

Cars Beat Transit for Energy, CO2, Cost, Time & Convenience

Cars Are Cheaper Than Transit

AAA says that the cost of driving is 59.2 cents per mile. Allowing for the fact that the average car has 1.6 passengers, the average cost per passenger-mile is 37 cents. This is a highball number based upscale AAA member's car costs, not the USA average. The cost for an average car is around 27 cents.¹ Data from AAA: <http://exchange.aaa.com/wp-content/uploads/2015/04/Your-Driving-Costs-2015.pdf> (see reverse side for excerpt)

C-Tran reports that it carried 36,193,395 fixed route passenger miles for a cost of \$34,483,217. This is 95 cents per passenger-mile, about three times the actual cost of driving.² Data from page 68 of C-TRAN Comprehensive Annual Financial Reports (CAFR) http://www.c-tran.com/images/CAFR/c-tran_2014_cafir.pdf (see reverse side for excerpt)

Cars Use Less Energy

The Transportation Energy Data Book shows cars use 3,144 BTU per-passenger-mile and "Transit Buses" use 4,071, 29% more. Data from http://cta.ornl.gov/data/tedb34/Edition34_Chapter02.pdf Table 2.14. See reverse side for excerpt (Also see table 2.15)

Cars Emit Less CO2 Than Buses

The US Government says CO2 emissions are related to BTUs at 157.2 lbs CO2 per million BTU for Gasoline and 161.3 for Diesel. <https://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11>

Cars Save Commute Time

Based on data from the American Community Survey, commute to work on transit takes about twice as long as driving a car. The average car commute was found to be 25.2 minutes while the average transit commute was 48.1 minutes. Interestingly commute to work time was about the same for drivers whether

¹ The AAA shows Operating cost per mile at 17 cents for a Medium Sedan. The ownership costs work out to be 41 cents for 15,000 annual miles. About 25 cents of that is depreciation of the new car. Assuming depreciation on the average USA car is only 5 cents, and an added 5 cents for maintenance, the cost of driving would be (59-15)/1.6 or 27 cents per passenger-mile.

² People may wonder how a bus full of people can use more fuel per passenger than a car. The answer is that the average C-tran bus carries 7.8 people. See over.

they lived in suburbs or cities. Data from: <http://www.debunkingportland.com/commutetime.html>

Cars Are More Convenient

Your car is usually a few steps away in your garage (or within a short walk of your front door) compared to several blocks away for transit, or ¼ mile for light rail.

You car takes you when you want to go instead of being a slave to a bus schedule. There is no waiting for the bus in 100 degree heat or 0 degree cold. There is no exposure to criminals on the way to, or at, the bus stop.

You can make many stops on your way, unlike transit which involves a long wait for a bus after each stop.

When shopping, you can load up a weeks (or month's) worth of groceries in your car, or carry a day or two's worth of groceries on, the sometimes crowded bus.

And you NEVER have to stand up, jammed cheek to cheek with strangers, in your car

For older people driving is much easier than using transit - there is little walking involved and little exposure to crime or the elements. See: <http://www.debunkingportland.com/elderly%20travel.html>

A Pew research poll found cars are rated as the most needed item. See: <http://www.debunkingportland.com/carsnecessary.html>

Compared to buses,

- Cars use less energy,
- Cars emit less CO2,
- Cars are faster,
- Cars are cheaper,
- Cars are more convenient,
- Cars are easier to use than transit which is especially important for older people and handicapped people.
- Pew research found that people rate cars the most needed item.

Cost Data

AAA Average Costs Per Mile

| miles per year | 10,000 | 15,000 | 20,000 |
|---------------------------|-------------------|-------------------|-------------------|
| small sedan | 58.2 cents | 44.9 cents | 38.0 cents |
| medium sedan | 75.9 cents | 58.1 cents | 49.0 cents |
| large sedan | 93.3 cents | 71.0 cents | 59.5 cents |
| composite average* | 75.8 cents | 58.0 cents | 48.8 cents |

From: <http://exchange.aaa.com/wp-content/uploads/2015/04/Your-Driving-Costs-2015.pdf>

CLARK COUNTY PTBA OPERATING INFORMATION 2014-2005

| | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| PASSENGER MILES | | | | | | | |
| A. Fixed Route | 36,193,395 | 38,399,963 | 32,408,972 | 33,748,700 | 31,773,904 | 34,730,798 | 36,883,205 |
| B. Demand Response | 1,703,745 | 1,671,950 | 1,542,584 | 1,468,523 | 1,528,543 | 1,295,897 | 1,409,969 |
| C. Vanpool | 2,014,887 | 1,996,671 | 1,570,340 | 756,260 | 461,647 | 379,442 | 0 |
| OPERATING MILES | | | | | | | |
| A. Fixed Route | 4,636,289 | 4,637,508 | 4,645,968 | 4,656,656 | 4,618,039 | 4,970,828 | 5,155,643 |
| B. Demand Response | 1,563,463 | 1,541,863 | 1,454,013 | 1,366,941 | 1,436,388 | 1,431,783 | 1,535,597 |
| C. Vanpool | 449,502 | 412,699 | 303,654 | 145,611 | 78,431 | 65,864 | 0 |
| NET OPERATING COST | | | | | | | |
| A. Fixed Route | \$34,483,217 | \$31,781,431 | \$31,063,712 | \$29,935,491 | \$28,219,249 | \$28,689,099 | \$28,283,504 |
| B. Demand Response | 9,903,245 | 8,999,356 | 8,554,901 | 7,771,570 | 7,775,082 | 7,816,398 | 8,791,796 |
| C. Vanpool | 229,465 | 189,693 | 172,019 | 128,488 | 219,071 | 281,796 | 0 |

Selected from: page 68 of http://www.c-tran.com/images/CAFR/c-tran_2014_cafir.pdf
 Passengers per bus: 36,193,395 passenger-miles / 4,636,289 vehicle miles = **7.8 passengers/vehicle**

Energy Data

**Table 2.14
Passenger Travel and Energy Use, 2013**

| | Number of vehicles (thousands) | Vehicle-miles (millions) | Passenger-miles (millions) | Load factor (persons/vehicle) | Energy intensities | | Energy use (trillion Btu) |
|---------------------------------|--------------------------------|--------------------------|----------------------------|-------------------------------|------------------------|--------------------------|---------------------------|
| | | | | | (Btu per vehicle-mile) | (Btu per passenger-mile) | |
| Cars | 113,676.0 | 1,446,000 | 2,241,300 | 1.5 | 4,873 | 3,144 | 7,046.6 |
| Personal trucks | 106,018.4 | 1,032,554 | 1,899,899 | 0.0 | 6,446 | 3,363 | 6,655.4 |
| Motorcycles | 8,405.0 | 20,366 | 23,625 | 1.2 | 2,871 | 2,475 | 58.5 |
| Demand response ^a | 68.6 | 1,565 | 2,171 | 1.4 | 16,898 | 12,182 | 26.4 |
| Buses | | | | | | | |
| Transit | 71.7 | 2,425 | 22,306 | 9.2 | 37,442 | 4,071 | 204.1 |
| Intercity ^c | | | | | | | 90.8 |
| School ^c | 720.3 | | | | | | 32.8 |
| Air | | | | | | | 80.5 |
| Certificated route ^d | | 5,512 | 579,944 | 105.2 | 253,190 | 2,406 | 1,599.1 |
| General aviation | 199.9 | | | | | | 1,395.5 |
| Recreational boats | 13,706.6 | | | | | | 203.6 |
| Rail | 20.2 | 1,452 | 39,053 | 26.9 | 66,008 | 2,455 | 245.0 |
| Intercity (Amtrak) | 0.5 | 319 | 6,810 | 21.3 | 45,205 | 2,118 | 95.9 |
| Transit | 12.4 | 774 | 20,381 | 26.3 | 63,265 | 2,404 | 14.4 |
| Commuter | 7.3 | 359 | 11,862 | 33.0 | 90,407 | 2,737 | 49.0 |

Table 2.14 from http://cta.ornl.gov/data/tebd34/Edition34_Chapter02.pdf