

**Sub-Section: Transportation**

**Three Hours to Change Options**

**"Average" New Hampshire Camp (Capacity)**

Campers: 131    Staff: 33    Ratio: 4:1

1) **Carpool!** Require that all cars coming to camp have at least 2 campers (or staff) in it.

	Trips Saved	Miles round-trip	MPG	CO2 Emission	\$3.54	Carbon Savings	\$ Savings (Family)
Average	226	x 300	/ 23.9	x 20.4210526	or \$3.54	=	
Own		x	/ 23.9	x 20.4210526	or \$3.54	=	

2) **Charter a Bus** to drive campers to camp.

	Car Miles*	Car MPG	Car Emission	Bus Miles**	Bus mpg	Bus Emission	Carbon Savings
Average	( 12600	/ 23.9	x 20.42 )	- ( 300	/ 5	x 23.37 )	=
Own	(	/ 23.9	x 20.42 )	- (	/ 5	x 23.37 )	=

  

	# campers	Charge	Bus \$	Revenue
Average	( 42	x \$100 )	- \$1,600	=
Own	(	x	-	=

3) Add **"Green Driving"** your driver's manual: Drive Slower, Reduce Weight, Do Not Drive Aggressively

	# Vans	Miles/Van/ Summer	MPG - regular	# Vans	Miles/Van/ Summer	MPG - "green"	CO2 Emission	\$3.54	Carbon Savings	Dollar Savings
Average	( 4	x 2500	/ 10 )	- ( 4	x 2500	/ 12.8 )	x 20.421053	or \$3.54	=	
Own	(	x	/ 10 )	- (	x	/ 12.8 )	x 20.421053	or \$3.54	=	

4) **Perform regular maintenance** on your camp vehicles.

	# Vans	Miles/Van/ Summer	MPG - "green"	# Vans	Miles/Van/ Summer	MPG - maintained	CO2 Emission	\$3.54	Carbon Savings	Dollar Savings
Average	( 4	x 2500	/ 12.8 )	- ( 4	x 2500	/ 15 )	x 20.421053	or \$3.54	=	
Own	(	x	/ 12.8 )	- (	x	/ 15 )	x 20.421053	or \$3.54	=	

5) **Plan off-site camp trips to closer destinations.**

	Miles saved	MPG	CO2 Emission	\$3.54	Carbon Savings	Dollar Savings
Average	500	/ 12.8	x 20.421053	or \$3.54	=	
Own		/ 12.8	x 20.421053	or \$3.54	=	

## Notes, References, and Citations

**Note 1:** The idea of the average camp is based on the 2007-2008 list published by NH Department of Environmental Services of licensed Youth Recreation Camps. No distinction was made between day and resident camps for the purposes of this sheet and a simple average of each camp's capacity based on 100% enrollment.

### Assumptions Of Average Camp Are Solely Made For Rough Calculation Purposes

<b>Section 1</b>	a)	# People not driving to camp	226	(Based on an average stay of 2.5 weeks, an 8 week program & 100 Enrollment) ( $(8 / 2.5 \times 131) + 33$ Staff) / 2 People per car
	b)	Miles round trip saved per car	150	(For Estimate, used - Boston to Concord, New Hampshire = 70 miles one-way)
	c)	MPG (Miles per gallon)	23.9	("Average Car" = <a href="http://www.epa.gov/OMS/climate/420f05004.htm">http://www.epa.gov/OMS/climate/420f05004.htm</a> )
	d)	CO2 Emission	19.4 lbs CO2 x (100/95)	(19.4 = Pounds of CO2 emitted per gallon of gasoline, 100/95 = other greenhouse gasses emitted) <a href="http://www.epa.gov/OMS/climate/420f05001.htm">http://www.epa.gov/OMS/climate/420f05001.htm</a>
	e)	\$3.54		(\$3.54/gallon of gas, East Coast average as of 10/6/08) <a href="http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrqp/mogas_home_page.html">http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrqp/mogas_home_page.html</a>
	f)	Carbon Savings		(measured in pounds (lbs) of Carbon)
		Equations:		Gas \$ = MilesMPG x \$3.54 CO2 = Miles/MPG x 19.4 x (100/95)
<b>Section 2</b>	a)	*Car Miles	12600	(Based on 42 cars, 150 miles round trip, twice)
	b)	**Bus Miles	300	(75 Miles, 4 times)
	c)	Bus MPG	5	(Buses average 4 to 6 MPG according to the American Bus Association) <a href="http://www.buses.org/">http://www.buses.org/</a>
	d)	Bus Emission	22.2 lbs CO2 x (100/95)	(Pounds of Carbon emitted by a bus per gallon of diesel gasoline) <a href="http://www.epa.gov/OMS/climate/420f05001.htm">http://www.epa.gov/OMS/climate/420f05001.htm</a>
	e)	Cost of Bus	\$1,600	(Cost of Charter bus, Boston to Concord, NH, courtesy of Dee Bus, Concord, MA)
<b>Section 3</b>	a)	Green Driving		<a href="http://www.fueleconomy.gov/feg/driveHabits/shtml">http://www.fueleconomy.gov/feg/driveHabits/shtml</a> - For every 5 mph you drive over 60mph, you use 7% more gasoline - An extra 100lbs of weight in your vehicle can reduce your mpg by 2% - Aggressive driving (speeding, rapid acceleration and braking) can lower your mpg by 5-33%
	b)	# of vans	4	(Based on anecdotal evidence from a handful of camps)
	c)	Miles/Van/Summer	2500	(Based on anecdotal evidence from a handful of camps)
	d)	MPG - Regular Driver	10	(Assumes 21-25 year old, driving fast and aggressively with 100lbs extra weight)
	e)	MPG - "Green" Driver	12.8	(28% above regular driver)
<b>Section 4</b>	a)	Regular Maintenance		<a href="http://www.fueleconomy.gov/feg/maintain/shtml">http://www.fueleconomy.gov/feg/maintain/shtml</a> - Keeping your engine properly tuned can improve gas mileage by an average of 4% - Replacing air filters can improve your gas mileage by up to 10% - Keeping tires properly inflated can improve gas mileage by around 3.3%
	b)	MPG - Maintained vehicle	15	(17.3% above "green driver")
<b>Section 5</b>	a)	Miles camp can "save"	500	(Based on anecdotal evidence from a handful of camps)