Estimating Annual Cost and Cost Per Trip for a Demand-Response System

If **NUMBER OF VEHICLES** is your starting point, and you want to know the number of trips that can be served and at what total cost, you need to also input an assumed productivity, number of RVHs per vehicle per day and cost per RVH, and annual days of service. The example below shows the cost at different fleet sizes, holding the productivity constant.

Vehicles	Productivity (Trips/RVH)	RVHs Per Vehicle Per Day	RVHs Per Day	Trips Per Vehicle Per Day	Trips Per Day	Cost Per RVH	Annual Days of Service	Total Annual Cost of Service	Annual Ridership	Cost Per Trip
2.0	1.5	7.5	15.0	11.3	22.5	$ 36.00	250	$ 135,000	5,625	$ 24.00
4.0	1.5	7.5	30.0	11.3	45.0	$ 36.00	250	$ 270,000	11,250	$ 24.00
6.0	1.5	7.5	45.0	11.3	67.5	$ 36.00	250	$ 405,000	16,875	$ 24.00
8.0	1.5	7.5	60.0	11.3	90.0	$ 36.00	250	$ 540,000	22,500	$ 24.00
10.0	1.5	7.5	75.0	11.3	112.5	$ 36.00	250	$ 675,000	28,125	$ 24.00

input fields

Possible Service Area / Trip Characteristics	Productivity
sparse; longer trip lengths; little ridesharing; many to many	1.00
	1.25
	1.50
	1.75
	2.00
	2.25
dense; shorter trip lengths; group trips; many to few	2.50

The example below shows a constant fleet size (2 vehicles) with varying costs per hour, using the in-state examples from the box in the lower right.

2.0	1.5	7.5	15.0	11.3	22.5	$ 26.03	250	$ 97,613	5,625	$ 17.35
2.0	1.5	7.5	15.0	11.3	22.5	$ 35.65	250	$ 133,688	5,625	$ 23.77
2.0	1.5	7.5	15.0	11.3	22.5	$ 45.03	250	$ 168,863	5,625	$ 30.02

If **TRIPS PER DAY** is starting point, and you want to know how many vehilces and RVHs you will need to provide, and at what cost, you will also need to input an assumed productivity, number of RVHs per vehilce per day and cost per RVH, and annual days of service. The example below shows the cost per trip at varying producivities.

Vehicles	Productivity (Trips/RVH)	RVHs Per Vehicle Per Day	RVHs Per Day	Trips Per Vehicle Per Day	Trips Per Day	Cost Per RVH	Annual Days of Service	Total Annual Cost of Service	Annual Ridership	Cost Per Trip
8.0	1.00	7.5	60.0	7.5	60.0	$ 36.00	250	$ 540,000	15,000	$ 36.00
6.4	1.25	7.5	48.0	9.4	60.0	$ 36.00	250	$ 432,000	15,000	$ 28.80
5.3	1.50	7.5	40.0	11.3	60.0	$ 36.00	250	$ 360,000	15,000	$ 24.00
4.6	1.75	7.5	34.3	13.1	60.0	$ 36.00	250	$ 308,571	15,000	$ 20.57
4.0	2.00	7.5	30.0	15.0	60.0	$ 36.00	250	$ 270,000	15,000	$ 18.00

Examples of Fully Allocated Costs Per RVH in NH	
ADA Paratransit Provider	$45.04
Senior Transportation Provider	$35.65
Coordinated Transportation Provider (Rural PT, Senior, and Medicaid NEMT trips)	$26.03

Estimating Capital Cost for Vehicles

Begin with the number of vehicles input or calculated from above, add a spare ratio of 15% (rounding up), and multiply times acquisition cost of the vehicle.

Vehicles	Cost	Total Cost
10		
2 spare = 15%		
12	$ 45,000	$ 517,500