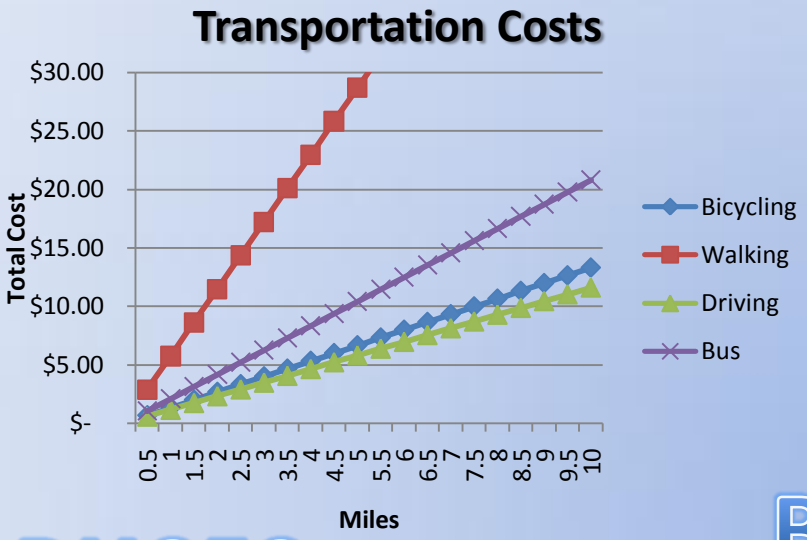
Effect on Commuting Behavior of Changes in Costs



CARS

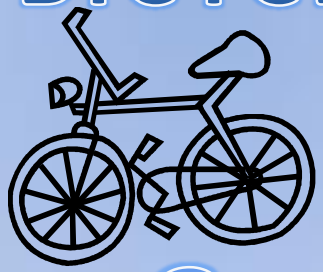
It takes $3.48 for an average off-campus student to drive once to school and once back per day. The smart thing to do would be to limit the daily trips to school to only one. While a spike in gas prices may psychologically cause some incentive to use alternate transportation, the reality is that most students live quite close to campus, and therefore use moderately small amounts of gas per trip. A daily parking fee would produce income for the school, while not increasing commuting costs by too much. Carpooling is a good idea, but presents little monetary benefits for the number of students involved. A carbon charge could be treated as an initial charge in addition to the parking permit purchased at the beginning of the school year.

BUSES

Cost of Riding the Rapid	
East Town	
Fare:	$0.50
Cost of Time:	$2.82
Total:	**$3.12**
Alger Heights	
Fare:	$0.50
Cost of Time:	$3.90
Total:	**$4.40**
Heritage Hill	
Fare:	$0.50
Cost of Time:	$3.35
Total:	**$3.85**

To calculate the time involved in riding the bus we used an average walking time to the bus stop of 5 minutes for the East town and Heritage Hill neighborhoods and 10 minutes for the Alger neighborhood. The longer walking time for Alger residents can be accounted for because there is only one stop that services the area. Next, we used the on-time data for the Rapid to calculate a weighted average of waiting time at the bus stop. The travel times for the routes were obtained from the schedule times posted on The Rapid's website.

BICYCLING/WALKING



The main cost associated with riding a bicycle, or walking was the opportunity cost of time. Our group projected that an average students time was worth the median wage rate for on-campus jobs: 8 dollars an hour. Since the an average person walks at 3 mph hour, walking (as a function of time) became detrimentally expensive rather quickly. However, since bicycling is only slightly slower than driving (at a moderate pace of 15 mph), biking and driving costs per mile are almost identical.

Conclusion

In order to make a comparison of the costs of the four transportation methods discussed in our paper, we calculated a commute from Easttown for each. This comparison yielded a roundtrip cost of $6.24 for the bus, $3.99 for biking, $17.02 for walking, and $3.48 for driving.

The most effective way to raise the cost of driving that Calvin could conceivably implement would be to levy daily parking fees. Daily fees would likely be more effective than a lump sum, because once a lump sum is paid there is no further incentive to reduce the amount of commuting by car. A daily parking fee of $.50 would make the cost of driving and biking roughly equal. This money could then be used for other carbon reduction projects on campus.

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