How the AAA Cost of Driving = 57¢/mile = 37¢/passenger-mile And is 25¢/passenger-mile for the rest of us

AAA stated cost of driving (per vehicle mile)**.....$0.57**

The AAA lists the cost of driving for three classes of cars and at three different annual mileage This number is for their middle case - driving the "average" car 15,000 miles/year. It is the cost per vehicle mile. But, according to the *TRANSPORTATION ENERGY DATA BOOK: EDITION 29, fig. 8.1*, the average USA car has 1.59 people in it. Applying this conversion gives:

AAA method cost of driving (per passenger-mile at 1.59/car)**.....$0.36**

The AAA *Driving Costs 2010.pdf* states on page 3:

> *Depreciation is based on the difference between new-vehicle purchase price and estimated trade-in value at the end of five years.*
>
> …
>
> *Finance Costs are based on a five-year loan at 6 percent interest with a 10 percent down payment. The loan amount includes taxes and the first year's license fees, both computed on a national average basis.*

Thus the AAA data is for the average cost of driving a car that is only 2 ½ years old (presumably to match the typical upscale AAA member.) But, according to the *TRANSPORTATION ENERGY DATA BOOK: EDITION 29, table 3.9*, the average age of the average USA car is 10.6 years. Adjusting for this, we get:

AAA cost of driving adjusted for car age difference.(per passenger-mile)**.....$0.25**

We can also calculate the cost of driving entirely from data in the *TRANSPORTATION ENERGY DATA BOOK: EDITION 29:*

Actual average USA cost of driving .....(per passenger-mile).....$0.24

Thus we can conclude that the actual cost of driving in the USA for the average person is around 25 cents/passenger-mile. Since this cost includes all licensing and taxes, it **includes most of the cost of building and maintaining the roads.** This is the cost to use to compare to different modes of travel such as transit bus, light rail, commuter rail or airline, although most transit data is given without the cost of building or maintaining the roads (or rails).

Cost of transit for Comparison

USA Average cost of bus transit.....(per passenger-mile).....$0.85

This is only the cost of operating the bus system and does not include the cost of the buses or the cost of the roads that the transit buses use. When you include the cost of the buses (but not the cost of roads - government transit DOES NOT pay road taxes), you get something close to :

USA Average cost of bus transit including capital cost....(per passenger-mile).....$1.01

USA Average cost of light rail transit.....(per passenger-mile).....$0.52

This is only the cost of operating the light rail system and does not include the cost of the trains or construction of the rail lines or stations. When you include some of these costs*, you get:

USA Average cost of light rail transit including capital cost..(per passenger-mile).....$1.38

Conclusion

Using ONLY AAA and Federal government data, mass transit is MUCH more expensive than driving a car.

* Much of the cost of constructing light rail does not come from the local transit agency and thus is not reported, by them, as a cost.

Calculations for **Actual average USA cost of driving**

ALL Data is from TRANSPORTATION ENERGY DATA BOOK: EDITION 29,
tables 3.9, 8.3, 8.9 & fig. 8.1, (all attached)

From Table 8.3:

Average annual USA household expenditures...(before tax)..... $50,486

Vehicle purchases (net outlay) 7.1%.....5.5% of $50,486 = $2,776
Gasoline and motor oil 4.6%.....5.4% of $50,486 = $2,726
Other vehicle expenditures 4.9%.....5.2% of $50,486 = $2,625
Public transportation 1.0%.....1.0% of $50,486 = $505
TOTAL..... 17.6%..... $8,632
Average number of vehicles in HH.....2.0

Calculate:

Total..... (car only - w/o transit).....$8127
divide by average annual household miles...(table 8.9)...8127/(10,100x2cars).....$0.40
Divide by 1,71 per vehicle (fig. 8.1)..cost per-passenger-mile.....**$0.24**

AAA stated cost of driving From: The AAA publication at

http://www.aaapublicaffairs.com/Assets/Files/201048935480.Driving Costs 2010.pdf

The AAA Driving Costs 2010.pdf states on page 3:

> *Depreciation is based on the difference between new-vehicle purchase price and estimated trade-in value at the end of five years.*
>
> ...
>
> *Finance Costs are based on a five-year loan at 6 percent interest with a 10 percent down payment. The loan amount includes taxes and the first year's license fees, both computed on a national average basis.*

Therefore the **average car in the AAA study is 2.5 years old** compared to the national average of 10.6 years. This accounts for almost all of the difference between the AAA cost of driving and the actual USA cost of driving. (And the IRS cost because the IRS appears to use the AAA number.)

The AAA Cost of Driving shows the cost of driving for several situations, broken down into fixed and variable costs. For their middle case of a mid sized car driven 15,000 miles/yr, here is the AAA variable cost followed by the AAA chart of "ownership" costs with **our added right column** being the average USA cost (*AAA in the USA Avg. column means we used the AAA number*):

AAA average variable cost per mile..... .....16.74 cents

AAA average ownership costs:	**AAA**	**USA Avg**.
full-coverage insurance	$1,031	AAA*
license, registration, taxes	$585	AAA*
depreciation (15,000 miles annually)	$3,554	$1,388 ($2,776/2.0)**
finance charge	$806	$0***
TOTAL	$5,976	$3,424

at 15,000 miles/year:

Fixed costs	($5,976/15,000)	39.8 cents/mi	22.8 cents/mi
Variable costs		16.74 cents/mi	AAA
TOTAL coat per vehicle-mile		**56.54 cents/mi**	**39.5 cents/mi**
Cost per Passenger-mile (1.59 people/car - 56.54/1.59)		**35.56 cents/mi**	**24.8**

* the cost of both insurance and license, registration and taxes for the average car would be less than the AAA number, so using the AAA number here will make our USA average cost of driving higher that the actual real cost.

** Actual household purchase expense for 2 cars divided by 2 to get cost per car.

*** Finance charge is assumed to be in the vehicle purchase cost. Data from TRANSPORTATION ENERGY DATA BOOK: EDITION 29 Table 8.3: