

**Sustainable Transportation For Smith College: An Investigation of the
Campus Parking Master Plan**

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ABSTRACT

This project investigated how well the February 2007 Campus Parking Master Plan has been implemented at Smith College. The three main objectives of the project included: an investigation of why all the recommended programs in the plan were based on economic benefits, an evaluation of the success and failure of implemented programs based on how they reduced the demand for parking, and to contribute to Smith College's goal of becoming environmentally sustainable by refining programs outlined in the plan and suggesting new ones. To conduct this investigation, I partnered with Krista Matatt. Together we conducted interviews with James Lowenthal, Chair of Smith's Sustainability Committee, and Paul Ominsky, Director of Public Safety. We analyzed the Campus Parking Master Plan that was drafted by consultants Fuss and O'Neill. The Plan was drafted to allow for the construction of Ford Hall without having to increase the supply of parking on campus. We found that while most of the implemented programs were successful in reducing the need for more parking spaces on campus, there is definitely room for improvement. Overall, our findings indicate that while the Campus Parking Master Plan was drafted for economic reasons, it was done so with environmental sustainability in mind. Therefore it is a great starting point toward achieving sustainable transportation at Smith College.

INTRODUCTION

The Problem

When Smith College was in the process of confirming the construction of Ford Hall, city officials told the college's administration that 366 new parking spaces must also be constructed to accommodate for the college's future population growth.

However, the construction of Ford Hall is not intended to bring new faculty or staff to campus, rather it is meant to provide student's with more modern engineering and science facilities. A group of faculty and staff at Smith congregated to discuss possible ways of fulfilling the Ford Hall requirements. They decided that rather than increase the supply of parking spaces, Smith should decrease the demand for parking. This idea resulted in the hiring of consultants Fuss & O'Neill to draft the Campus Parking Master Plan (the Plan) in February 2007.

There were several factors that swayed the group of faculty and staff at Smith to promote sustainable transportation and decrease the demand for parking instead of

increase the supply. Sustainable transportation is highly known at Smith, but it is not highly practiced. In 2007, 85.4% of Smith commuters drove alone, 7% walked, 3.7% carpooled, 3% rode bikes, and the rest rode the bus (Fuss and O'Neill 2007). Even though the city officials told the college to add additional parking for Ford Hall, they are not actually in favor of constructing more parking spaces. The demand was made simply to address city-parking problems. The city has shown that it is flexible and willing to work with Smith College to address parking more “creatively, economically, and responsibly” (Fuss and O'Neill 2007). Secondly, parking spaces are extremely expensive. Although parking spaces seem cost-free, according to Professor James Lowenthal, Chair of Smith's Sustainability Committee, a single parking spot costs approximately \$4,000 dollars to construct and maintain, while a garage parking spot costs \$28,000. Besides for the extreme cost, Smith College has made a commitment to be environmentally sustainable and it is inconsistent for the college to provide additional parking spaces on campus. Instead, they should promote and provide alternative modes of transportation. Finally, additional parking spots would degrade the beauty of Smith's campus that is treasured by alumni, faculty, staff, parents, and students.

The Campus Parking Master Plan

The Campus Parking Master Plan “looks to reflect the college's goals aimed at creating a culture on campus based on environmental and economic sustainability” (Fuss and O'Neill 2007). It is a draft that presents various programs aimed at reducing the amount of parking on campus by faculty, staff, and students. It sets up loose outlines for when the programs should be implemented and evaluated, leaving nearly everything subject to change. There are 18 programs presented in the Plan, and five of them are the

primary focus for this study. The three main programs presented in the plan that have already been implemented include; Car Sharing program, Parking Cash-out Program, and Parking Permit Pricing Modifications. The two main programs presented in the plan that have not yet been implemented include; Park & Ride Lot and Biking Promotion Programs/Facilities and Safety.

Car Sharing Program

Car sharing programs provide faculty, staff, and students with a vehicle when needed. Car sharing promotes sustainable transportation by reducing the number of cars that are purchased, promoting carpooling and reducing the number of unnecessary cars on the road. Participants can use these cars to run errands, travel to work and even go on day trips. The largest car sharing program in the world is the Zipcar program. It provides cheap transportation and has three major environmental effects among its members: 40% don't purchase cars or end up selling their cars, car usage is reduced 50%, and they use the most efficient means of transportation for the task at hand (Zipcar 2008). It is believed that every Zipcar replaces 15 privately-owned vehicles. For faculty, staff and students a yearly membership costs \$35, and its \$7 for an hour rental and \$55 for a day rental. These prices include gas, insurance, reserved parking and 180 free miles (Zipcar 2008).

Parking Cash-out Program

A parking cash-out program provides faculty and staff the choice of driving their car and using parking spaces or accepting a cash payout for agreeing to leave their car at home and find alternative modes of transportation. The goal of this program is to reduce vehicle commute trips, emissions, and the need for parking spaces (Fuss and O'Neill 2007). There are several incentives for faculty and staff to participate in the program including: a cash payout for not driving to work, not having to pay for a parking pass, and saving money on car wear and

tear and gas. The success of the Parking Cash-out Program relies on having a good, frequent bus service, carpooling options, biking, and walking.

Parking Permit Pricing Modifications

Parking demand is directly related to cost and convenience. Free or low-cost parking does not motivate people to use environmentally friendly alternative modes of transportation. Parking Permits make faculty, staff, and students pay to use the campus parking that is provided. This helps to show that there is no such thing as “free parking”. Although parking can be provided cost-free to the public, it always comes at the cost of the environment, the city, and taxpayers. The goal of this program is to set a price on parking and discourage faculty, staff and students from bringing their cars to campus.

Park & Ride Lot

A Park & Ride Lot works by having participants drive to a nearby parking lot and take a bus or private shuttle to their destination. This program depends heavily on frequent and reliable public transit or private shuttles. There are several incentives for faculty and staff to participate in the program including: not having to pay for a campus parking pass, saving money on car wear and tear and gas, and they can relax during the drive into work. The goal of this program is to reduce congestion on the road, reduce car emissions, and reduce the need for parking spaces on campus.

Biking Promotion Programs/Facilities and Safety

Biking Promotion Programs encourage people to bike to their destination when possible instead of driving. They provide participants with incentives such as: short-term and long-term bicycle parking, covered bicycle racks that protect against weather damage, shower facilities and commuter rewards (Fuss and O’Neill 2007). One type of promotional bike program is bike sharing. The college provides a number of bikes, which may be used by faculty, staff and students to run errands or for work-related issues. Bike Safety includes making

the campus and the surrounding areas bike friendly to encourage bike use and to prevent accidents.

Project Objective

This project has three main objects. First, investigate why all the recommended programs in the Plan are based on economic benefits. To evaluate the success and failure of each program outlined in the Plan based on how many people can benefit and how it reduces the demand for parking on campus. Finally, to contribute to Smith College's goal of becoming environmentally sustainable by refining programs outlined in the Plan and suggesting new programs.

METHODOLOGY

Research

To gather information for this project my partner, Krista Matatt, and I downloaded a document of the Campus Parking Master Plan from the Smith College Public Safety website (www.smith.edu/pubsafety). We spoke with Professor Gregory White (government/EVS 300), who recommended that we interview James Lowenthal, Paul Ominsky, and Ruth Constantine due to their knowledge and involvement in the Campus Parking Master Plan.

The internet was used to do background research on sustainable transportation programs already implemented around the country. The case studies present in this study came from college documents found online after searching google.

Interviews

We e-mailed James Lowenthal, Paul Ominsky, and Ruth Constantine to set up interviews. On Monday April 14, 2008 at 9:15am, we interviewed James Lowenthal,

Chair of Smith's Sustainability Committee/Associate Professor of Astronomy. Professor Lowenthal provided us with a lot of information about Smith's Sustainability Committee, the document "Reducing Smith's Parking Demand" and answered several questions pertaining to sustainable transportation at Smith College and the Campus Parking Master Plan. At 2:30pm on Monday April 14th, 2008, we interviewed Paul Ominsky, Director of Public Safety, who also provided information about sustainable transportation at Smith College and the Campus Parking Master Plan. He was also willing to share with us his opinion about what should be done here at Smith College to improve our sustainability efforts. We were unable to conduct an interview with Ruth Constantine, VP/Finance & Administration, because she was out on medical leave.

RESULTS

Economic Focus for the Plan's Programs

The way all of the programs are outlined in the Campus Parking Master Plan shows that Smith College is mainly focused on the economic impacts of each program. All of the major programs have a listing of their economic benefits and costs (Table 1). For each program it says how many parking spaces it would reduce if implemented and the program's overall cost to the college. The only mention of environmental sustainability is found at the end of the draft, and it is a few cut and paste pages from various websites.

Table 1: Transportation Demand Management – Programs That Will Reduce the Need for Addition Parking Spaces at Smith College

Element	Description	Time Frame		Action	Reduction in Parking Spaces	Cost Estimate
		Implementation Year	Evaluation Year			
1.) Car Sharing Program	Expand existing Zipcar program	Fall 2007	Spring 2008	2 Cars (Existing)	40 Spaces	n/a
		Fall 2008	Spring 2009	Add'l 2 Cars (4 Total)	80 Spaces	\$36,000 ±
2.) Parking Cash-out Program	Offer a cash-out program to employees	Fall 2007	Spring 2008	\$20 per employee per month	140 Spaces*	\$34,000±/year
3.) Park & Ride Lot	Partner with the City and MassHighway in winter maintenance of new park & ride lot at VA Medical Center in Leeds or provide financial assistance to shuttle bus service	Fall 2007	Spring 2008	Snow Plowing or other financial assistance	20 Spaces	\$4,000±/year
				Spring 2009 Total:	240 Spaces	\$74,000

* Assumes continuation of existing 5-College bus subsidy, emergency ride home program and car pool matching program.

02/05/07

(Fuss and O’Neill 2007)

Evaluation of the Success and Failure of each Program Outlined in the Plan

Car Sharing Program

Table 1 gives a brief outline of the Car Sharing Program timeline showing that the program was to be implemented in Fall 2007, and evaluated in Spring 2008. Smith College currently has 2 Zipcars that are estimated to reduce the need for approximately 40 parking spaces on campus. Each car costs around \$18,000 to purchase and maintain (Fuss and O’Neill 2007). If Smith is not able to earn \$18,000 in rentals throughout the year they have to cover the remaining cost of the car. Due to the initial success of the program, Smith College expects this program to continue to grow in the future. Table 1 shows the future of the program by listing the addition of 2 more cars in Fall 2008, with evaluation in Spring 2009. Two more Zipcars are estimated to reduce the need for 40 more parking spaces on campus.

Parking Cash-out Program

In the first year of the Cash-out Program 75 faculty and staff participated and received approximately \$200 dollars when they agreed to leave their car at home and find alternative modes of travel to Smith. Table 1 lays out a brief

outline of the Parking Cash-out Program timeline showing that the program was to be implemented in Fall 2007, and evaluated in Spring 2008. It also shows that the program is expected to reduce the need for approximately 140 spaces on campus.

Parking Permit Pricing Modifications

Smith College makes every faculty, staff, and student purchase a parking permit to park on campus. Table 2 shows the current parking permit prices enforced by the college. Faculty/staff have to pay \$50 to park on campus all year, and all students have to pay \$150. The faculty/staff parking permit prices went up \$25 in the past year, but student prices have not increased since the Plan was drafted. Table 3 shows the Plan’s proposed parking rates that may be implemented in the near future.

Table 2: Smith College Current Parking Permit Prices

Type	Decal #	Fee
Alumnae		25.00
Car Pool		10.00
Commuter		25.00
Perimeter Lots		25.00
Rental Property		5.00
Service		10.00
Faculty/Staff		50.00
Faculty/Staff 2 nd Decal		50.00
Ada Comstock		150.00
Student Decal		150.00
SSW Summer Faculty/Student		5.00

(<http://www.smith.edu/pubsafety/documents/Parking%20Permit%20Registration%20Final2007.pdf>)

Table 3: Campus Parking Master Plan Proposed Parking Rates

TABLE A-10

Campus Parking Cost Considerations
Proposed Rates

Type	Core-Campus	Garage	Peripheral
<i>Student Residents</i>			
Seniors	\$200	\$125	\$75
Juniors	\$250	\$175	\$125
Sophmores	\$300	\$225	\$175
<i>Commuter (Day) Students</i>			
		\$50	\$25
<i>Faculty & Staff</i>			
	\$75	\$50	\$25
<i>Carpool</i>			
		\$10	

(Fuss and O’Neill 2007)

Park & Ride Lot

A successful Park & Ride Lot has not yet been implemented at Smith College. According to the Campus Parking Master Plan, it was supposed to be implemented in the Fall of 2007, but it has not happened (Table 1). We found that Smith College, Hampshire College, Amherst College, and Mount Holyoke College give the Pioneer Valley Transit Authority (PVRTA) \$100,000 a year, and the University of Massachusetts gives the PVRTA \$200,000 a year to move faculty, staff, and students between the five colleges during the academic year (Lowenthal). The small amount of funding that the Five Colleges give the PVRTA combined with low state bus subsidies create a major barrier for the success of this program.

Biking Promotion Programs/Facilities and Safety

The college has not made any efforts toward implementing bike promotional programs since the draft was created in 2007. The campus already had some of the facilities and requirements needed for the programs outlined in the Plan. Smith College has bike paths that run throughout the campus, but not all of them are extremely safe and bike friendly. The college has taken steps towards making the campus more pedestrian/biker friendly including: installing large pedestrian crossing signs, adding flashing lights to cross walks, and designating a thin lane on the side of the road for bikes (Lowenthal). The college has short-term and long-term bicycle parking and some covered bicycle racks. The college does not have a bike sharing program. A student club, known as the “Bike Kitchen”, currently operates a used bike-rental program. The Bike Kitchen provides minor repairs, information on how to repair bicycles and semester-long bicycle rentals (Lowenthal).

Contribute to Smith College’s Goal of Becoming Environmentally Sustainable

Krista and I believe we can contribute to Smith College’s goal of becoming environmentally sustainable by refining programs in the Campus Parking Master Plan

and introducing Smith College to new programs that will reduce the number of commuters that drive alone and reduce the number of cars parked on campus. Refer to the discussion section for our recommendations.

DISCUSSION

Economic Focus for the Plan's Programs

All of the programs outlined in the Campus Parking Master Plan have a brief description and a list of their economic benefits and costs. Smith College is mainly focused on how these programs can help the college economically now and in the future. If the draft was not created the college would have been forced to construct 366 new parking spaces to allow for the building of Ford Hall. The college wants to make sure that implementing the various programs in the draft will be cheaper than building 366 new parking spaces. Although the programs were outlined for economic reasons, if implemented they will have great environmental impacts.

Evaluation of the Success and Failure of each Program Outlined in the Plan

Car Sharing Program

The Zipcar program was a huge success in its first year running (2006-2007 academic year), which shows that this program will have a major part in reducing parking on campus in the future. As Smith continues to purchase more cars and build up the program, its impact will continue to grow. The membership and rental prices are extremely reasonable and make it cheaper for students to use Zipcar than to purchase a campus parking pass. During an interview, Paul Ominsky (2008) expressed extremely positive opinions toward the Zipcar program that has been implemented at Smith. He was very optimistic that it would continue to gain popularity among the faculty, staff, and students and aid in Smith's effort toward sustainable transportation.

Parking Cash-out Program

The Parking Cash-out Program is the best program outline in the Plan, and will have the largest impact on the college's need to reduce the demand for parking spaces. The program reduces the need for about 140 parking spaces, which is roughly half of a parking garage. A major reason for its success is because the college is willing to provide Occasional Parking Permits. This allows faculty and staff to have a parking permit on an individual day basis for use of personal vehicle on special occasions. Occasional Parking Permits make Cash-out participants feel like they have flexibility and control over their transportation arrangements.

The Parking Cash-out Program was implemented successfully in Fall 2007, but during evaluation in Spring 2008 the college discovered that there were some problems to be work out. The program primarily benefits faculty and staff that live close to campus because it's easier for them to use alternative modes of transportation. Paul Ominsky told us the four major questions that need to be addressed: How can we get people that live further from campus to participate? If faculty/staff have never brought their car to campus should they get the cash payout? If a household has more than one faculty/staff should both of them get the cash payout? And should the Cash-out Program be offered to students? Although these questions are very straightforward, there are no easy answers. During our interview, Paul Ominsky made it very clear that it is impossible to accommodate everybody and satisfy every person's wants. The college needs to set stricter guidelines and requirements for participants in the program to eliminate these problems.

Besides for a few small issues that need to be worked out, Smith College is very excited about the Parking Cash-out Program and all the success similar programs have had around the country. Recent Transportation Demand Management (TDM) case studies have shown incredible results from other Cash-out Programs. In most places it has caused a 13-17 % reduction in "single-occupancy vehicle" trips in one to three years after being implemented (Fuss and O'Neill 2007). Studies have also shown that the participation rate grows the

longer the programs have been implemented (Fuss and O'Neill 2007). In California eight case studies of employers who have implemented cash-out programs found a 12% total vehicle emission reduction for commuting (California's Parking Cash Out Law 2008). These studies make the program seem very promising.

Parking Permit Pricing Modifications

The increase in faculty/staff parking permits from \$25 to \$50 is the only change that has occurred in parking permit rates. Table 3 is a table from the Plan that proposes future campus parking permit rates. When looking at the table it is obvious that the college is not trying to eliminate parking in general, they're just trying to eliminate it on "core campus". The table also shows a significant difference in parking prices for different classes. It discourages underclassmen to bring their cars to campus by charging them \$100 more than a senior.

James Lowenthal (2008) believes that parking permit rates are too low, and do not discourage faculty, staff, and students from bringing their cars to campus. He also believes that the only way to force people to turn to sustainable modes of transportation is to make driving a financial burden. Paul Ominsky (2008) had a slightly different reason for wanting parking permit prices increased. He believed that an increase in permit rates would push parking off of campus into peripheral residential streets, therefore reducing the need for parking spaces on campus. It appears that the college is okay with pushing parking into peripheral streets as long as it does not bother the residents.

Park & Ride Lot

The Park & Ride Lot that the Plan proposes is not entirely under Smith College's control. The program relies so heavily on frequent and reliable public transit that it can only be implemented and successful if state bus subsidies are increased. The money that the Five Colleges give to the Pioneer Valley Transit Authority (PVTA) barely cover the cost of moving faculty, staff and students that live within the five college region. Currently the PVTA does not provide

adequate transportation for faculty & staff that live outside of the 5-college region.

The Park & Ride Lot is a major program that is outlined in the Plan and could reduce the need for 20 parking spots on campus, but it is completely out of the college's control. Paul Ominsky (2008) believes that the Park & Ride Lot could be a successful program. He thinks there should be four different park lots at varying distances from the campus, and buses would have to be continually running to and from the lots. This could only happen with increased state bus subsidies creating more reliable and frequent buses to areas outside the five college region.

Biking Promotion Programs/Facilities and Safety

Biking is the easiest way to travel if your destination is less than 3 miles away. The majority of Smith faculty and staff live within 1 to 3 miles from Smith College campus, but only 3% use a bike as a mode of transportation (Fuss and O'Neill 2007). Smith College does not do a good job of promoting biking to faculty, staff, and students as an alternative mode of transportation. There are a few covered bike racks, and only a few areas for long term bicycle parking. The only shower facilities that the college has accessible to faculty and staff are in the gym. People are not going to ride their bike to work if they have to spend all day feeling dirty and smelly. Over the last few years some efforts have been made to create a bike friendly environment at Smith, but it has not been enough to really make biking popular on campus.

Smith College has all of the resources they need to start a bike sharing program, or at least promote the use of bicycles on campus. Ripon College, about the same size as Smith, gave a bike to every incoming freshman that agreed to not bring their car to campus (Lowenthal). Not only does this promote sustainable transportation, but it also reduced the demand for parking on campus.

Recommendations

Cash-out Program

After interviewing James Lowenthal (2008) and Paul Ominsky (2008), Krista and I think that the cash-out program can be improved in 2 different ways. First, offer more of an incentive to participate. As stated before the average cost to build and maintain a parking spot is \$4,000 or \$28,000 in a garage. The Cash-out Program is allowing the college to not construct approximately 140 spots on campus. If those are all outdoor spots then the college is saving roughly \$560,000. Why not increase the incentive to participate and continue to reduce the number of parking spots needed on campus? A bigger incentive will always draw more people in. Secondly, faculty and staff that live further from campus need to receive more money than those that live nearby, because it is a lot harder for them to use alternative modes of transportation. Faculty and staff that live near campus can simple walk or ride their bike, whereas someone that lives further away needs to carpool or use the bus system. To make the program beneficial for all faculty and staff equal cash payouts does not seem fair. Smith College really needs to push for these improvements because the Cash-out Program is the best program outline in the Plan in terms of eliminating the demand for parking on campus.

Parking Permit Pricing Modifications

At Smith College parking permit prices are too low. If parking spots are so expensive to build and maintain, then why is that cost not reflected in the parking permit rates? A significant increase in parking permit rates could significantly decrease the number of cars brought to campus. An increase in parking prices would also make more students take advantage of the Zipcar program that is so readily available to them.

A major problem with parking on campus is convenient lots have an extremely high-demand, whereas lots further away are barely used. Selling permits to specific lots could help evenly distribute campus parking. Further, less

convenient lots would be cheaper than the more convenient lots. This would evenly distribute parking and make faculty, staff, and students realize there are currently a lot of parking spaces on campus that are never used and the college does not need to construct more spaces.

Although Smith College does not have a problem pushing faculty, staff and student parking into peripheral streets, it should still be controlled. Free parking should not be provided on residential streets, because it makes Smith College appear to be handing over the college parking problem to the Northampton community. Parking permits should be required for all faculty, staff and students even if they park off of campus.

PVTA Support

Most of the programs outlined in the Plan depend on frequent and reliable buses. Smith College currently gives the PVTA \$100,000 a year. That seems like a large amount of support, but when broken down it is only \$25 per student per year. If Smith would like to implement some of the programs in the Plan to reduce the number of parking spots needed on campus then they should seriously start to consider putting more money into the PVTA.

Biking Promotion Programs/Facilities and Safety

We suggest that Smith College invest in a Bike/Ped Program that would be designed to make the campus safer for both cyclists and pedestrians. Smith could make the campus a lot safer by: installing raised cross-walks, installing pedestrian and bicycle traffic lights, putting sidewalks on both sides of all streets, and redesigning dangerous intersections. We think the Bike Kitchen is a good foundation from which the Bike Sharing Program could start, especially if the Bike Kitchen was supported financially by the college.

Final Thoughts

Our investigation has revealed that the Campus Parking Master Plan was initially drafted to enable the construction of Ford Hall. Although it was needed for economic

reasons, we found that the faculty and staff that supported its drafting also had environmental sustainability in mind. We think that the programs outlined in the draft are a great step towards sustainable transportation at Smith, and we'd like this investigation to be a reminder to the administration and entire college that the effort and funds put into the drafting of the Plan last year need to continue into the future in order for us to become sustainable.

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