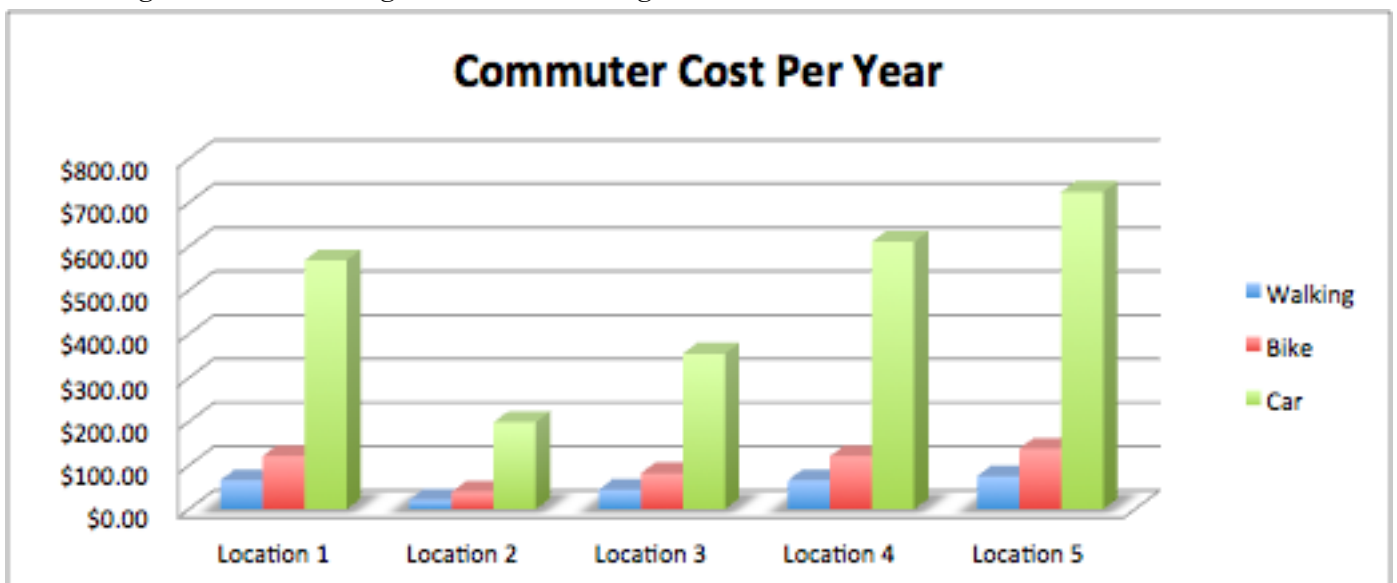


## Low on dollars? The case for coming to campus on foot or by bike

By Andrew Sawyer and Tyler Kidder

Most ways you slice it, commuting via single occupancy vehicle (SOV) seems less attractive than alternative modes of transportation such as biking and walking. The financial savings alone should make you think twice about your transportation options but there are also great environmental impacts to biking or walking, plus you can exercise while getting to class. Now THAT is multitasking.

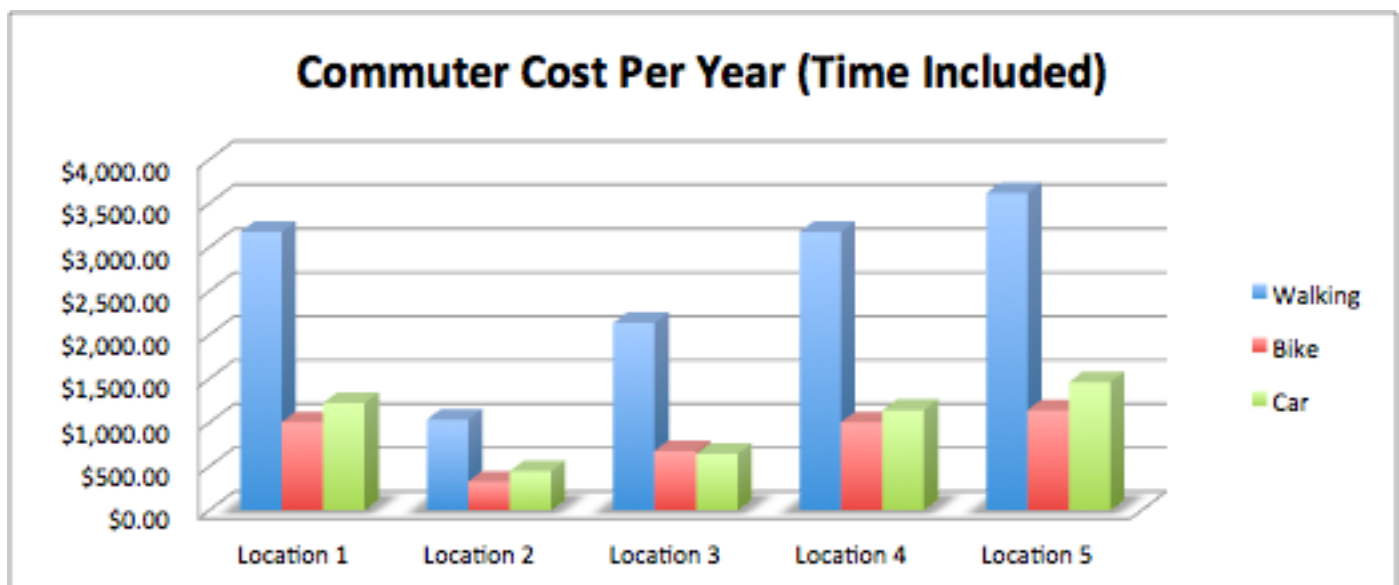
While the fact that biking or walking is a more cost efficient mode of transportation than SOVs may not be surprising, there are costs beyond filling the tank than many fail to realize. For instance, the cost per mile to operate an average mid-sized sedan is \$0.555 and this amount is greater than the cost of gas per mile. The IRS calculates this amount annually and it includes lease payments, depreciation, repairs and maintenance, tires, gas, oil, insurance, license and registration fees. The cost of operating an average car driven 12,000 miles per year is \$6,600. Not to say that biking or even walking is free, but the cost per mile is substantially less than driving: \$0.06 for walking and \$0.11 for biking.



Five locations were chosen based on clusters of USM students around the Portland area to demonstrate the cost of commuting to the USM Portland campus for students and employees. Similar metrics could be applied to the Gorham or Lewiston USM campuses. Addresses were picked at random within the clusters and are in Portland, Westbrook and South Portland and

range in distance from 1.4 to 5.1 miles from campus. Immediately it becomes clear that single occupancy vehicles are the least cost-efficient means of commuting, biking the second most cost-effective commute, and walking appears to be the cheapest form of transport.

Walking is much slower than both other forms of transport, however, and may be impossible based on where you live. The average person walks at a speed of 3.4/mph, and when time is factored into the equation, walking quickly becomes a bit less attractive for distances greater than 1/2 a mile. However, at the distances of around 5 miles and less chosen for this project, biking is the most cost-effective choice when factoring in that a persons' time is worth \$0.16 per minute.

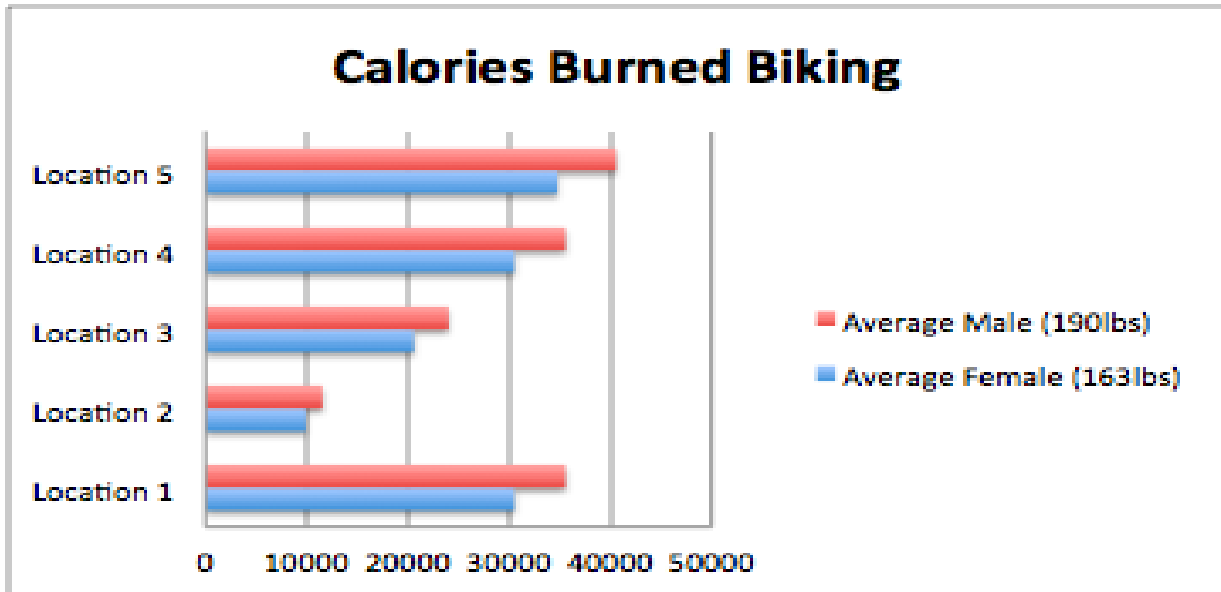


Finances aside, let's talk about environmental impacts. Each year vehicles emit tons of pollutants and greenhouse gasses, but many people overlook the emissions generated in the manufacturing process. 1.2 billion cubic yards of polluted air are generated before the vehicle has even touched the road. And as if that was not enough, an additional 40 pounds of worn tire particles, brake debris, and worn road surface are scattered into the atmosphere per car each year.

According to the EPA, an average car emits 77.1 pounds of hydrocarbons, 575 pounds of carbon monoxide, 38.2 pounds of nitrogen oxides, and 11,450 pounds of carbon monoxide annually. The U.S. average breakdown of personal emissions states that 43.5% of a person's total carbon footprint is caused by driving and flying. If an average U.S person currently emits nearly

24 metric tons of carbon, by cutting driving and flying out it would drop their personal carbon footprint by 11 metric tons per year.

In addition to financial and environmental benefits there are also health benefits to walking and biking. Looking at each of the locations, four simple trips to campus by bike would result in a large amount of calories burned. Using average weights and a riding speed of 10mph, the graph below shows number of calories burned by biking to campus. Another health benefit is the energized feeling many commuters describe after riding to class or work.



Worried about biking in traffic? It takes practice and confidence, but is becoming more and more popular so you won't be alone out there on the road. Check out the Portland, Maine Bike Map for ideas on routes: <http://www.vigorousnorth.com/p/portland-maine-bike-map.html>.

It would appear that the benefits of walking and biking to campus are clear. Walking is the most cost effective method assuming distances are less than 1/2 mile, whereas biking is the most cost effective within distances of 5-10 miles. Single occupancy vehicles may be the primary mode of transport for medium to long range trips, but for many students living within the greater Portland area it would be more cost-effective to bike. USM has a growing bike culture! Visit our page to learn more and get connected as we continue to expand: <http://www.usm.maine.edu/sustainability/usm-cycle-club>.

*Andrew Sawyer did financial assessments of biking and walking in the fall of 2012 for his Environmental Economics class. Andrew graduated from USM in August with a*

*degree in Marketing and is planning to relocate to San Francisco this winter where he will be biking and walking exclusively due to the fact that he will not be able to afford a car. Tyler Kidder is the Asst. Director for Sustainable Programs and commutes 10 miles roundtrip daily to campus on her bike. Sources for above information or questions can be directed to [tkidder@usm.maine.edu](mailto:tkidder@usm.maine.edu).*