miles		1,671,950
Annual Vehicle Revenue Miles		1,307,322
Annual Unlinked Trips		231,021
Unlinked Passenger Trips per Vehicle Revenue Hour		2.78

Above from http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2013/agency_profiles/0024.pdf

Average passengers/vehicle	1,671,950/1,307,322	1.28
Average trip length	1,671,950/231,021	7.237 mile
Average trip time	60/(2.78*1.28)	16.86 min.

UBER cost for average C-VAN trip:

WAV fares based on "Black Car" fare		http://blog.uber.com/phillyWAV
SUV fare	$0.40/minute $3.50/mi. ($25 min)	https://www.uber.com/cities/chicago
UBER	$0.40*16.86 + $3.50* 7.237	$32.07 <----------

WAV fares based on SUV fare		http://blog.uber.com/uberwavla
SUV fare	$0.55/minute $4.05/mi. ($12 min)	https://www.uber.com/cities/chicago
UBER	$0.55*16.86 + $4.05* 7.237	$38.56 <----------

NOTES

(1) Average daily unlinked trips:
(weekday x5 + Saturday+Sunday)/7= ((21,646 * 5) + 10,343 + 6,863)/7
= (108230 + 10,343 + 6,863)/7 17919
Daily number of people = unlinked trips /2 = 17919/2 = 8960
Trips from: http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2013/agency_profiles/0024.pdf

(2) total annual spending = $47,210,687 (pg 27 CAFR)
Spending per daily rider = annual spending/average daily riders = $47,210,687/8960= $5269
Trips from: http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2013/agency_profiles/0024.pdf
CAFR - http://www.c-tran.com/images/CAFR/c-tran_2013_cafr.pdf

(3) Annual Transport expenditure for $35,000 income: $6,843
Minus public transport $279
Number of cars: 1.6
Expendeture per car (6,843-279)/1.6 $4102.5
Data from: http://www.bls.gov/cex/2013/combined/income.pdf

(4) http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2013/agency_profiles/0024.pdf

(5) Bus Passenger-miles 29,110,059
Bus Revenue-miles 3,073,366 Avg bus load = 29,110,059/3,073,366 = 9.47 people
Bus Vehicle Revenue hours 221,572 Avg miles/hr = 3,073,366/221,572 = 13.87 mph IBID

(6) Average annual car expendeture $4102.5
Average annual miles per car: 11,300
Cost per mile 4102.5/11,300 $0.363
Average vehicle passengers (work trips) 1.2
Average vehicle passengers (all trips) 1.7
Cost per passenger-mile 0.363/1.2 $0.303
Average passengers from Figure 8.2 and miles from: Table 8.10
http://cta.ornl.gov/data/tedb33/Edition33_Full_Doc.pdf

(7) NTD table 17:
Bus annual diesel: 772,800 gal
PM/gal = 772,800 / 29,110,059 = 37.67 PM/gal
Correct for Diesel vs gasolene energy 37.67* 0.88= 33.14 PM/gal
CAFÉ standard is now 30 mpg which is 36 pm/gal at 1.2 people per car
Sources:
CAFÉ:
http://en.wikipedia.org/wiki/Corporate_Average_Fuel_Economy#Standards_by_model_year.2C_1978-2011
Diesel, Gasolene energy from: http://en.wikipedia.org/wiki/Gasoline_gallon_equivalent
Bus annual Diesel from:
http://www.ntdprogram.gov/ntdprogram/pubs/dt/2013/excel/2013%20Table%2017%20Energy%20Consumption%20.xls
Bus annual passenger-miles from Table 19:
http://www.ntdprogram.gov/ntdprogram/pubs/dt/2013/excel/2013%20table%2019%20transit%20operating%20stats.xls